[2022] UKFTT 35 (TC)

TC 08387

CORPORATION TAX – Capital allowances – s11 Capital Allowances Act 2001 – expenditure incurred on studies relating to the design and construction of offshore windfarms and their component parts including wind turbines and electrical cables – are the windfarms single items of plant – yes – in the alternative the wind turbines and electrical cables are single items of plant – was the expenditure on the studies incurred on the provision of such plant – yes in some cases but no in others – to the extent that it was not so incurred, could it be treated as pre- trading revenue expenditure and deductible under section 61 Corporation Tax Act 2009 – no – in light of the wording of the closure notices and the consequential amendments to the appellants returns, did they have to prove those items of expenditure – yes – were the amounts of qualifying expenditure set out in the appellants returns "finally determined" for the purposes of paragraph 88 of Schedule 18 to the Finance Act 1998 – no – appeal allowed in part.

FIRST-TIER TRIBUNAL
TAX CHAMBER

Appeal numbers: TC/2018/04806
TC/2018/04807
TC/2018/04808
TC/2018/04809

BETWEEN

GUNFLEET SANDS LIMITED
GUNFLEET SANDS II LIMITED
WALNEY (UK) OFFSHORE WINDFARMS LIMITED
ORSTED WEST OF DUDDON SANDS (UK) LIMITED **Appellants**

-and-

THE COMMISSIONERS FOR HER MAJESTY'S REVENUE AND CUSTOMS **Respondents**

TRIBUNAL: JUDGE NIGEL POPPLEWELL

Hearing conducted in public remotely by video on 15-26 November 2021

Michael Jones QC instructed by Herbert Smith Freehills LLP for the Appellants

Elizabeth Wilson QC and Angharad Parry instructed by the General Counsel and Solicitor to HM Revenue & Customs for the Respondents

DECISION

INTRODUCTION

1. This case predominantly concerns the extent to which capital allowances are available to the appellants for expenditure incurred on studies and project management in relation to offshore windfarms. The appellants contend that they are entitled to such allowances, but in the alternative, the expenditure qualifies as pre-trading revenue expenditure for which they are entitled to a deduction under the relevant statutory provisions.

2. Each appellant owns and operates an offshore windfarm, and each is engaged in the business of the generation and sale of electricity through that offshore windfarm. The appellants are all members of the same group of companies whose parent company is Orsted A/S, a Danish incorporated and resident company ("**Orsted**").

3. These appeals concern four categories of expenditure which have been incurred by the appellants. Expenditure on: Environmental impact studies and assessments; metocean studies (including studies on water level, wave regime, currents and wind conditions): geophysical and geotechnical studies; and project management, design and procurement. I shall use the expression "**studies**" as shorthand for the three foregoing studies.

4. The amount of this expenditure is considerable. In round terms and in a number of accounting periods, Gunfleet Sands Ltd ("**Gunfleet**") expended £22.5 million; Gunfleet Sands II limited ("**Gunfleet II**") expended £870,000; Walney (UK) Offshore Windfarms Limited ("**Walney**") expended £15.5 million, and Orsted West of Duddon Sands (UK) Limited ("**WODS**") expended £9 million.

5. Each windfarm consists of a collection or array of wind turbine generators ("**wind turbines**") which are usually identical and are connected together electrically by cables and then further connected via substations to the public grid. There is usually both an offshore and onshore substation. The wind turbines and the array of cables which connect them in order to transport the electricity generated by those wind turbines to the offshore substation is known as the generation unit and the wind turbines and the array cables as the generation assets ("**generation assets**"). This distinguishes them from the offshore and onshore substations and the electrical cables which run between them and then from the onshore substation to the National Grid, called the export cables. Those assets are known as the "**transmission assets"** and collectively as the transmission unit. This is not an artificial or convenient distinction. Legislation prohibits common ownership of the generation assets and the transmission assets.

6. Each wind turbine is made up of a number of component parts. At the top is the rotor, the gearbox and generator, housed in a covering called a nacelle. This is conveniently called the turbine. A cable then conveys the electricity generated by the turbine down the inside of a metal tube called the tower on which the turbine sits. The wind turbine is secured to the seabed by a foundation which is connected to the tower by way of a transition piece.

7. HMRC accept that each appellant is entitled to capital allowances on the costs incurred on the fabrication and installation of the wind turbines themselves, and indeed on the electrical array cables which connect them. But, simply stated, their position is that the expenditure on the studies is too remote from, and is not on the provision of, the generation assets individually or as a whole and thus does not qualify for capital allowances. It puts the appellants in the position to incur expenditure on the provision of plant, but the expenditure is not on the provision of plant.

8. Mr Jones, Miss Wilson and Miss Parry have each made clear helpful and eloquent submissions, both orally and in writing. I am grateful for those submissions which have helped me considerably, and I have taken those submissions into account (along with all of the evidence) even though, in reaching my conclusions I have not necessarily referred to each and every argument and item of evidence in detail.

THE ISSUES

9. Following a case management hearing on 7 July 2020, the Tribunal directed that there should be a hearing to determine six issues in principle. I have set these out verbatim in Appendix 1 to this Decision. But paraphrased the issues are these:

(1) Issue 1. Do the offshore windfarms comprise a single item of plant and machinery for the purposes of the capital allowances legislation? If they do not, what is the plant and machinery for the purposes of that legislation ("**single/multiple plant issue**").

(2) Issue 2. In respect of that plant so identified, whether or to what extent the expenditure satisfies the conditions of section 11(4)(a) Capital Allowances Act 2001 ("**CAA 2001**") and is qualifying expenditure incurred on the provision of the plant and machinery ("**qualifying expenditure issue**").

(3) Issue 3. Whether the appellants satisfy the ownership condition in section 11(4) (a) CAA 2001 ("**ownership issue**").

(4) Issue 4. Whether the appellants are otherwise entitled to relief for the expenditure claimed as a pre-trading revenue expenditure pursuant to section 61 Corporation Tax Act 2009 ("**CTA 2009")** ("**revenue deduction issue"**).

(5) Issue 5. Whether it is open to HMRC to put the appellants to proof of the amounts and categories of the disputed expenditure in light of the nature of the enquiries and the closure notices closing those enquiries ("**quantum issue**").

(6) Issue 6. Whether amounts in the returns of Gunfleet, Gunfleet II and Walney have been conclusively determined for the purposes of paragraph 88 of schedule 18 to the Finance Act 1998 ("**closure notice issue**").

10. Prior to the hearing, the parties agreed that the appellants do satisfy the ownership condition and thus the ownership issue was not considered at the hearing.

THE PARTIES POSITIONS IN A NUTSHELL

11. This was a 10-day hearing. The evidence was voluminous as were the legal submissions. I therefore think it helpful to set out, at this stage, a summary of each parties' positions on the five issues.

12. On Issues 1 and 2, Miss Wilson's position is that the wind turbines are plant but the windfarms (i.e., the generation assets) do not comprise a single item of plant. They do not comprise a single and distinct operational unit. The appellants have not shown, on the evidence, that the expenditure on the studies has influenced the design, construction or installation of the windfarms or the wind turbines. In any event, expenditure on design is too remote and cannot be said to be incurred on the provision of plant. Whilst it might have put the appellants in a position to incur capital expenditure on the provision of plant, of itself it was not such

expenditure. The expenditure on the studies was incurred to satisfy regulatory requirements and not to inform the design of either the windfarm or the wind turbines. Mr Jones said that the expenditure on the studies was necessary and thus cannot be too remote. The windfarm is a single entity as the wind turbines are directed towards a single purpose. The evidence shows that the expenditure on the studies was reflected in the design construction and installation of the windfarm as a whole and in the design fabrication and installation of each wind turbine. He accepts that it was incurred to satisfy regulatory requirements, but this did not prevent it from also having the purpose of informing the design of the windfarm and its construction and installation, and the design of the wind turbines and their fabrication and installation. It was thus incurred on the provision of plant.

13. On Issue 4, there was a preliminary procedural matter which arose during closing submissions. Miss Wilson said that it was up to the appellants to establish the prerequisites for relief under section 61 CTA 2009, and that included compliance with section 46 CTA 2009, namely that the profits of each appellant must be calculated in accordance with GAAP. The appellants had failed to prove this. Furthermore, the expenditure was capital and thus unallowable under section 53 CTA 2009. Mr Jones said that this was the first time that the section 46 point had been raised and that it was not open for HMRC to take it at this late stage. The only issue was whether the expenditure was capital expenditure. To be capital expenditure one had to identify a capital asset to which it was attributable. If neither the wind turbines nor the windfarm were capital assets then, he asked rhetorically, what was the asset of enduring benefit on which it was spent. There was none, and thus the expenditure was revenue expenditure.

14. On Issue 5 Miss Wilson accepted that there had been a transcriptional error in the closure notices and the amendments to the assessments which were subsequently made. Instead of the amendments being made to the amount of qualifying expenditure, the amendments were made to the writing down allowances. This did not invalidate the closure notices nor the amendments, as it was clear from the correspondence and associated documents that the enquiry had been into the amount of qualifying expenditure and that the relevant amendments should have been made to that. It is up to the appellants to justify the amount of expenditure on which it is claiming allowances. Mr Jones' position was that the subject matter of the appeal is determined by the scope of the amendments made by the closure notices. This is more than a forensic point since it determines the Tribunal's jurisdiction. Since the amendments were made to the writing down allowances rather than the qualifying expenditure, it is not open to HMRC to say now that there is a quantum issue and put the appellants to proof of expenditure.

15. On Issue 6 Mr Jones said that the amounts entered into the relevant returns as qualifying expenditure had now been conclusively determined as they can no longer be altered. The closure notices amended the claims to allowances but did not amend the qualifying expenditure. Miss Wilson submitted that they have not been conclusively determined because an appeal has been brought and until that appeal has been determined, the amount can be altered.

THE LEGISLATION

16. The relevant legislation is set out in Appendix 2. Definitions and abbreviations in that appendix bear the same meanings in the body of this decision.

THE EVIDENCE AND FINDINGS OF FACT

17. The evidence in this appeal comprised the following:

(1) A statement of agreed facts and chronology.

(2) A slideshow about the four windfarms which included two videos which provided information about the operation and servicing of windfarms.

(3) A significant bundle of documents.

(4) Witness statements and oral evidence from the following witnesses:

(a) Mr Lewis Fraser, Senior CAPEX Budget Manager at Orsted;

(b) Dr Morten Liingaard, Senior Chief Specialist (Senior Director) in Site Development at Orsted Offshore Engineering;

(c) Mr Martin Mechali, Senior Director and Head of Project Development, Continental Europe at Orsted;

(d) Dr Christopher Golightly, an expert witness, Geotechnical and Engineering Geology Consultant;

(e) Dr Andrew Garrad, an expert witness, chartered engineer and Fellow of the Institution of Mechanical Engineers and of the Royal Academy of Engineering.

18. I summarize this evidence below and, save as otherwise indicated, I find the matters set out in those paragraphs as facts. My discussion of it in relation to each of the windfarms and my further findings of more specific fact are set out later in this Decision.

Steps in developing an offshore windfarm

19. The Crown Estate announces a round of offshore windfarm development and seeks bids. It identifies sites for each development and areas or polygons within those sites.

20. Orsted has extensive experience in windfarm design and construction which it supplies to the appellants. It does this by way of a combination of supplying the services of its own personnel as well as engaging external contractors. It undertakes desktop studies to determine which site and which polygon to bid for (if any). These studies are time intensive and in the case of these windfarms involved approximately five people working full-time for six months. They involve gathering publicly available information such as weather data and geological and seabed data, nautical charts, and information on flora and fauna. The purpose of the desktop studies is to assess the suitability of the site in order to decide whether to make a bid.

21. Publicly available geophysical geotechnical and metocean information is reviewed. Geophysical data relates to the depth shape and composition of the seabed, and investigations into that are known as geophysical investigations. Geotechnical data concerns the characteristics of the soil of the seabed and geotechnical investigations are designed to ascertain those characteristics. Metocean data concerns wind, waves (sea state) and weather generally and is derived from metocean studies.

22. If a bid is accepted, Orsted is granted an agreement for lease by the Crown Estate over the site or relevant polygon. It takes approximately 5 to 6 years from being granted an agreement for lease to obtain the final investment decision and approximately 8 to 9 years from obtaining that agreement to lease to the commissioning of the windfarm.

23. Orsted then needs to obtain a variety of consents including those under either section 36 Electricity Act 1989 or under the Transport and Works Act 1992; in order to obtain these consents it must submit an environmental statement for which it must carry out an environmental impact assessment ("**EIA**") which results in an environmental statement. The environmental statement must contain a variety of information including a description of the project and of the environment likely to be significantly affected by the proposal and the impact of the project on that environment; and the mitigation measures proposed to be taken to avoid or reduce adverse environmental effects. The EIA, therefore, involves studying the environmental features of the proposed site and considering how the windfarm would impact on the environment of both the site itself and the wider region.

24. As a first step in carrying out the EIA, Orsted produces a scoping document which covers all aspects of the EIA at a very high level setting out what will and will not be carried out as part of the EIA. This scoping document typically takes between six months to a year to produce and is sent to all relevant stakeholders who provide their comments. Such stakeholders might include the DTI, DEFRA, the Environment Agency, the MoD and local authorities. Furthermore, public open days might be held to discuss the project with local residents.

25. A series of surveys and studies and consultations are carried out as part of the EIA including:

(1) Landscape, seascape and visual assessments; these involve determining the impact of the windfarm on the surrounding landscape and seascape, as well as the visual impact of the windfarm from various pre-selected onshore viewpoints (how the windfarm can be seen from land). These are considered by reference to different layout options. They also review the potential mitigation measures to reduce those potential impacts.

(2) Benthos studies; these include describing the benthic species present at the site, identifying the potential impacts of the windfarm on those species and identifying potential mitigation measures to reduce those impacts. Benthic species are those organisms living in or on the seabed.

(3) Ornithology and collision risk studies; these involve an assessment of potential impacts arising from the construction operation and decommissioning of the windfarm and include: Identifying the type and population of birds likely to be affected; their migratory and other habits; whether they are protected species; their range of flight heights, and options for mitigating those impacts.

(4) Fish and shellfish studies; these involve providing information on the presence of fish and shellfish species in the vicinity of the windfarm and export cable routes, which are of conservation or commercial interest. They review the potential impacts to those species and potential mitigation measures to reduce those potential impacts and describe the likely impacts if mitigation options are used.

(5) Marine mammal studies; these involve: Determining the key species in the area of the windfarm and their populations; reviewing the potential impacts to those species and potential mitigation measures to reduce those potential impacts and describing the likely impacts if mitigation options are used.

(6) Archaeology, wrecks and cultural heritage site studies; these include: Determining the number of maritime sites and finds such as known wrecks, reported losses and recorded obstructions within the area of the windfarm; determining the number of known sites and finds

of historic settlement and occupation; determining the level of archaeological potential of the sites and finds within the windfarm site; showing the location of wrecks, obstructions and finds; identifying the potential impact during construction operation and decommissioning on archaeological remains; and proposing mitigation to minimise those impacts.

(7) Noise assessment studies; these include: A determination of the level of underwater noise and airborne noise during the construction operation and decommissioning of the windfarm; determining the patterns of noise during those phases and proposing mitigation measures.

(8) Telecoms and radar interference studies; these include: A determination of existing cable routes and the location of television and radio transmitters; determination of potential electromagnetic interference to signals by radiation emitted from generator equipment on the windfarm site; and determining potential disturbance to submarine telecommunication cables by electricity export cables from the windfarms.

(9) Traffic, transport and access studies; these involve: A determination of the level and type of air and maritime traffic in the windfarm area and the risks of collision; determining any interference with aviation routes from nearby airfields; identifying navigational risks for commercial and recreational shipping and options to mitigate these risks; identifying the impact on tourism in the local area; identifying vessel anchoring and dredging spots and determining cumulative impacts with other planned windfarm developments nearby.

(10) Socio-economic and tourism assessment; this involves the determination of the impact of the windfarm construction and operation on the human environment in the region, including any increase in employment and impact on tourism.

26. Orsted uses the data gathered from the foregoing surveys as well as those mentioned below to design a 3D ground model in order to start forming the windfarm layout and modules (such as foundations and electrical cables).

27. Mr Mechali's evidence was that the results of the surveys may have significant effects on and cause changes to the windfarm, the wind turbines and the cable route. "In terms of layout and configuration, the project team will be able to use the data to identify "red" or "no go" areas which are sensitive areas to avoid from an EIA perspective; "orange" areas where potential issues exist but there are also potential solutions; and "green" or "safe" areas. In terms of turbine and foundation design, if any significant environmental impacts are highlighted, design changes may be made to mitigate these. For example, if the windfarm is found to be in an area that is in the middle of the flight path for migrating birds, a potential solution is to raise the height of the turbines by increasing the length of the tower, since migrating birds typically fly close to the surface of the sea. This would also affect the foundation design, which would need to be stronger and in order to stabilise the higher tower." I note that there was no evidence that this example applied to any of the four windfarms. I find that as a fact.

28. He went on to say that: "Data gathered from all of the consultations, surveys and studies carried out during the EIA influences the design of a windfarm. Some data directly informs the design, such as the data from metocean study and geophysical and geotechnical investigations. Data from consultations, surveys and other studies may have a focus on environmental impact, but the mitigation steps proposed to minimise negative impacts have also provided direct considerations for designing the windfarm. These inputs are relevant to a wide range of design issues, such as windfarm layout, turbine positioning and foundation type…….. Orsted will usually start out with a certain set of assumptions about the conditions of the site (based on the publicly available data on e.g. water depth, seabed conditions, wind and wave data gathered as

part of the desktop surveys) that it then tries to confirm. If the assumptions are confirmed then the EIA may not cause any design changes." I find this as a general fact, but not in relation to some of the studies. Specific findings are set out later in this Decision.

29. At the same time, the first round of metocean studies and surveys take place as, too, do the initial geophysical and geotechnical investigations. These are referred to as the geophysical and geotechnical reconnaissance campaigns. These are designed to give a general impression of the site or the polygon and to determine whether the site is in fact suitable for the installation of a windfarm. They also contribute to the configuration and layout of the site i.e. deciding whether where and how one might install the wind turbines, electrical cables and the substations.

30. Detailed geophysical and geotechnical studies are undertaken after certain consents are granted which involve an examination of each proposed wind turbine location. These detailed studies are expensive but enable the design of the individual wind turbine foundation locations, the design of the foundations themselves, and those of the offshore substation. They may also result in a reconfiguration of a site as they might show that the original locations for the individual wind turbines were unsuitable.

31. Detailed designs for the foundations are then compiled following which Orsted goes into the market to find a manufacturer for the fabrication of the foundations and transition pieces. Orsted carries out no manufacturing itself. Once a manufacturer has been identified, the parties liaise about the design and the technical drawings. Orsted also enters other supply contracts (for example those for the vessels required to install the wind turbines into the windfarm site).

32. However, it is only once the final investment decision (**"FID**") has been made that the contracts with these suppliers will be signed off even though they would have been negotiated and be in final draft form at that stage. Following FID Orsted will call for a lease of the site from the Crown Estate in accordance with the agreement for lease. Fabrication of the wind turbines will then commence and so too will their installation. During the installation, there may be further investigations to ensure up-to-date information is obtained on certain matters relating to safe installation (for example information on unexploded ordnance).

33. Although the windfarm might not be finally commissioned until the installation of all of the wind turbines, electricity is generated by the wind turbines prior to that date. In some jurisdictions each time a wind turbine is installed, it is put into operation to generate electricity. In other jurisdictions they are put into operation in batches. But in either case, in order to achieve this, the substations are constructed, installed and made operational early in the construction of the windfarm since without them the windfarm cannot operate to generate and transmit electricity to the National Grid.

The component parts

34. An offshore windfarm is a collection of wind turbines, situated offshore, situated in and over a large area of seabed, connected together by cables and then further connected via a transformer (i.e. substation(s)) to the public grid.

35. A wind turbine consists of a number of reasonably distinct parts. It is designed to convert kinetic energy in the wind into electrical energy. At the top is a rotor which normally consists of three blades which are long tapering structures made of a composite material of approximately 50 to 60 m in length. It is attached to a shaft and the blades can be rotated around an axis along its length. It is controlled by a control system consisting of a computer and

associated sensors with either electrical or hydraulic actuators. The main shaft is connected to a gearbox which drives a generator. The electricity generating components are housed in the nacelle. The nacelle and the rotor are often referred to as the turbine.

36. At the bottom of the wind turbine is the foundation. There are a variety of different types of foundation (four were described to me) but in these windfarms each foundation was a mono pile i.e. a cylindrical steel tube approximately 5 m in diameter which is driven or sometimes drilled into the seabed.

37. The monopile is then attached, at its top, to another steel structure known as the transition piece. The transition piece and monopile are known collectively as the substructure. The transition piece, in turn, connects at its top to a further metal cylinder called the tower which in turn, is attached at its top to the nacelle. The monopile, transition piece and tower are all structural but also have attached to them nonstructural elements including such things as work platforms and boat landings. There is also a tube through which the electrical cable passes in order to connect the turbine to the array cables. This tube appears to be an internal tube from the turbine down through the tower then becomes an external tube from the tower down to the seabed.

38. The electrical cables which connect a wind turbine to the substation are called the array cables, and each array will usually connect five or six wind turbines to the substation.

39. A windfarm might have both an offshore and onshore substation, depending on the distance of the windfarm from the shore. If it is close to the shore, there may only be an onshore substation.

40. The purpose of the substations is to take the electricity from each wind turbine and "convert" it into a form in which it can be delivered to the National Grid. In simple terms, the quality of the electricity which leaves the wind turbine is insufficient to be so delivered. So it needs to be transformed and its voltage stepped up. So, an onshore substation (and if appropriate and offshore substation) are essential components of a windfarm since without them, and certainly without an onshore station, the windfarm could not operate to transmit electricity to the National Grid.

41. The offshore substation is linked to the onshore substation by the export cables which are high-voltage cables which transport electricity from one to the other.

42. The onshore substation houses a supervisory control and data acquisition system ("**SCADA**") which is a high-level control data collection system which collects data from each wind turbine individually as well as from the substation and other sources.

The operation of the wind turbines and the windfarms

43. Each wind turbine behaves and operates as a single system and can operate independently of the other wind turbines in the windfarm. They are brought into use either individually (once they have been individually commissioned i.e. tested to ensure that they operate properly and safely) or in batches (depending on the jurisdiction in which the windfarm is located).

44. They are highly sophisticated pieces of plant which are covered by sensors which measure vibration levels, ice, temperature and other matters and each has a very sophisticated control system and is "able to look after itself". It can do this without the involvement of SCADA. Each wind turbine can be turned on or off (i.e. the rotors can be braked to a standstill)

depending on economic conditions (for example the price of electricity) as well as environmental conditions. They may also need to be turned off for maintenance and repair. It may be more economic not to brake the rotors but instead to rotate them so that more wind passes over them and thus less electricity is generated. Where this happens to one wind turbine, the other wind turbines may be unaffected.

45. Dr Garrard's evidence was that "an offshore windfarm is made up of a set of identical turbines connected together electrically. However, it should properly be considered as a single "wind power station". The windfarm is designed to work as a single system. Offshore windfarms now have capacity similar to conventional power stations and they are managed in the same fashion. The turbines are placed to optimise the performance of the windfarm as a whole, and the SCADA system provides a means of controlling the whole windfarm as a single entity just like a conventional power station."

46. Whilst each wind turbine is separately identifiable and capable of independent operation, they are installed according to a predetermined and carefully designed layout. The process of determining the precise configuration of the wind turbines within a particular site is a complex and iterative one. It is an optimisation exercise designed to maximise the cost benefit of the windfarm i.e. how to arrange each turbine so as to achieve the highest yield for the entire windfarm at the lowest cost. Mr Mechali's evidence was that: "the layout will be optimised to maximise the annual energy yield of the windfarm, within any constraints revealed by the relevant studies and surveys. All relevant data needs to be considered, including wind, climate and ground conditions. Specialised software is used to model the design which takes into account all the data, different types of design (e.g. density packing or regular grid) and the mix of consenting factors and conditions in consents…."

47. The location of one wind turbine directly affects that of the wind turbines around it due to a phenomenon known as shadowing which arises because each wind turbine creates a wake. The wind turbines are placed so as to minimise that wake since it can reduce output from other wind turbines located down wind, and thus income.

Construction

48. Construction covers a number of processes including design, procurement, manufacture (fabrication) supply and installation of the wind turbines.

49. Although design of certain elements of the wind turbines was carried out by Orsted, it did not fabricate or install the wind turbines itself. It used external manufacturers and contractors.

50. Once the relevant studies had been undertaken and consents obtained, and it was possible for Orsted to compile technical drawings of the wind turbines which would enable them to be fabricated, Orsted would go into the market and start to negotiate terms with manufacturers. Those contracts were not concluded until the FID had been obtained because it was not until then that the project was certain to proceed. Once FID had been obtained, then the technical drawings were subject to further refinements into which Orsted and the manufacturer contributed. The design and the technical specifications are set out in a document called the Input to Design document.

51. The foundations were bespoke to each wind turbine across all four windfarms. Dr Liingaard's evidence was that "the individual design sizes, diameters, and depths of the monopile foundations that were installed differed variously both as between: (a) the individual

turbines that were installed in a given windfarm; and (b) the respective windfarms. These physical differences existed because each monopile was designed with regard to the specific geophysical, geotechnical, and/or environmental conditions obtaining for each individual turbine position and at each windfarm site. In addition, each foundation consisted of several steel cans welded circumferentially to each other, and that the thickness of each can was designed individually for each position. Generally, therefore, each monopile foundation will be physically unique…… Each of the monopile foundations in the windfarms in these appeals was physically unique, save for one pair of foundations at Walney which were identical."

52. The lead-in time for the manufacture of the foundations was considerable. It might take 9 to 12 months to fabricate 80 wind turbines. In order to ensure that their design was as accurate as possible, the detailed technical design briefs on which they were based was delayed as long as possible so that the design could be based on the most recent detailed information from the surveys.

53. Furthermore, the depth to which each monopile is sunk depends on the conditions local to that wind turbine and thus they are not sunk to a uniform depth. They might be sunk to a depth of 25m in one part of the site and 35m on another.

54. The installation of the wind turbines is also affected by the studies and these too have to be up to date. In order to ensure safe installation, for example, the location of unexploded bombs and other obstacles needs to be identified. Installation is very expensive (perhaps as much as 200,000 kroner per day) and so it is important that there are no surprises and that the process can proceed in accordance with its proposed timetable.

55. Whilst the foundations were bespoke to each wind turbine, the turbines were not. Turbine manufacturers (for example Siemens) provide a limited number (in the case of Siemens, four) alternative turbine designs. It is possible to ask such a manufacturer to fabricate a bespoke turbine but this is rare and did not happen in respect of these windfarms. The policy was that a turbine was selected which would be suitable, even if not perfect, for every position. Suitability depends on wind loads, but also the nature of the seabed into which the wind turbine will be installed since each standard turbine design is subject to limits which are determined by the extent to which the wind turbine moves on its foundations. So there may need to be modifications and strengthening to the turbine, nacelle and tower if the movements are outside the turbines limitations.

56. As regards transition pieces, it is common to use the same design for a particular windfarm, although on some sites there can be more than one type of transition piece. Loads increase lower down the wind turbine and close to foundations, and loads vary significantly because additional factors come into play such as water depth and soil properties. This is why components at the upper level of the structure are often the same from position to position. However the transition pieces used in a given windfarm were physically different from those used in another windfarm as they were designed in light of the specific geophysical geotechnical and/or environmental conditions present at each windfarm.

57. The principal external forces to which a wind turbine is subject are wind waves and currents and if the frequencies of these external forces acting on the wind turbine coincide with the wind turbines' natural frequency, the vibrations within the wind turbine are amplified leading to structural fatigue. The magnitude and frequencies of the wind waves and currents must therefore be known in order to determine the natural frequency of the wind turbine. The towers are tuned specifically for the windfarm site and are tailor-made for a particular

windfarm. They are made from steel plates and the thickness of those plates will depend on how stiff and heavy they need to be to withstand the wind and wave loads to which they will be subject over their lifetime.

58. The metocean studies provide information on these forces, as, too, do the results of the geotechnical and geophysical studies, which have a bearing on the design of the foundations. But as the wind turbines are tuned following the results of, say, the detailed metocean studies, that will have a knock-on effect on the design of the foundations. And vice versa. If the foundations are fine-tuned following detailed geophysical and geotechnical data, that will have an impact on the design of the rest of the wind turbine. There are a lot of design "moving parts" and these are all fed into a computer programme which models the impact of changing one part of the design, on the design of the other parts. This process of ongoing re-evaluation and redesign was described to me as being "iterative".

59. In his witness statement, Dr Liingaard described this iterative process as follows:

> "Dynamic interaction between the foundation and the turbine/tower must be taken into account as well as dynamic response from environmental conditions, based on data gathered from the metocean study, the geophysical and the geotechnical investigations.
>
> For example, the foundation design needs to ensure that the structure in a particular location is sound under the wind loads to be expected at that location. The dynamic wind turbine loads simulation requires a simulation of combined wind and wave action on the structure. This simulation is based on wave load input, foundation geometry and soil input. If the foundation stiffness is different due to different soil profiles or pile make up, the design loads on the turbine must be updated accordingly.
>
> It may be necessary to perform several design iterations to ensure the overall integrity of the computer model of the foundation. Window loads on the wind turbine are simulated based on the actual foundation stiffness and wave load data from the geophysical studies and metocean studies. The results can lead to changes to the preliminary foundation design and the process is repeated until no changes need to be made to the design.
>
> Data gathered from the metocean study on water levels, current speed and directions, as well as wind and wave climates, are also used to compile the extreme Metocean conditions that are used in the design of the wind turbine and foundations, such as fatigue and loads calculations."

60. The design and routing of both the array cables and export cables which are components in the overall design and layout of a windfarm are highly dependent on the ground and soil conditions. They need to be buried more deeply in soft ground than in hard ground in order to protect them from exposure and damage, and the routes also have to avoid seabed hazards such as boulders.

61. The usual method of installing a monopole foundation is to use a hydraulic hammer to drive the monopile into the seabed. This usually takes around 3 to 4 hours per monopile but if the ground is hard rock it may be necessary to drill down into the rock and create a hole into which the monopile can be installed which might take several days.

62. The foundations and turbines are installed by jack-up vessels which once at the appropriate site, put down large legs which sink into the ground. So knowledge of the ground conditions is relevant for installation.

The metocean studies

63. Metocean studies are studies of sea depth, wind conditions, wave conditions, tidal conditions and current conditions. Data is obtained from buoys, wave radars, meteorological masts in and around the windfarm site and data from previous studies and modelling carried out in a similar area. Orsted commissions independent consultants to carry out the studies and modelling. Once the windfarm has been commissioned, the buoys and masts would remain operational to provide data for the SCADA.

64. Metocean studies generate data which is used for a number of purposes.

(1) Firstly wind conditions at a windfarm site determine how much power can be generated by the wind turbines installed at that site and thus the likely energy yield. They are therefore required to ensure that the windfarm is configured so that it maximises economic profitability. This also influences the value of the windfarm as a capital asset.

(2) Secondly it is relevant to the choice of the turbines themselves as it enables the design loads to which the wind turbines will be subjected, to be calculated (design load is essentially the maximum stress and fatigue from external forces that a structure is designed to tolerate). The result of the wind first surveys determines the capacity of the turbine chosen by Orsted.

(3) Thirdly they are relevant to and directly feed into the design of the foundations and the transition pieces. Maximum water depth is relevant to foundation dimensions and the foundation and transition piece must be designed at the right height to ensure that the upper part of the wind turbine and the rotor blades are adequately clear of the water. Once the detailed metocean studies have been carried out, simulations are then made by Orsted and the manufacturer to calculate design loads on wind turbines with different design frequencies. The manufacturer will produce foundations and tower designs based on the design load simulations in an iterative process until final design is reached. This process takes into account the impact of the changes to the design on the natural frequency of each wind turbine. The thickness of the steel cans that comprise the transition piece varies according to the loads that will be placed on it from the turbines by the waves and the wind and it is therefore necessary to know the wind wave and current loads on the structure in order to design the transition pieces.

(4) Fourthly it enables an assessment to be made of scour effects (erosion by hydrodynamic forces) and thus what scour protection is required (particularly for the cables); the information regarding water depth plays a significant role in determining the platform levels for each wind turbine and vessel interfaces and access ladders. A bigger depth range results in more steelwork in the foundation, thus cost and impact on overall design.

(5) Finally, metocean conditions must be understood in connection with all offshore engineering activities such as transportation of components the project site, positioning of construction vessels, jacking and crane operations, vessel selection, piling, drilling, seabed levelling and placement of scour protection, diving, cable laying and burial.

65. There are two stages of metocean studies. The first takes place at the time of the desktop assessments to assess the viability of the project in the first place, and as mentioned above, this tends to use relevant information which is in the public domain which has been obtained in previous metocean studies of the same region. It is at this stage that the studies feed into the economic viability of the project.

66. The second stage metocean studies are more detailed and bespoke and ideally would take place after the operator has access to the site. In these appeals, it appears that the detailed metocean studies took place following the EIA.

67. Dr Garrad's evidence was that "following deployment of meteorological equipment, the developer will have a more accurate spatial representation of the wind field, with joint probabilities of direction and wind speed across the site. These data are used in specialist software…… To determine the optimal turbine layout for that site when considering the distribution of wind directions, turbine ratings and turbine wake losses."

68. There are no statutory or regulatory obligations on Orsted to carry out the metocean studies.

Geophysical and geotechnical studies

69. Geophysical surveys provide data on sea floor bathymetry, seabed features, water depth and soil stratigraphy as well as identifying hazardous areas on the seafloor and man-made risks such as unexploded ordnance. They are non-intrusive and involve sensing techniques such as seismic methods, echo sounding and magnetometry.

70. Geotechnical investigations (which are conducted following geophysical surveys and use the information obtained to target soil/rock strata boundaries and engineering properties or specific seabed features) ascertain the characteristics of the soil and involve such techniques as core penetration testing, vibro coring and borehole drilling and laboratory tests.

71. There are a number of rounds of geophysical and geotechnical studies, the reconnaissance campaigns being carried out at the same time as the EIA. At this stage they are site wide campaigns since the specific location of the wind turbines has yet to be established. Furthermore, given that the geotechnical and geophysical investigations are generally the most expensive surveys, the detailed investigations will only take place as it becomes increasingly apparent that there is a firm commitment to proceed with the project. The results of these reconnaissance studies also affects turbine and foundation design since the detailed, second round, studies build on the information obtained from the reconnaissance studies.

72. The purpose of the reconnaissance campaigns is to determine whether the site is suitable for the installation of a windfarm in the first place. But they can also contribute to the configuration and layout of the site and the particular sites on which the wind turbines and the substations might be located. This is critical to energy yield and thus the economics of the project. They also contribute to the routes of the cables. The reconnaissance geotechnical survey involves drilling into the seabed at widely selected locations and doing some sample borehole work.

73. The detailed geophysical and geotechnical studies are usually undertaken after certain consents have been granted and involve an examination of each proposed wind turbine location. This leads to the significantly higher level of detail and consequently costs, and these final studies feed into the design of the foundations of each individual wind turbine. They also feed into the design for the foundations of the offshore substation. The results of the studies might also have an impact on the overall configuration of the site in the event that there are anticipated findings relating to geological or other seabed issues (for example boulders or unexploded ordnance).

74. It was Mr Mechali's evidence that these studies are an absolute prerequisite to the design engineering manufacture and installation of the wind turbines and the data obtained from them directly informs the precise design of each wind turbine and its foundation. The soil profile at each location is one of the primary determinants of the design load of the wind turbine. Each foundation is bespoke to its particular location and its design is shaped by the data from the geophysical and geotechnical surveys (as well as the metocean surveys).

75. In particular, the geophysical and geotechnical studies directly affect the choice of foundation for the particular wind turbine location; the design of the foundation of the nature of the materials to be used in its construction and the depth to which it should be sunk; protection and mitigation against scour; the design of the transition pieces; the design and choice of the other components of the wind turbine; analysis of corrosion effects; the routes of the array and export cables and the construction and installation process.

76. Orsted also carries out a further round of geophysical and geotechnical investigations, after FID and just before the construction phase. It does this partly to check whether there have been any changes since the first investigations and to obtain a detailed soil profile of each individual location into which the foundation is to be installed and partly to obtain final geological data to input into its computer models.

77. There are no statutory or regulatory obligations on Orsted to carry out the geophysical or geotechnical studies.

Project management

78. Each project company has a separate board, steering committee and management team. The board includes executives from the Orsted group and is where formal high-level decisions are made. The board appoints a steering committee to manage the project and ensures that it performs as intended and decided by the board and that it is compliant with all relevant rules and regulations. The steering committee makes decisions on behalf of the project when outside the approved mandate of the project or if the project is looking to commit to larger contracts.

79. Personnel from different lines and functions within Orsted are pulled together to form a project team dedicated to work on a specific project. Resources are drawn internally from all technical and specialist areas. The project companies do not have employees. The services of the Orsted personnel which are supplied to the project company are charged to their project company on a cost-plus basis.

80. Within Orsted a programme director has responsibility for the capital expenditure budget for a windfarm construction project and each work stream is headed by a package manager. Seconded personnel working on a particular project record their time on that project on a timesheet. Personnel who are not working on a specific project are cross charged on the basis of a pre-agreed budget.

81. The metocean studies, geophysical and geotechnical studies, EIA surveys, legal advice, obtaining of consents and other land rights, along with the construction of the windfarms and the wind turbines and their certification all required the involvement of external contractors.

82. Project managing those external contractors was undertaken by personnel seconded to the project companies, acting on behalf of the project companies. Such personnel were also involved in evaluating data from the surveys.

Background details of these windfarms

83. Gunfleet (together with Gunfleet II) is located approximately 7 km south-east of Clacton on Sea, Essex, and the two windfarms cover an area of approximately 17.5 km². It comprises 30 wind turbines and has a generating capacity of 108 MW. The FID was taken on 7 December 2006, and it commenced trading on 12 November 2009. It had the benefit of an agreement for lease and subsequently a lease from the Crown Estate and had obtained all necessary consents to construct the windfarm and to generate electricity therefrom. In its financial statements for the year ended 31 December 2009, it had capitalised costs of £304,951,000 (excluding decommissioning assets and before depreciation). In its tax return for the year ended 31 December 2009, it claimed capital expenditure on the provision of plant and machinery qualifying for capital allowances of £301,684,958 and writing down allowances on that qualifying expenditure of £8,265,341.

84. The chronology shows that the reconnaissance geotechnical studies were carried out in September 2003 and April 2004, and the first drawings of the monopole foundations were produced in May 2007. Detailed geotechnical studies were carried out in May, June, August, September, and October 2007. Construction commenced in March 2008 and construction was completed and the windfarm fully commissioned in April 2010.

85. Gunfleet II comprises 18 wind turbines with a generating capacity of 64.8 MW. The FID was taken on 5 November 2007, and it commenced trading on 19 August 2009. It had the benefit of an agreement for lease and subsequently a lease from the Crown Estate and had obtained all necessary consents to construct the windfarm and generate electricity therefrom. In its financial statements for the year ended 31 December 2009, it included capitalised costs of £134,324,000 (excluding decommissioning assets and before depreciation). In its tax return for the year ended 31 December 2009 it claimed capital expenditure on the provision of plant and machinery qualifying for capital allowances of £134,085,728 and writing down allowances of £9,918,670. In its tax return for the following year ended 31 December 2010, it claimed capital expenditure on the provision of plant and machinery qualifying for capital allowances of £6,066,974 and writing down allowances of £26,046,806.

86. The chronology shows that reconnaissance geotechnical studies were carried out in September 2003 and April 2004, the metocean final report was submitted in January 2007, detailed geophysical studies were carried out in March 2007 and detailed geotechnical studies carried out in May, June, August, September, and October 2007. The first drawings of the monopole foundations were produced in May 2007. Construction commenced in March 2008 and was completed in January 2010.

87. Walney consists of two phases, Walney 1 and Walney 2 which are located next to each other off Walney Island, Cumbria, and covers a combined area of approximately 73 km². It comprises 102 wind turbines with a combined generating capacity of 367 MW. The FID was taken 22 April 2009 and it commenced trading on 13 January 2011. It had the benefit of an agreement for lease and subsequently a lease from the Crown Estate and had obtained all necessary consents to construct the windfarm and to generate electricity therefrom. In its financial statements for the year ended 31 December 2011, it included capitalised costs of £1,070,333,000 (on the windfarm in assets under construction excluding decommissioning assets before depreciation). In its tax return for the year ended 31 December 2011, it claimed capital expenditure on the provision of plant and machinery qualifying for capital allowances of £969,097,848 and writing down allowances of £187,423,524.

88. The chronology shows that reconnaissance geophysical and geotechnical studies carried out in the spring of 2005 and again in November 2005 and the final metocean report was submitted in January 2006. Detailed geophysical studies were carried out in October 2007 and April 2008 and detailed geotechnical studies were carried out between July and August 2008. The first drawings of monopole foundations were produced in June 2009 and construction on phase 1 started in March 2010 and on phase 2 in April 2011. Construction of the first phase was completed in July 2011 and the second phase in June 2012. It was fully commissioned on or after 11 June 2012.

89. WODS is located next to Walney, approximately 14 km off Walney Island in Cumbria, and covers an area of 67 km². It comprises 108 wind turbines with a combined generating capacity of 389 MW. It was developed and is operated through a contractual joint venture with Scottish Power Renewables Ltd. The FID was taken on 15 June 2011, and it commenced trading on 16 January 2014. It had the benefit of an agreement for lease and subsequently a lease from the Crown Estate and had obtained all necessary consents to construct the windfarm and generate electricity therefrom. In its financial statements for the year ended 31 December 2014, it included capitalised costs of £718,488,606 (on the windfarm and assets under construction excluding decommissioning assets and before depreciation). In its company tax return for the year ended 31 December 2014 it claimed capital expenditure on the provision of plant and machinery qualifying for capital allowances of £612,779,922 but claimed no writing down allowances in that period.

90. The chronology shows that reconnaissance geophysical and geotechnical studies were carried out between January and March 2005 and detailed geophysical studies were undertaken between April and May 2008. Reconnaissance geotechnical studies were carried out between May and June 2008 and detailed geotechnical studies between May and August 2010. There were two final metocean reports, one in December 2010 and the second in February 2011. The first drawings of monopole foundations were produced in March 2012 and the final drawings were approved in January 2013. Construction commenced in May 2013 and was completed in October 2014.

Procedural background

91. HMRC opened enquiries into the appellants' claims for capital allowances. Notices of enquiry dated 21 December 2011 were issued to Gunfleet and Gunfleet II in respect of their company tax returns for the accounting period ended 31 December 2009. A notice of enquiry dated 19 December 2013 was issued to Walney in respect of its company tax return for the accounting period ended 31 December 2011. A notice of enquiry dated 20 December 2016 was issued to WODS in respect of its company tax return for the accounting period ending 31 December 2014. Between December 2012 and February 2018, the appellants carried on a dialogue with HMRC by way of written correspondence and a face-to-face meeting. HMRC issued closure notices to the appellants denying the allowances claimed on 27/28 February 2018. The closure notices referred to HMRC's position as set out in Graham Seawright's (HMRC's customer compliance manager) email of 3 August 2017 (the "**3 August 2017 email**").

92. On or around 23/26 March 2018, the appellants appealed to HMRC against those closure notices and the conclusions in them and the amendments that had been made to their returns. HMRC issued its view of the matter letter on or around 8 June 2018 in which they indicated that they were not prepared to change their stance. Notices of appeal were filed on 5 July 2018 the grounds in which were supplemented by detailed grounds of appeal dated 9 April 2019.

93. The adjustments made to the returns following the closure notices are as follows:

(1) Gunfleet: Reduction of £877,277 to the writing down allowances claimed for the accounting period ended 31 December 2009.

(2) Gunfleet II: Reduction of £9,918,670 to the writing down allowances claimed for the accounting period ended 31 December 2009. Reduction of £12,669,411 to the writing down allowances claimed for the accounting period ended 31 December 2010.

(3) Walney: Reduction of £15,576,689 to the writing down allowances claimed for accounting period ended 31 December 2011.

(4) WODS: Reduction of £8,999,671 to the qualifying expenditure claimed for the accounting periods ended 31 December 2014 (and 2015).

ISSUES 1 AND 2: THE LEGAL PRINCIPLES

94. The foregoing paragraphs set out the evidence and background findings of fact, but do not set out my findings of fact in respect of whether the results of the surveys "influenced" (to use a neutral word) the design construction and installation of these particular windfarms and/or their wind turbines. To undertake this exercise I must consider each survey in respect of each windfarm on the basis that each windfarm and/or each wind turbine is a discrete item of plant. Given that there are four windfarms a scoping exercise and 13 surveys you will realise that this will be a protracted exercise. And this does not include a consideration of the project management costs. I thought it prudent, therefore, to set out in the next stage of this Decision, the parties submissions, and my discussion and conclusion regarding the legal principles which I believe I should adopt when considering the evidence and arriving at my windfarm specific findings of fact.

DISCUSSION OF THE LEGAL PRINCIPLES RELEVANT TO ISSUE 1

Whether the offshore windfarms comprise a single item of plant and machinery for the purposes of the capital allowances legislation. If they do not, what is the plant and machinery for the purposes of that legislation.

95. The usual starting point for the meaning of the term "plant" for capital allowances purposes is the description set out by Lindley LJ in *Yarmouth v France* (1887) 19 QBD 647, at 658, namely that:

> ... in its ordinary sense, it includes whatever apparatus is used by a businessman in carrying on his business, not his stock-in-trade which he buys or makes for sale; but all goods and chattels, fixed or moveable, live or dead, which he keeps for permanent employment in his business.

96. Mr Jones submits that there is no particular test for determining whether a given system should be viewed as a single item of plant or whether the individual parts of the system should be viewed as distinct items of plant. It is essentially a question of fact and degree in each case, taking into account the nature and role of the component parts and whether they are directed towards a single purpose. His authority for this submission stems from two cases, namely *Cole Brothers Ltd v Phillips (Inspector of Taxes)* [1982] 1 WLR 1450 ("***Cole Brothers***") at 1456F-1457E and *Urenco Chemplants Ltd v HMRC* [2019] UKFTT 522 (TC) ("***Urenco*")** at [65]-[67].

97. In response to Miss Wilson's submission that the correct test was that set out in *Atwood v Anduff Car Wash Ltd* [1996] STC 110 ("***Anduff***"), namely whether the individual parts of the system comprised a distinct operational entity which carried out distinct operational functions, he observed that this description does not appear in the Court of Appeal decision in that case, and the correct test is that set out in *Cole Brothers* (whether the component parts are directed towards a single purpose). Furthermore he saw no principled reason why, in this case, you looked no further than the first operational entity (in Miss Wilson's view, the wind turbines) and then looked no further. It was clear from the House of Lords decision in *IRC v Barclay Curle &Co 1969* [1 WLR] 675("***Barclay Curle***") that capital allowances were properly claimed on the individual items which went into the construction of the dry dock and which were themselves items of plant, but that did not prevent a consideration of the larger item (namely the dry dock) in which the smaller items were incorporated, comprising a single item of plant**.**

98. Furthermore, cases such as *Anduff* and ***Cheshire Cavity*** (*Cheshire Cavity Storage 1 Ltd v HMRC* [2021] UKUT 50) were concerned with the distinction between plant on the one hand and buildings or premises on the other, whereas this appeal is not concerned with that distinction. It is a question of whether individual items of plant, namely the generation assets can comprise a single item of plant. In these buildings or premises cases, if one took away the apparatus, the premises or buildings would still be left. That is not the case in this appeal where if you took away the wind turbines, all that would be left is the sea and the seabed, and, contrary to what is being suggested by Miss Wilson, that is not building or premises.

99. As mentioned above, Miss Wilson submits that the test of whether there is a single item of plant or multiple items of plant is that set out in *Anduff* in which Carnwath J said "the collection and disposal of rainwater is a normal function of buildings; the way it is done in this case is simply one aspect of the fact that it is a purpose designed building. It is a far cry from the distinct operational functions performed by the silo or the dry dock." The reference here to dry dock is to the dry dock in *Cole Brothers*. When considering whether there is a single item of plant or multiple items, you go no further than the first item which has a distinct operational function. In this case that is the wind turbine. You cannot then go on to aggregate those turbines into a single, composite item of plant.

100. In *Cheshire Cavity* the Upper Tribunal summarized six principles set out in previous case law as to what comprised plant, the first of which is that plant is the apparatus used for the carrying on of a business. The appellants have simply treated this as the only test and have not considered the other five. Furthermore, the site of the windfarm is exactly that; it is the setting from which the trade is carried on using the individual items of plant, namely the wind turbines. Those wind turbines do not lose their individual and separate identity as plant by being aggregated into the windfarm. This approach makes better sense of the wider circumstances of the windfarm which, if considered as a whole, should include the transmission assets as well as the generation assets. The appellants made no claim, as part of this appeal, for allowances on the transmission assets.

101. I was referred not only to the cases mentioned above but others as regards this issue. I have to confess that I did not find them helpful, and to my mind the answer to this question lies in an analysis of *Cole Brothers* and *Barclay Curle*.

102. In *Cole Brothers* the taxpayer claimed capital allowances on the installation of various items of electrical equipment in a large department store. A significant element of expenditure on those items was on the complete lighting installation conduit and cables to socket outlets

and other equipment. The claim for capital allowances was disallowed by the Inspector of Taxes, and the special commissioners dismissed the taxpayers appeal in relation to this lighting installation on the basis that it was not a single item of plant, but comprised a number of different items of plant. The taxpayer appealed through the various tiers of courts and the matter reached the House of Lords.

103. In their case stated, the special commissioners said this:

> "We do not accept [counsel for the taxpayer's] contention that the entire electrical installation should be regarded as a single whole;……. Notwithstanding the Barclay Curle case, where Lord Reid and Lord Donovan set their faces against the "piecemeal approach", and the St John's School case where Templeman J, as he then was said "in my judgment, one looks at the whole…." We consider after careful reflection, that the multiplicity of elements in the Brent Cross installation, and the differing purposes which they serve, make the present case distinguishable from the drydock in Barclay Curle and the laboratory and the gymnasium in St John's School, each of which, despite its component parts, was directed towards a single purpose……"

104. Lord Hailsham in the House of Lords said this:

> "……. But it seems to me that the decision in the particular circumstances which the commissioners have before them was one of fact and degree to be decided on evidence and inspection; and their finding is therefore a proposition which I do not feel able to contradict. In my view, to quote again from the judgment of Pearson LJ. in Jarrold's case…… "Either view could have been taken"; in other words the question was one of fact. If, as Donovan LJ said at page 223 in the short passage I have already cited, a heating apparatus can be regarded in the way for which the appellant contends, I do not see why, as a matter of principle, the same cannot be said of an entire electrical installation. But the commissioners have decided in the instant appeal that the multiplicity of components in the Brent Cross installation precluded this approach and, if I am right, they were entitled to do so……
>
> Once it is accepted that it was open to the commissioners to decide as a tribunal of fact that the "multiplicity of elements in the Brent Cross installation and the differing purposes which they serve" entitled the commissioners to reject the "entire entity" submission and come to an analysis of its individual components having regard to the nature and function of each, it seems to me that we are clearly in the realm of fact and degree, and, in the absence of a clear and identifiable misdirection in point of law, I do not think it possible to differ from it……."

105. Lord Wilberforce added, when considering the arguments being made in favour of a single entity approach:

> "These arguments fail however, in my opinion, for the fundamental reason that, whatever merits that approach may have, to reject it involves no error of law. The commissioners decision to reject it, and instead to consider categories, or single items, was not, as I read it based on any general proposition that a "single entity" approach is, as a matter of principle, wrong-if it had been I should regard it critically."

106. Lord Russell stated that he was inclined:

"….to the view that had I been the special commissioners I might well have come to the conclusion that electrical equipment remaining in this case in dispute was relevantly "plant". It was ordered and installed under a contract separate from the contract under which the building designed for use as a department store was erected. The equipment had as its purpose the lighting of the department store in the manner considered most appropriate for the use of the building in carrying on the trade therein of selling such goods as are commonly found on sale in a department store. The equipment was not integral structurally with the building.

However, the question in any case such as this is basically one of fact and degree for the special commissioners to decide and it is not for your Lordships house to substitute its view unless an error of law is to be discerned……. I am unable to discern any error of law…."

107. In *Barclay Curle* the taxpayer built a dry dock for use in its trade of shipbuilders, ship repairers and marine engineers, and incurred capital expenditure which comprised the cost of excavating a specially shaped new basin, having direct access to the Clyde and a floor below the level of high tide to enable ships to float in and out. The expenditure also comprised the cost of lining the excavation with concrete and installing valves, pumps, electricity generators and other machinery needed for the operation of the dock. The House of Lords held, by majority, that the dry dock was plant, the cost of excavation to make room for it was expenditure on the provision of plant, and that, accordingly, the expenditure both on the excavation and the concrete lining attracted capital allowances.

108. The special commissioners had found as a fact that:

"The dock acted like an hydraulic chamber in which a volume of water variable at will could be used to lower and raise ship. The valves and pumps could not be used to lower or raise ships without the remainder of the dock. The dock could not be used to repair ships without the valves and pumps. The dock could not have fulfilled its purpose unless they had been excavated a depth sufficient to enable ships of the contemplated draught to enter and leave it. The valves, the machinery for the provision of electricity and the pumps were an integral part of the dock as a functioning entity. The remainder of the dock would have been useless to the company without them and, similarly, they would have been useless without the remainder of the dock."

109. The special commissioners' decision also records that no issue was raised regarding the availability of capital allowances on a number of items including dock gate and operating gear, electrical installation, pipework installation, pumping installation, docking winches, filling valves, "hauling in" trucks and trolleys, crane trucks, and extra labour costs and professional charges relating to those items.

110. In the House of Lords, Lord Reid stated:

"It seems to me that every part of this drydock plays an essential part in getting large vessels into a position where work on the outside of the hull can begin, and that it is wrong to regard either the concrete or any other part of the dock as a mere setting or part of the premises in which the operation takes place. The whole dock is, I think, the means by which, or plant with which, the operation is performed."

111. Lord Guest in his judgment stated:

> "The question, therefore, is whether, notwithstanding that it may be also a structure, the dry dock is "plant"…… The conjunction "machinery" and "plant" suggests to me that they both must perform some active function. In order to decide whether a particular subject is an "apparatus" it seems obvious that an enquiry has to be made as to what operation it performs. The functional test is, therefore, essential at any rate as a preliminary. The function which the dry dock performs is that of a hydraulic lift taking ships from the water onto dry land, raising them and holding them in such a position that inspection and repairs can conveniently be effected to their bottoms and sides. It is unrealistic, in my view, to consider the concrete work in isolation from the rest of the dry dock. It is the level of the bottom of the basin in conjunction with the river level which enables the function of the dry docking to be performed by the use of dock gates, valves and pumps. To effect this purpose excavation and concrete work were necessary".

112. From these cases I derive the following principles which I shall apply in considering Issue1:

(1) As a matter of law individual items of plant can be considered on an individual basis (i.e. as single and separate items of plant), or collectively as together making up a single item of plant.

(2) The test to be applied when considering whether individuals items of plant can be treated as a collective single item is that set out in *Cole Brothers* in which the special commissioners, taking into account the dry dock in *Barclay Curle,* indicated that the component (or individual) parts need to be directed towards a single purpose. This was endorsed by Lord Hailsham when he said that the analysis needs to be of the individual components regarding the nature and function of each. And to my mind this means that if, on the evidence, the component parts of the windfarm is directed towards a single purpose, then those assets can be treated as a single item of plant.

(3) I reject Miss Wilson's alternative test as set out in *Anduff* that to be a composite item of plant it must perform a distinct operational function. Firstly, the dry dock in *Barclay Curle* was considered by the special commissioners in *Cole Brothers*, and the test which they set out was endorsed by the House of Lords and thus carries more authority. Secondly *Anduff* was a case regarding the distinction between buildings plant rather than whether separate items of plant could comprise a single item. Whereas *Cole Brothers* dealt specifically with the latter point. Finally, whilst describing the dry dock in *Barclay Curle* as performing a distinct operational function is not, to my mind, a misdescription, (an analysis of the House of Lords decision in *Barclay Curle* shows that the dry dock performs the operation of getting vessels into the appropriate situation which enables them to be worked on) this does not elevate that description into a legal test.

(4) I also reject Miss Wilson's submission that having found an individual item of plant which performs a distinct operational function, then, as a matter of law, it is not possible to consider whether the aggregation of more than one such individual item can comprise an individual, composite, item of plant. I have already rejected her submission regarding the distinct operational function test. But even if I had accepted it, I can see no principled reason why one should stop ones analysis once such an item has been identified, and go no further to consider whether an aggregation of such items could be considered a composite single item. This flies in the face of the House of Lords authority in *Cole Brothers*. It is also entirely inconsistent with the facts and principles of *Barclay Curle* in which, as mentioned above, the special commissioners had allowed (albeit by agreement between the taxpayer and the tax

authorities) allowances on many items of individual plant which were then aggregated into the greater composite item namely the dry dock. On Miss Wilson's analysis, this would not have been possible since the individual items of plant which were incorporated into the dry dock and which were identified in the special commissioners decision would have performed a distinct operational function (for example valves). But allowances were given for these individual items, illustrating that one does not stop, when considering the single/multiple plant issue, when one finds an item of plant which performs a distinct operational function. And in any case that is not the test. As I have set out above, the test is whether, taking into account the nature and function of the individual components of a composite item, those components are directed towards a single purpose.

DISCUSSION OF THE LEGAL PRINCIPLES RELEVAT TO ISSUE 2

Whether the expenditure was incurred "on the provision of" the plant and machinery

113. In his skeleton argument, Mr Jones submitted as follows**:**

(1) It is well-established that "expenditure on the provision of plant of machinery" in s.11 CAA 2001 can include more than the cost of the plant or machinery itself. *Barclay Curle* at 680D (Lord Reid).

> "So the question is whether, if the dock is plant, the cost of making room for it is expenditure on the provision of the plant for the purposes of the trade of the dock owner. In my view, this can include more than the cost of the plant itself because plant cannot be said to have been provided for the purposes of the trade until it is installed: until then it is of no use for the purposes of the trade. This plant, the dock, could not even been made until the necessary excavating had been done. All the commissioners say in refusing this part of the claim is that this expenditure was too remote from the provision of the dry dock. There, I think, they misdirected themselves. If the cost of the provision of plant can include more than the cost of the plant itself, I do not see how expenditure which must be incurred before the plant can be provided, can be too remote."

(2) It is not limited to the bare purchase price (or construction cost) of the plant but includes also such items as transport and installation costs. *Ben-Odeco Ltd v Powlson (Inspector of Taxes)* [1978] 1 WLR 1093 ("***Ben-Odeco***") at 1098E (Lord Wilberforce) and at 1100B-C (Lord Hailsham). It also extends to expenditure to ensure that plant can actually be operated. *JD Wetherspoon plc v HMRC* [2012] STC 1450 (UT) at [40] ("***JD Wetherspoon UT").***

(3) The statutory words focus attention on the plant and the expenditure on it; to qualify, the expenditure must be directly related to the plant. *Ben-Odeco* at 1097H (Lord Wilberforce).

> "…… The UK words, more objectively, focus on expenditure directly related to the plant. The one draws a line around the taxpayer and the plant; the other confines the limiting curve to the plant itself."

Thus, for example, expenditure incurred in obtaining finance in order to acquire the plant does not qualify (*Ben-Odeco*)

(4) Qualifying expenditure can therefore include not only the cost of acquisition, transport or installation of the plant or machinery itself but also other items of expenditure, such as professional fees, if they relate directly to the acquisition, transport and installation of the plant or machinery and as such are part of the expenditure incurred on the provision of the plant or

machinery. See HMRC's Capital Allowances Manual CA20070 ("Professional Fees and Preliminaries")

(5) Likewise, it is accepted that **"preliminaries"** – that is to say, items of overhead expenditure which cannot be, or which have not been, attributed to any single item in a given project – can be qualifying expenditure under s.11 CAA 2001 if and to the extent that they are incurred on the provision of plant or machinery. See *JD Wetherspoon plc v HMRC* [2008] STC (SCD) 460 at [116] ("***JD Weatherspoon Sc***") (the Special Commissioners' decision as regards "preliminaries" was upheld on appeal by the Upper Tribunal). Examples of such expenditure include insurance, site management, general purpose labour, scaffolding, and photography of work in progress. See the examples given by HMRC in CA20070 and the list in *JD Wetherspoon Sc.*

114. In his oral submissions, Mr Jones added:

(1) The point in time when the expenditure is incurred is irrelevant to the question of whether it can be said to meet the statutory description. The notion of chronological remoteness, a term coined by HMRC in their skeleton argument, is unknown to the law does not inform the statutory question. It looks at things from the wrong end of the telescope. One should start with the item of plant and then ask what expenditure was incurred on its provision. Expenditure which directly related to the design of that plant is on its provision and thus when that expenditure was incurred is irrelevant.

(2) The phrase "on the provision of plant and machinery" covers the cost of buying the plant, but it also includes expenditure on the fabrication of the plant in cases where it cannot simply be bought ready-made. It must therefore include the costs of designing the item to be constructed because it cannot be provided until it has been designed. It is difficult to see any principled difference between the expenditure incurred on the physical items and their fabrication, on the one hand, and the cost of designing those physical items, on the other. The costs incurred in designing those physical items are just as much a cost on the provision of plant as the physical plant itself.

(3) The statutory test does not ask whether the costs are incurred "necessarily", but as Lord Reid said in *Barclay Curle*, expenditure which must be incurred before the plant can be provided cannot be too remote. In Mr Jones' submission, provided the expenditure related directly to the plant, and must have been incurred in order for the plant to be provided, it qualifies for capital allowances. In the circumstances of this case, the costs incurred in the studies must have been incurred in order to construct the windfarm and the wind turbines ("construction" here meaning a number of processes including design, procurement, manufacture (fabrication) supply and installation), and those costs related directly to that construction. They therefore cannot not be too remote and they qualify for allowances.

(4) Ms Wilson's narrow view of the ambit of "on the provision of" which extended no further than costs incurred on the physical provision of the plant, and thus was restricted to transport, installation, and construction costs, was too narrow a view and was not borne out by the authorities. He cited *Samarkand Film Partnership No 3 v HMRC* [2012] SFTD 1 ("***Samarkand***") and *McVeigh v Arthur Sanderson & Sons Ltd* [1969] 2AER 771 (***"McVeigh***") as further authorities which supported his position. The former, in his view, albeit dealing with film schemes and different wording, illustrates that expenditure on identifying films was "on the acquisition of" those films. The latter, dealing with the acquisition of designs for patterns

and prints, illustrated that design costs are an input, similar to raw materials, without which the physical products could not be manufactured.

(5) It was a central plank of HMRCs case that the costs incurred on, for example, the environmental and other studies, were for the purpose of obtaining statutory consents. Mr Jones accepts that this is true but submits that those consents do not exist in abstract and the main purpose of those studies is to ensure that the windfarms are designed to best suit their location, and the wind turbines are appropriately designed for their function in the positions they occupy within that location and thus are a critical input into the windfarm design and to the design of its components. Furthermore, there is no concept of duality of purpose within the legislation. The statutory test is whether the expenditure was on the provision of the plant, and it does not matter that it might have some other purpose or effect.

(6) In summary, provision on includes all matters comprising construction, all of which must be incurred for plant to be provided. Costs which directly relate to those matters are qualifying expenditure for capital allowance purposes.

115. In her skeleton argument, Miss Wilson submitted as follows:

(1) Plant or machinery capital allowances are available if (inter alia) the expenditure is "capital expenditure on the provision of plant or machinery wholly or partly for the purposes of the [trade] carried on by the person incurring the expenditure…".

(2) The appellants' case amounts to saying that capital expenditure incurred as a necessary or desirable step towards the development and establishment of its trade is expenditure *"*on the provision of" plant or machinery for section11(4) CAA.

(3) The appellants' argument is inconsistent with both statutory language and case law.

(4) The burden of proof lies on the appellants to demonstrate on what the expenditure claimed has been incurred (and in what amounts). Insufficient evidence has been provided to satisfy the burden of proof.

(5) As a matter of ordinary English, a "provision" is an act of supply of something from one person (a manufacturer, retailer, or previous owner) to another.

(6) The Cambridge dictionary online defines "provision" as "The act of providing something". The Merriam-Webster online dictionary defines "provision" as "The act or process of providing something.

(7) In the context of section 11(4) CAA, 2001, it is clear that the "something" provided or supplied must be an item of "plant or machinery".

(8) In *Ben-Odeco* Lord Wilberforce stated "The words 'expenditure on the provision of' … focus attention on the plant and the expenditure on the plant – not limiting it necessarily to the bare purchase price, but including items such as transport and installation, in any event not extending to expenditure more remote in purpose*."*

(9) This objective focus on "the plant" and the expenditure directly related to the provision (*Ben-Odeco*) means that it is not sufficient to show that in the particular circumstances of the person or his trade, the plant could not have been provided but for the disputed expenditure. In *Ben-Odeco*, the company had to incur finance costs to buy an item of plant. The finance costs

were not thereby incurred "on the provision of… [plant]". In *Inmarsat Global Ltd v HMRC* [2021] UKUT 59 (TCC) [2021] STC 713 ("***Inmarsat***") the Upper Tribunal put it as follows: "the focus should be on the effect of particular capital expenditure and not on the particular attributes or circumstances of the person incurring the expenditure".

(10) The focus on the provision of the plant for the purposes of the trade also means that it is not a question of showing that the expenditure is "to do with" or even "a necessary step towards" the provision. It must be "*on*" the provision of plant for the purposes of the trade.

(11) Thus in *Ben-Odeco*, Lord Russell stated "I do not seek to confine qualifying expenditure to the price paid to the supplier of the plant. I should have thought, for example, that if the cost of transport from the supplier to the place of user is directly borne by the taxpayer it would be expenditure on the provision of plant for the purposes of the taxpayer's trade. And there may well be other examples of expenditure additional to the price paid to the supplier, which would qualify on similar grounds".

(12) Also, in *Barclay Curle* Lord Reid said this "In my view, this can include more than the cost of the plant itself, because plant cannot be said to have been provided for the purposes of the trade until it is installed: until then it is of no use for the purposes of the trade." In context, Lord Guest made the same point saying, "Provision" must cover something more than the actual supply. In this case it includes the excavation of the hole in which the concrete is laid".

(13) Expenditure on the studies for the selection of the premises or the setting from which a trade is to be carried on, and works generally relating to improving the premises or setting fails section 11(4) CAA. Such expenditure is not "*on the provision of*" plant or machinery for the purposes of the trade. It is on the premises or setting for that trade. In *Bradley v London Electricity plc* [1996] STC 1054 ("***Bradley***") whether or not the excavation costs of an underground substation 2 metres below the paved surface of the south side of Leicester Square were "on the provision of" plant depended on whether the substation (a structure carefully designed to accommodate plant and equipment was plant or premises. If excavation costs are not "qualifying expenditure" because on premises, then even more so, the cost of the site surveys for selecting the premises.

(14) *Bradley* and cases such as *Anduff* also demonstrate that if the expenditure is on the premises, it does not matter that the premises are specifically designed to house the plant, or that the criteria for selecting the premises are informed by the exigencies and requirements of those premises and the trade. Such expenditure remains "too remote" (using Lord Wilberforce's words in *Ben-Odeco*) for section 11(4) CAA 2001.

(15) Finally, when the plant is constructed or installed, the construction or installation costs might include an element of overhead costs such as scaffolding or site management fees i.e. preliminaries**.** It is accepted that if on a proper apportionment some of the overheads can be directly attributed to a specific item of plant, then that amount can be brought into account. This does not create a new *sui generis* category of "qualifying expenditure". It does not for example convert project management expenses incurred on the setting or premises into "qualifying expenditure". It simply recognises that some costs are capable of allocation between different items.

116. In her oral submissions Miss Wilson added:

(1) In order to be an expense incurred on the provision of plant, it must be a necessary expense. Lord Guest says this in *Barclay Curle*. "It is unrealistic, in my view, to consider the

concrete work in isolation from the rest of the drydock. It is the level of the bottom of the basin in conjunction with the river level which enables the function of dry docking to be performed by the use of dock gates, valves and pumps. To effect this purpose excavation and concrete work were necessary." Furthermore, the extract relied on by Mr Jones from the judgment of Lord Reid only applies to expenditure which must be incurred before the plant can be provided. This is not a "but for" test. Nor is it a capital tax reflection of the revenue expense "wholly and exclusively" test. It is a completely different test.

(2) The cases show that "on the provision of" is tightly drawn and extends only beyond the price actually paid for the plant to its transport, installation, and construction. It does not extend to design. It extends only so far as the expenditure is incurred on the actual physical provision of the plant and not on intellectual property which may be reflected in that plant or, as extended, on its transport installation or construction.

(3) Expenditure can be too remote if it has been incurred at a time when it is not clear of the identity of the plant to which it relates. In the case of this appeal, the costs incurred on the surveys put the appellants in the position where they were able to purchase the plant, but those costs were not incurred on the provision of that plant. This is similar to *Ben-Odoco* where the costs of financing incurred by the taxpayer in that case put it in the position where it could acquire the plant, but these were not costs incurred on the provision of that plant.

(4) The test is whether the costs are needed to effect the actual provision or supply of the plant and what costs must be incurred to make it usable at its basic level. It does not include expenditure which is necessary or desirable to optimise the use of the plant to the maximum extent, for the benefit of the trade.

(5) In *Inmarsat*, the launch costs were allowed since without them, the satellite was of no use whatsoever. A similar approach should be adopted in this case. I should ask what needs to be spent for the purchase of the plant not to be useless. Miss Wilson distinguished *Samarkand* and *McVeigh*, and thought there was little of relevance in either case which could be read across into this appeal.

(6) HMRC's case is that whether the plant is the windfarm, or each individual wind turbine, in neither case are the costs of the surveys allowable since they are not on the provision of that plant.

117. I have carefully considered the foregoing submissions and the authorities.

118. The sole question which I have to decide is whether the expenditure incurred on the studies and on project management is "on the provision of" plant.

119. Both parties agree that this expression extends beyond the price actually paid for the plant. But they disagree as to the limits of that extension.

120. In simple terms, the appellants' case is that it extends to expenditure which directly relates to the design of the plant or its installation since designing the plant is as necessary to its provision as is its fabrication. And its installation is something which must happen for the plant to function properly. HMRC's case is that such expenditure on design is too remote.

121. Design is a weasel word and is used by Mr Jones in two senses. Firstly, in the sense (for example in the design of the foundations) bespoke design. In other words, the foundations (monopiles in these wind turbines) are tailor made based on specific designs for the foundations

at particular positions at a windfarm. Secondly, he uses it in a broader sense, design encompassing the identification of the type of turbine or type of foundation which should be a component part of a wind turbine. Or, more particularly, whether certain wind turbines should benefit from certain coloured lights, or be painted in a certain colour, or have foghorns. It is my instinct that there is a distinction between designs which go to the heart of the windfarm or the wind turbines, and without which, as Mr Jones submits, it would not be possible to fabricate, install, or construct the windfarm or the wind turbines to enable them to carry out their function of generating electricity; and those designs which do not go to the heart, but are merely peripheral and without them, the windfarm and the wind turbines would still be able to carry out their function of generating electricity.

122. What is the basis for this instinct and is it legally justifiable? To my mind the answer, as so often, lies in an analysis of the relevant case law and in particular in *Barclay Curle* which is authority for the proposition, derived from the extracts from the judgment of Lord Reid and Lord Guest which are set out above, that expenditure which must be incurred before plant can be provided is not too remote. It qualifies for allowances as being "on the provision of" the plant. The word "must" in Lord Reid's judgment chimes with the word "necessary" in Lord Guest's judgment.

123. Expenditure on design which is necessary or which must be incurred before plant can be provided, qualifies for allowances. But this begs the question of what design is necessary or must be incurred. My view is that this needs to be tested against the function or purpose for which the plant is designed. In the case of the windfarms, as the evidence clearly indicates, the windfarms are designed to generate electricity. That generation function is carried out by the generation assets. These include the wind turbines which convert the kinetic wind energy into electrical energy. Their function too is to generate electricity. That electricity is then conducted to the substation by the array cables.

124. So expenditure on design without which the windfarms or wind turbines could not carry out that function, and without which the windfarms or wind turbines would be operationally useless, falls into the "must" or "necessary" category of design. It cannot be too remote and that expenditure attracts allowances. I shall describe this as "necessary design" where relevant in this Decision. However, expenditure on design without which the windfarms or the wind turbines would not be operationally useless, and without which they could continue to generate electricity (even if the amount of electricity is lower than might otherwise be the case if it were designed differently) falls outside the "must" or "necessary" criteria and is too remote. I shall describe this as "unnecessary design" where relevant in this Decision.

125. As regards the wind turbines, it is my judgment, that for the reasons made by Mr Jones in his submissions, and to the extent that this can be established on the facts, expenditure on those studies which directly relate to the necessary design of the wind turbines qualifies for capital allowances.

126. I can see no principled reason why this is limited to physical provision even though the cases which have considered the statutory condition appear to deal only with construction, installation, and transport expenditure. This is extended in the case of *Inmarsat* to expenditure incurred on launching a satellite without which the satellite would have been useless.

127. I appreciate that this is a high bar for the appellants to get over. But the case law shows, as Miss Wilson points out, that extension of the ambit of allowances beyond the actual price paid in consideration for a piece of plant is limited to construction insulation and transport, is

evidence, to me, that the extension is intended to be limited and the bar should be high. A taxpayer can only get over it if it can show that the expenditure must have been incurred and so was not too remote. And to me, it is only expenditure necessary design which must have been incurred. Expenditure on unnecessary design is too remote.

128. I was surprised that there do not appear to be any authorities on design costs apart from *McVeigh* (which, like Miss Wilson, I found of limited assistance). One reason for this might be that the price paid by a customer for plant would reflect the design costs which have gone into the fabrication of that plant. And so, by this indirect route, allowances are given on design costs. To illustrate this in the context of this appeal: My understanding is that the turbines used in all four windfarms are the same (3.6 MW Siemens Gamesa). These were not specifically designed to suit the appellants requirements for these particular windfarms but were "bought off the shelf" from a limited number of alternatives which Siemens offers. I have absolutely no doubt, even though there is no evidence before me, that when Siemens developed these turbines, they undertook considerable expenditure in ensuring that they were appropriately designed. That expenditure would, I suspect, have been reflected in the price which Siemens then charged not just these appellants but other windfarm operators.

129. Even though there is no direct evidence to support those suppositions, I am fortified in making them by the fact that I was told by Miss Wilson that allowances have been given to these appellants on the expenditure they have incurred on the physical elements of the wind turbines, and this would have included the turbines mentioned above. There was no suggestion that the expenditure incurred by the appellants was scrutinised by HMRC and such expenditure which reflected design costs incurred by Siemens was identified and the appellants were denied allowances on those design costs. I am absolutely certain that had that happened, Miss Wilson would have mentioned it as evidence that HMRC's position is consistent irrespective of whether the design costs are separately identified (as in this appeal) or inherent in the price charged by a supplier of plant.

130. Nor do I think this is simply a matter of practical difficulty or commercial confidentiality. In *JD Wetherspoon UT* it is recorded at paragraph [94] that "HMRC maintained that a trader seeking capital allowances must specifically attribute all expenditure which is capable of attribution, however time-consuming and uneconomic that process may be". If the design costs which are wrapped up in the price paid by a taxpayer on the acquisition of plant are not allowable, then I would have expected HMRC to have adopted the same approach, and a taxpayer would have to strip out of the price paid for that plant, the element relating to design costs.

131. However, there is no suggestion in this appeal that this is the approach taken by HMRC either in this appeal or more generally. I treat this as an acceptance by HMRC that where design costs are incorporated into the price paid for an item of physical plant, then those design costs benefit from capital allowances. I see no principled reason, therefore, why in the circumstances of these appeals, design costs which are necessary for the fabrication of the wind turbines, should not qualify for allowances. As Mr Jones observes, they are as necessary as the physical materials which go into the fabrication of the wind turbines.

132. The only difference between necessary design costs which are inherent in the price paid for a piece of plant, and the necessary design costs in this appeal is that the latter have been incurred by the customer rather than the supplier of the plant. In simple terms, the manufacturer of the wind turbines required designs on which to base their fabrication. The manufacturer could go to a third party and obtain designs, but it appears, for sensible commercial and other

reasons, that the manufacturer obtains the designs from the customer, namely the appellants, and then refines those designs in conjunction with the customer. Had the manufacturer obtained the designs from a third party and paid that third party for them, then I have no doubt that the design costs would have been wrapped up in the price of fabrication and the appellants would therefore have obtained allowances on that inherent cost. There seems no reason to me why, simply because those necessary design costs have been incurred by the appellants and thus separately identified in this appeal, they should not benefit from allowances, as a matter of principle.

133. So, to the extent that the appellants can show that the costs that they have incurred on the various studies directly relate to the necessary design of the wind turbines, then in my judgment they qualify for capital allowances in that they are expenditure on the provision of those wind turbines.

134. I agree with Mr Jones that one must look back, as it were, when considering the statutory test and provided the expenditure is on the provision of plant, then it does not matter that that expenditure was incurred long before that plant was provided. So even if the expenditure on the studies was incurred some years before the wind turbines were fabricated constructed and installed, then there is no principled reason why they should not be incurred on the provision of those wind turbines. Indeed his submission which is, essentially, that you look at the effect of the expenditure reflects Lord Russell's judgment in *Ben-Odeco* at [77]. "…In my view the question to be asked is: what is the effect of particular capital expenditure?.....In my opinion the effect of the expenditure was the provision of finance and not on the provision of plant." (emphasis added).

135. Similarly, I agree with him that there is no duality of purpose. Even if these studies were carried out in part for another reason (to fulfil regulatory requirements) that does not matter provided those studies directly relate to the design of the wind turbines. Nor do I think that there is any need for an apportionment. If they directly relate, then their costs should be allowable in full. To borrow an analogy from another part of tax law, if they are reflected in the state of nature of the wind turbines, then they are allowable.

136. I disagree with Miss Wilson when she says that the expenditure on all of the studies only puts the appellants in the position which enables them to incur expenditure on the provision of the wind turbines and is not expenditure on the provision of the wind turbines themselves. As will be seen, in my view some of the studies do fall into this category. However, to the extent that the expenditure on the studies directly relates to the design of the generation assets or wind turbines, then that expenditure is necessary and must have been incurred before generation assets or the wind turbines could be provided.

137. In the foregoing analysis I have concentrated largely on the design of the wind turbines rather than the design of the windfarm (generation assets) as a single item of plant. As I have set out above, the test of whether the windfarm is a single item of plant or simply an aggregation of wind turbines which should be treated as separate items of plant is whether, taking into account the nature and function of the individual components (the wind turbines) of a composite item (the windfarm), those components are directed towards a single purpose.

138. So when considering whether the expenditure on the studies directly relates to the necessary design of the plant can be provided the plant referred to is the windfarm (or rather the generation assets). And in the context of necessary design it is only expenditure on studies which directly relate to the precise physical relationship between the wind turbines at a

particular windfarm site which enables the wind turbines to function for the single purpose of generating electricity, which will qualify for allowances.

139. The burden of proving that the expenditure is on studies which directly relate to necessary design lies with the appellants. This means that they must show that the design is necessary, and to do this they will need to establish by evidence that were it not for that design, the windfarms and the wind turbines would not be able to carry out their function or purpose, namely the generation of electricity.

140. As far as installation is concerned, the same legal principle applies. Expenditure on installation is only allowable if it must have been incurred before the plant could have been provided. It must be necessary expenditure, in the words of Lord Guest. Mr Jones submits that these studies had an impact on installation. But he needs to go further than that. He needs to show, as far as I am concerned, that the studies go to the heart of the process of installation, and directly relate to that. The essential elements of installation are that it should be undertaken safely and effectively. Expenditure on studies, therefore, that directly relate to those two elements of installation is allowable. It must have been incurred and is not too remote. Expenditure on studies which do not directly relate to those two elements, even if they have an impact on them is not allowable. It is not necessary and is too remote.

THE APPLICATION OF THESE PRINCIPLES AND FINDINGS OF FACT

The windfarms as a single item of plant- issue 1

141. I make the following additional findings of fact in relation to issue 1:

(1) The generation assets, comprising the wind turbines and the array cables convert kinetic wind energy into electrical energy. This electrical energy comprises electricity which is conveyed to the National Grid via the substations (onshore and offshore) which are connected to each other and to the National Grid by export cables (the transmission assets).

(2) Each windfarm has the capacity to generate a certain amount of electricity (installed capacity) which is only generated and transferred to the National Grid once all of the wind turbines in a windfarm are operational.

(3) Wind turbines were brought into use, following their construction and installation, on an individual basis or in batches. It is not clear to me which occurred in the case of these windfarms but one or other did. The reason for this is to generate electricity (and thus income) as quickly as possible, and to this end the substations are constructed and commissioned so that they are operational once the first wind turbines are operational.

(4) Individual turbines are controlled both by themselves and by the SCADA. But they are to some extent autonomous. As Dr Garrad said, "you could cut the SCADA off completely and [the wind turbine] would still look after itself."

(5) Each turbine has emergency braking and continuously measures the wind speed and direction. The control system points the turbine into the wind (yawing).

(6) Individual turbines may be turned off so that they cease to turn and thus generate electricity for economic reasons as well as maintenance and repair. The rotors on each individual turbine can also be adjusted so that more wind passes through them and thus they generate less electricity. This strategy causes less wear and tear on the turbine than turning them off. However, if the turbine is turned off or it has rotors adjusted, the turbines on the other

wind turbines are not automatically affected. They can still continue to operate without their turbines being turned off or their rotors adjusted. Wind turbines can be turned off individually, in rows or in other configurations.

(7) The individual wind turbines are installed according to a carefully designed layout. Positioning the wind turbines is not simply a case of packing the whole area with as many wind turbines as possible. Determining the precise configuration of the wind turbines within the windfarm site is complex, and is an optimisation exercise designed to achieve the maximum yield for the entire windfarms at the lowest cost.

(8) Spreading the wind turbines across the area of the site is one aspect of this optimisation. Furthermore, each wind turbine has an impact on the other wind turbines on the site due to "shadowing". This arises because as wind passes through one turbine, the wind speed is reduced so that there is less wind available to turn the rotors on the turbine on the next wind turbine down the line. When wind passes through a turbine it also causes turbulence to the wind flow which also detrimentally affects the wind turbines behind it. So the optimisation exercise considers the wind patterns and where the wind turbines should be placed relative to one another in order to minimise these detrimental effects.

(9) In terms of operation, offshore windfarms now have a capacity similar to that of conventional power stations and they are managed in the same fashion. Each windfarm is designed to work as a single system and should properly be considered as a single "wind power station". The turbines are placed to optimise the performance of the windfarm as a whole and the SCADA system provides a means of controlling the whole windfarm as a single entity just like a conventional power station.

142. Although I was not taken to documents relating to each of the individual windfarms, nor did the oral evidence deal with all of the windfarms, I accept (as did Miss Wilson) that the foregoing facts apply to all of the windfarms.

143. The question, therefore, is whether, taking into account the nature and function of the individual components of the windfarm, they are directed towards a single purpose.

144. Furthermore, given Mr Jones' submission that it is the appellants' case that it is only the generation assets which should be considered as a single item of plant and not the whole windfarm itself, I also need to consider whether the generation assets are directed towards single purpose.

145. I have no hesitation in deciding that each windfarm is a single item of plant. Their function is to generate electricity, ramp up the voltage of that electricity, and then feed it into the National Grid. Generation is undertaken by the wind turbines and the array cables, and the ramping up of the voltage as a function of the substations. The single purpose is to generate, step up and then convey electricity to the National Grid. The configuration of the wind turbines in each windfarm needs to be carefully designed in order to ensure that the maximum amount of electricity can be generated from the site. This requires more analysis than simply plonking down the wind turbines into the seabed and hoping for the best. The evidence clearly shows, and I have found as a fact, that the design of a windfarm reflects the optimisation required to generate the electricity at lowest cost. It is designed to operate as a single item, notwithstanding each wind turbine is autonomous and can not only control itself, but can also be controlled, by the SCADA. I would be surprised if each individual turbine could not be individually controlled. It would be commercial madness if all the wind turbines had to be shut down simply to repair one of them. This is no indication, to me, that they operate as separate items of plant

and thus that the windfarm is not a single item. They clearly are capable of and do operate separately, but that does not bar the windfarm as a whole from being a single item of plant. I see this rather like a production line which has different component parts but the production line is directed toward a single purpose. It would be unusual if it was not possible to turn off each item within the production line, or to tweak its operation, in order to affect the overall production line as a whole. Nor do I think it matters that the wind turbines are brought into operation either individually or in batches prior to the construction and installation of all of the wind turbines and the commissioning of the windfarm itself. It simply shows that wind turbines are autonomous and capable of generating electricity individually. But their nature and function, to generate electricity, is directed towards the single purpose of the windfarm. It is my view therefore that the windfarm does comprise a single item of plant.

146. Having decided that, I now need to consider whether the generation assets comprise a single item of plant. The purpose of the generation assets as a whole is to generate electricity. I ask, rhetorically, therefore whether this is adequate given that the generation assets are part of the windfarm and the overall purpose of the windfarm is not just to generate electricity but to increase its voltage and transmit it to the National Grid. This cannot be achieved without the transmission assets. So, can the generation of electricity within the broader purpose of generating and transmitting electricity comprise a single purpose?

147. I can see no principled reason why not. The wind turbine and array cables do not serve different purposes. They are directed to the single purpose of generating electricity. I do not see why this single purpose, albeit part of a broader single purpose of generating and transmitting electricity, cannot be treated as a single purpose in its own right.

148. I am fortified in this conclusion by two cases. The first is *Cole Brothers* itself. Lord Russell, in the extract I have set out above and which I repeat here, clearly considers that the greater purpose of selling goods in a department store did not, as a matter of principle, prevent the lighting equipment being treated as a single item (although he agreed that the decision of the special commissioners not to treat the lighting equipment as a single item did not disclose any error in law).

> "The equipment had as its purpose the lighting of the department store in the manner considered most appropriate for the use of the building carrying on the trade therein selling such goods as are commonly found on sale in a department store."

149. The second case is *Urenco.* In that case the appellant carried on a uranium enrichment process which produced a by-product in the form of a chemical known as "Tails". This was radioactive, unstable, highly corrosive, and toxic and the appellant was subject to strict regulatory limits on the volume of Tails material which it could store. The uranium enrichment process therefore depended upon managing the inventory of Tails and this was undertaken by a Tails management facility (TMF) which in turn comprised a number of separate facilities including a vaporisation facility, a kiln facility and a condenser facility. In that case HMRC successfully argued that each of those sub- facilities was a separate item of plant. Each facility was deemed to form a separate structure and function as such. The relevance of this to the issue of whether the generation assets can comprise a single item of plant is, of course, that in Urenco, the overall purpose of the appellant's activities was to enrich uranium, but to achieve this it had to be able to deal with Tails. And the TMF facilities, although required to achieve that overall purpose, were treated as being single items of plant. And thus as a separate entity functioning as such. There was no suggestion that because they undertook a function within a broader overall function, the facilities could not be single items of plant.

150. As regards item 1, therefore, it is my decision that the generation assets are a single item of plant for the purposes of capital allowances.

151. However, if I am wrong on that, it is my decision that each individual wind turbine is an item of plant as, too, are the array cables. I believe that this accords with HMRC's position.

EIA- general

152. I have considered the EIAs for each of the windfarms. In undertaking this exercise I was helped, immeasurably, by the notes on evidence provided by both parties for which I am extremely grateful.

153. I remind myself that the appropriate legal test is whether the expenditure on the studies or surveys which were undertaken as part of the EIA directly relate to the necessary design construction or installation of the windfarms and/or the wind turbines.

154. In my view, this does not mean that there will necessarily be a direct and obvious correlation between the study on the one hand and a change to that necessary design, when tested against a previous design, on the other (as in Mr Mechali's example of low flying birds and increasing tower height). Nor does there need to be. There might be such direct correlation, but the oral evidence (see below) is that the data which is derived from the studies is used to inform the ongoing computer modelling of the design of the windfarms and/or the wind turbines. So whilst a great deal of data will be inputted into the modelling, its impact might be negligible since it is outweighed by the greater impact of other data. But this does not mean that it does not directly relate to the necessary design of the windfarm and/ or the wind turbines. Provided the appellant can show that the data was taken into account in that modelling which resulted in the necessary design of the windfarm and/or the wind turbines and/or their safe and effective installation, then it is to my mind directly related to that design and installation even if there was no obvious change to the evolving designs of the windfarm and/or the wind turbines as a result of the input of that data. As Mr Mechali has stated in his evidence, if the data confirms the assumptions which have been made in a particular model or version of that model, then that model will not change. But the data still directly relates to the design set out in that model.

155. However, the appellant needs to do more than simply show that the data from the studies was considered as part of the EIA. Each EIA is structured in a similar manner. For each study, it identifies the impact on the design construction operation and decommissioning of the windfarm, and on occasions the impact on the design construction and installation of the wind turbines. It then goes on to propose mitigation measures which might be appropriate to mitigate the impact which it has identified. It is difficult for me to see how the data of any study which identifies impacts but then proposes no mitigation measures would have been inputted into the model. I cannot see how that data will have any impact (however iterative or indirect) on the modelling and thus on the design and construction of the windfarm and the wind turbines. So when considering the studies, I will be concentrating on the mitigation measures.

156. I have set out at [27] and [28] above Mr Mechali's evidence that the EIA studies and the data gathered from them influenced the design of the windfarm. He also ran through the list of EIA studies set out above and stated that they were carried out for each of the appellants windfarms and that where they revealed potential negative effects on the natural environment, mitigation measures were considered. He also added, under cross-examination, that he had yet to see an EIA which did not feed into the design of a windfarm.

157. This evidence was not seriously challenged by HMRC. Their view was that (broadly speaking) the results of the EIA studies provided information which went to the best configuration or layout of the windfarm as a whole including any modifications as to its boundaries. Those boundaries were important not just for environmental reasons but also to maximise the energy yield of the site. What the appellants have failed to do, however, is to identify any instances of where the EIA data has influenced the design of the individual wind turbines. The low flying birds example given by Mr Mechali does not relate to any of the four windfarms in this appeal. Furthermore, painting parts of the wind turbines in certain colours (for example yellow) is driven by regulatory and navigational obligations rather than the results of the EIA studies. This latter point is certainly consistent with the evidence. In the relevant section of the Gunfleet II EIA, "the need to paint the lower sections of the turbine columns yellow in accordance with Trinity House requirements is unavoidable."

158. But to see whether their broader submission is correct, I now need to go through each of the EIA studies in respect of each windfarm and consider the evidence that has been presented by the appellants for their submission that the data from the EIA studies directly relates to, the necessary design of these windfarms and/or the wind turbines of which they are comprised and/or their safe and effective installation.

Scoping

159. I find the following additional facts:

(1) The EIA for WODS notes that scoping is a vital early step in the preparation of the EIA and the scoping assessment identifies issues that are likely to be important during the EIA and eliminates those that are not.

(2) The EIA for Walney states that scoping is the process of identifying the content and extent of the environmental information to be submitted to the Competent Authority under the EIA procedure. On the basis of expert knowledge, checklists and existing information, the applicant outlines the impacts of the proposed project focusing on the most important ones.

(3) The EIA for Gunfleet notes that an EIA is useful to the development of the project in several ways in addition to aiding the consent process. To establish the nature of the environment and engage local usage of the area; to enable the development to be designed to minimise impact on habitats and human activities; to facilitate a decision by planning authorities.

(4) The EIA for Gunfleet II indicates that the objectives of the scoping report were to set out the overall approach to the EIA process; identify the main environmental impacts of the construction and operation of the windfarm; to identify the relevant environmental studies that needed to be carried out, and to invite comments from key stakeholders.

160. In my view none of the expenses incurred on scoping directly relate to the neccessary design construction and installation of the windfarm or the wind turbines, and I so find. The scoping exercise is a prelude to the EIA and identifies the matters that will be considered by the EIA and the reasons for them. This is an indirect relationship with the design of the windfarm and the wind turbines, not a direct one. It puts the appellant in the position that they can then undertake the studies required for the EIA.

161. The appellants point out that as regards Walney and WODS the scoping exercise identified certain issues which resulted in changes to site location (in the case of WODS) and

a boundary amendment (in the case of Walney). And that this had an impact on the design since it meant moving wind turbines into different areas. But I think there is a distinction between design on the one hand and location on the other. The appellants assert that a windfarm should be considered to be a single wind power station. By analogy, deciding in which parts of sea and seabed within the location identified by the Crown Estate to position the wind turbines is similar to deciding where, on land, one might build a physical power station. Studies which inform the location of the power station do not directly relate to the provision of the plant which is then required for the operation of the power station nor to its necessary design. Whilst the physical parameters of the building might have a considerable impact on the design of that plant (and vice versa) studies relating to the positioning of the building do not directly relate to the design of the plant. And the same is true, to my mind, when considering the scoping of the EIA and any impact which information derived from that scoping might have on the location of the windfarm. Any expenditure on that scoping is too remote.

162. That expenditure, too, does not directly relate to the safe and effective construction or installation of the wind turbines.

Landscape, seascape and visual assessment

163. I find the following additional facts:

(1) The study for WODS notes that potential mitigation measures to reduce potential seascape and visual impact are very limited. It then outlines the measures that are being considered and addressed in the design of the windfarm. It states that a well-balanced turbine arrangement would assist in minimising visual impact. It identifies that three bladed wind turbines are proposed which tend to be preferable visually. It also identifies the wind turbine as being pale grey in colour but that their lower sections would be painted yellow for safety reasons.

(2) The limited scope for mitigation is also reflected in the study for Gunfleet. It suggests that imposing a more regular grid like arrangement into an otherwise bland environment is preferable. There are fewer physical and aesthetic constraints when deciding where to situate a windfarm offshore than there are for an onshore windfarm. It discusses the mitigation measures to remove potential seascape and visual effects arising from the onshore infrastructure. It identifies that there is "necessary" spacing between the wind turbines and that there should be a formal geometric arrangement of the wind turbines which would visually sit comfortably within their environment. It also deals with the grey/yellow colouring of the wind turbines.

(3) The study for Walney also states that the possible mitigation measures to reduce potential seascape and visual impact are very limited but identifies those that have been considered and addressed in the design of the windfarm. It, too, deals with three bladed wind turbines being preferable as they appear more balanced and with the grey/yellow colour scheme. It states that one of the principal factors in determining the best turbine arrangement was to provide a well-balanced layout; and that there were three different layouts then currently under consideration which incorporated turbine arrangements in the north-west to south-easterly direction and given constraints such as pipeline cable routes and shipping lanes the potential for alternative turbine layouts was restricted.

(4) The study for Gunfleet II also states that there are very limited opportunities for incorporating mitigation measures within the development and that the actual siting of the wind turbines is to a large extent predetermined by the Crown Estate with only more local

adjustments being possible to best suit the prevailing seabed conditions. It deals with paint colours and the need for the wind turbines to have navigation lights so they can be seen at night.

164. In my view, the mitigation measures set out in these studies do not demonstrate that these assessments directly relate to the necessary design of the windfarms even though they deal with the arrangements of the turbines within their respective locations, and I so find. Simply identifying the type of array and grid which the wind turbines should adopt is not necessary design. There is no evidence that the type of array or grid, if different from that which was suggested ultimately used, would render the windfarm or the wind turbines incapable of generating electricity. The studies do not relate to the specific positions which, within that array, each wind turbine should occupy, which might have an impact on a windfarms ability to generate electricity. Nor do I believe that the paint colour directly relates to necessary design since it is a regulatory requirement, and the windfarm and wind turbines would generate electricity irrespective of what colour paint was used. The comment regarding three versus four bladed turbines simply equips the appellants to go into the marketplace and purchase the appropriate turbine. It does not, of itself, have an impact on the necessary design of that turbine. It puts the appellants in the position so it can buy the appropriate turbine rather than being on the provision on either the windfarm as a single item or on the wind turbines as individual items. There is no evidence that had the turbines had four blades, they would not have been capable of generating electricity.

165. As regards their direct relationship with the design construction and installation of the wind turbines themselves, I cannot see any direct relationship to necessary design nor to safe and effective installation. The appellants might argue that anything which affects the design of the windfarm must automatically affect the design of each wind turbine since the design of the windfarm dictates the specific location of each wind turbine and thus the specific characteristics which that wind turbine requires to occupy that location. But that is an indirect relationship, not a direct one. The same is true of the suggestion that three bladed rotors are more visually acceptable. That does not directly relate to the necessary design of a three bladed wind turbine. It simply arms the appellants with information which enables them to go into the market, rather like the financing in *Ben-Odeco.* Furthermore, as I have mentioned above, there is no evidence that electricity could not be generated by four bladed rotors. I find that the costs incurred on these studies are not on the provision of the wind turbines nor on their installation.

Benthos

166. I find the following additional facts:

(1) The study for WODS states that throughout its development a number of mitigation measures will be instigated that are aimed at reducing the impact of the construction, operation and decommissioning of the windfarm on the environment. And that such measures will be the result of detailed planning and design of the windfarm itself and of the methods used to construct and decommission it. It identifies that the design of the piles has the greatest potential for mitigation and that the smallest area of seabed would be affected if monopiles or suction caissons are used. It refers to the three development options, and notes that "Gravity bases and tripods are both likely to result in impacts to a greater seabed area." It also refers to the location of the windfarm itself, being outside an area designated for conservation purposes, will ensure that the most important benthic habitats and species are avoided. It also goes on to talk about the benefit using high-voltage cables to minimise the number of export cables. Finally, in discussing the presence of vessels during construction, it considers the impact of the feet of the jack-up vessels engaged in preconstruction survey work or pile, turbine, or cable installation

and that the physical impact to the benthos caught under the feet is likely to result in mortality. There will also be disturbance of sediment including increased suspension and displacement. It then specifies, in more detail, the physical impact on the assumption that a number of visits will be required and that if a tripod foundation was chosen, it is likely to cause more impact than if a monopile foundation was chosen.

(2) The study for Walney considers the studies and mitigation in the context of four configurations of wind turbines (ranging from large numbers of smaller turbines to small numbers of larger turbines) and three layouts of the "Park" (for both phase 1 and phase 2 of Walney). Those layouts describe, diagrammatically, the area of sea and seabed over which, or rather in which, the windfarms can be located, and identify very different areas within that overall area for the location of the windfarms in phases 1 and 2. It describes the impact to the benthos of the preconstruction and construction phases, including physical disturbance and temporary loss of seabed, identifies scour zones and the impact they would have on benthos and concludes that "throughout the development of the Walney windfarm a number of mitigation measures will [be] deployed to reduce any impact of the construction operation and decommissioning of the windfarm on the environment. Such measures will be the result of detailed planning and design of the windfarm itself and of the methods used to decommission it. As no impacts on benthos are assessed to be more than minor, the major mitigation will be to ensure that construction, operation and decommissioning activities take place according to the scheduled work process. In particular it will [be]important to minimise jetting during cable laying operations."

(3) The study for Gunfleet notes that "for the majority of factors that affect benthic community structure, it is predicted that the Gunfleet Sands windfarm will result in changes that are either within the measurable baseline variation and/or be non-significant effects." It then identifies a number of possible exceptions including impacts caused by the installation of the monopiles, localised scouring and inputs from contaminants. It states that the overall impacts on benthic invertebrates are considered to be medium-term and slightly positive and that the diversity of benthic invertebrates is expected to increase due to the introduction of hard substrates and no mitigation measures are proposed. Furthermore, once the windfarm is in operation, no mitigation will be required to mitigate the impact on fish and shellfish. But for the construction and decommissioning phases, mitigation is required, the priority being to avoid spawning periods for species which use the site or are especially sensitive to increased sediment in suspension. Consequently "construction must not be undertaken from mid-January to May."

(4) The study for Gunfleet II notes that there will only be a negligible impact on benthic communities from increased suspended and deposited sediment during the construction phase and so no mitigation is required. The same is true of the impact from the release of contaminants, but mitigation is required to ensure that the potential release of pollutants arising directly from the construction vessels and activities which will be deployed during the construction phase and windfarm operation (including spillages of diesel, anti-foulant and sewage discharges) is minimised. It goes on to state that there are no mitigation measures available to minimise the loss of benthic habitat from the operation of the wind turbines and foundations but only a minor adverse impact upon benthic communities from habitat loss is predicted. The study considers the impact of scour protection which will be used around the base of the wind turbines and predicts there will be a negligible impact upon benthic communities as a result of the use of scour protection. Indeed it may lead to increased biodiversity, as will the colonisation of the wind turbines. It observes that zinc or aluminium anodes will be used to provide cathodic protection for the turbines and suggests that as a

mitigation measure aluminium could be used since it is non-toxic. Its overall conclusion is that although there will be adverse impacts upon benthic communities from the proposed development, these will be localised and have only minor adverse significance.

167. My view in relation to the studies is that where it can be shown that mitigation measures were identified within the EIA, there can potentially be an impact on the necessary design and construction or installation of either the windfarm or the wind turbines.

168. It is self-evident that installing wind turbines is bound to have an impact on the seabed and the organisms which populate it. And installing those wind turbines is bound to throw up sediment which in turn may have an impact on those organisms. But the studies, even if they confirm this, are still an important element of due diligence. As has been identified in the context of Gunfleet, construction should not be undertaken between certain months. This will of course have a direct impact on the construction of the windfarm and reflects the fact that conclusions from these benthic studies might have an impact on the windfarm, the wind turbines, and their design construction and installation. However, as far as installation is concerned, the studies must relate to the safety and effectiveness of installation.

169. As regards WODS, I find that the benthos studies do directly relate to the safe and effective installation of the wind turbines. Safety is not limited to the safety of human beings, but to all animal and plant species. The studies indicate that monopile foundations would affect a smaller area of seabed, and thus destroy fewer benthic communities, then other foundations. Consideration has been given to the impact of the installation vessels on the benthos. I also find that they relate directly to the necessary design of the windfarm and of the wind turbines individually. At the time of the study it is clear that three development options were being considered and the studies indicate that the nature of the foundations would have a significant impact on the benthos. Even though this may simply be endorsing one of the development options, it is still relevant to the necessary design not only of the windfarm itself but also of each wind turbine since the type of foundation of a wind turbine is of fundamental importance to its design and to its ability to generate electricity. However, the high-voltage cables relate to the transmission assets are not the generation assets.

170. As regards Walney, I find that the benthos studies do not relate directly either to the design of either the windfarm or the wind turbines but do directly relate to safe installation. Safe here being safe for the benthos. The impact on the benthos is a consequence of the design of the windfarm, rather than the benthos impacting on that design.

171. The survey for Gunfleet shows that there are no significant adverse impacts to the benthos caused by the windfarm and that no mitigation is required save in respect of the construction of the windfarm taking place outside the spawning period. This therefore has a direct relationship with the safety of the benthic community. I find, therefore, that the surveys did not relate directly to the necessary design of the windfarm nor of the wind turbines, as without them, electricity could have been generated, but did relate directly to the installation of the wind turbines.

172. Similarly, the survey for Gunfleet II shows only negligible impact arising from the construction and operation of the windfarm and the installation of the wind turbines. But it does recognise the impact of pollutants which will be released from vessels during the construction and operational phases, and the impact that these will have on the benthos. It is self-evident that fewer pollutants will result in a safer benthic community. And I find, therefore, that whilst the survey does not directly relate to the necessary design of the windfarm it does directly relate

to the safe installation of the wind turbines. Furthermore it does not relate directly to the design of the wind turbines. Although it identifies cathodic protection being required and the alternatives of aluminium and zinc cathodes, as Miss Wilson observes there is no evidence that such cathodic protection was actually incorporated into the wind turbines themselves at this site, nor that such protection was necessary to ensure the generation of electricity. Whilst I have explained above that simply because there can be no cause and direct effect identified between the surveys on the one hand and their impact on the other, that does not rule out the need for there to be a direct relationship between the survey (and its expenditure) and the design etc of the windfarms or wind turbines. This is a specific matter identified in a survey and for it to have been taken into account in the necessary design of the wind turbines at this location, I would have expected cogent evidence that that was the case. And I have none.

Ornithology and collision risk

173. I find the following additional facts:

(1) The study for WODS states that the study area for the assessment includes the windfarm area and its surrounds. It is based on aerial surveys flown in the east Irish sea, which surveys transected an area of approximately 512 km². It therefore extended way beyond the windfarm site. Boat and radar surveys were also undertaken. The studies consider the impact of the windfarm on migrating bird populations, flight heights and conservation status. It identifies potential effects from noise and vibrations during the construction phase, habitat loss during operation (the impact of this loss is considered to be negligible) disturbance from operation (restricted to highly sensitive species with restricted distributions) collision mortality and barrier effects. A table comprising a summary of the predicted impact magnitudes on a variety of bird species shows that in the vast majority of cases, the foregoing impacts are negligible. As far as mitigation measures are concerned, it notes that the windfarm designs incorporate several features that reduce the potential effect of windfarm construction and operation. "Key amongst those is the location which is within an area of low bird density". Its main recommendation is that at night, bright lighting during the construction phase and during the operational phase should be avoided.

(2) The study for Gunfleet identifies that birds that nest on land could be disturbed by the export cables for which the prior mitigation measure is to use an underground cable route rather than overhead power line. It notes that the level of lighting proposed for the offshore wind turbines during operation will be a significantly reduced intensity and concentration, remote from the sea surface, and therefore markedly less attractive to marine birds. The windfarm is predicted to have a low or negligible effect on breeding birds of medium sensitivity. Overall, the main mitigation measure on the potential effects on most bird species is the siting of the windfarm remote from their habitat or main flight paths.

(3) The study for Walney considers the site area and its surrounds. It considers the impact on migrating bird populations, the data for this being derived from aerial surveys. These also provided data on flight height patterns. Radar surveys provided data in connection with concerns about the potential for collision of certain bird species with the wind turbines. The ornithological importance of the windfarm area was discussed. The impacts of construction such as noise and vibration causing disturbance was considered to be negligible particularly if cable laying works are confined to the summer months. A table, similar to that in the WODS study which deals with a number of species, their sensitivity, and the magnitude of potential risks from disturbance, displacement, collision, and barrier effects, during construction and operation identified that in the vast majority of cases, those impacts were negligible. The key

mitigation measure was the location of the windfarm site which is within an area of low bird density and which avoids concentration of sensitive species. The relative position and orientation of the windfarms also minimise potential barrier effects. It recommends that bright lighting at night should be avoided.

(4) The study for Gunfleet II. The data for this study was gathered from both aerial and boat surveys in relation not just to the development site but also its surrounds. It considers the various bird populations across that broad area, flight heights to assess the risk of bird collisions with wind turbines, and the ornithological importance of the study area. It identifies that noise and vibration during the construction phase might disturb sensitive bird populations; that disturbance is likely to be temporary and that this disturbance will produce an effect of "negligible magnitude". The non sensitive species' numbers are sufficiently low that no impact is predicted as a result of the disturbance caused by construction activities. Loss of habitat during the operational phase is of very low significance. The potential mortality arising from collision with turbines is of negligible magnitude and very low significance. The potential barrier effects are negligible or low/very low significance. There will be no impact due to habitat loss. These impacts are, broadly speaking, the same across all species, and a table identifying various species of birds, their sensitivities, and the overall magnitude of the impacts and their significance identifies those main impacts, in the majority of cases they are negligible and their significance is low or very low. The only mitigation measure identified is that during construction works, which should be undertaken outside the periods when throated divers are present, lighting which is known to minimise the attraction to birds should be used at night.

174. As can be seen from the foregoing, the main mitigation factor is the location of the windfarm. Location is not design, for the reasons I have given above. This is not a case where mitigation drives the design or construction of the windfarm or its components. It is the other way round. The siting of the windfarm and its turbines mitigate the impact of the windfarms on the various bird populations. So I am not able to find that those mitigation measures would have found their way into the computer modelling and thus have any direct or indirect relationship with the necessary design of the windfarm or its components. The recommendation that an export cable is buried deals with an item which is part of the transmission assets and not the generation assets. Although Mr Mechali gave evidence that at two other windfarms, the height of wind turbines had been altered as a result of ornithological studies, he could give no evidence that the same is true of any of the windfarms which are the subject of this appeal. In the vast majority of cases in all four studies, the significance of the impact on bird species was low or very low and the magnitude of that impact was low or negligible. I therefore conclude that the ornithological studies do not directly relate to the design construction or installation of either the windfarm or the wind turbines.

Fish and shellfish studies

175. I find the following additional facts:

(1) The study for WODS considers the impact of the windfarm on commercial fishing in the area which is analysed using information from satellites. It identifies that safety issues will be dealt with during the construction phase by closing the site to fishing vessels and the same will apply when laying the export cable. Construction debris will be removed from the seabed. Commercial fishing might be affected by the potential impact on fish populations. It also considers the impact on a variety of fish and shellfish. Noise and waste generated during the construction phases and surveys is identified as having an impact as, too, is the noise from piling, drilling, scour protection, dumping, release of contaminated sediment and temporary

loss of seabed area. During the operation phase, the lack of commercial fishing in the area would result in reduced impact on juvenile stages of the fish and shellfish which would mean that they would grow to a larger size than might otherwise be the case. Mitigation measures "will be the result of detailed planning and design of the windfarm itself and of the methods used to construct and decommission it". And under a heading 'windfarm design', the study identifies that the "design of the piles has the greatest potential for mitigation in respect of the fish and shellfish populations" and that the lowest area of seabed which would be affected would result from the use of monopiles or suction caissons. Noise mitigation measures could include minimising pile diameter where possible and using "soft start" piling. Reducing levels of suspended solids could include ploughing the majority of the cable route and minimising the number of foundations.

(2) The study for Gunfleet considers physical obstruction, sediment plumes, electromagnetic fields, noise and artificial reef effect. It concludes that once the windfarm is in operation mitigation will not be required. But for the construction and decommissioning phases mitigation is required, the priority being to avoid spawning periods particularly for species which use the site or are especially sensitive to increased sediment in suspension. So the period to avoid for herring is mid-January to May as is true of sole and plaice. Consequently "construction must not be undertaken from mid-January to May."

(3) The study for Walney considers the impact on fish shellfish and their spawning and breeding grounds. The impacts of construction operation depends on the sensitivities of the various species. It considers the impact of noise, piling, drilling, scour protection dumping, resuspension of sediment, and displacement during the construction phase. During the operational phase it considers loss of soft seabed, changing seabed substrate, changes to the existing fishing areas, noise and electromagnetic fields. As for mitigation, it states that the impact of noise from piling operations and electromagnetic fields have the potential to be more than minor negative impacts, although the possible impact of the latter is uncertain. "Provided that the construction takes place in accordance with the principles described in section 3, in particular avoid jetting of cables and limit the extent of the seabed change due to scour protection, no further need for mitigation measures is foreseen in order to protect the fish and shellfish populations." A table showing the foregoing issues, and the magnitude and significance of them, shows that in most cases the magnitude will be minor as will the significance. The persistence of some of these will also be temporary and short term (although some will be permanent, for example loss of seabed area).

(4) The study for Gunfleet II considers the impact of a number of issues on the habitats, spawning grounds and migration routes of fish populations. No mitigation measures are required in relation to any increase in suspended sediment arising from construction and decommissioning. Noise is identified as creating a moderate-major adverse impact on the spawning of certain species but is mitigated by a commitment that no piling works would take place from 1 February to 1 June in each construction season. Piling noise is also identified as having a significant impact and mitigation measure using a mechanical "soft start" method is to be used during the piling activity. No mitigation measures are required to mitigate the loss of fisheries habitats caused by the presence of the turbines. Indeed they may have a benefit. No mitigation measures are required for the reef effects. No mitigation was available to offset the potential effects of electromagnetic fields.

176. It is my view that the studies inform and directly relate to the construction of the four windfarms in that it is clear that during the construction phase, noise is likely to have a significant impact on the fish and shellfish populations, and the studies for Gunfleet and

Gunfleet II identify that these should be minimised by undertaking construction at certain times of the year. They therefore directly relate to the safe installation of the wind turbines, that safety being guaged from the point of view of the fish and shellfish populations. The studies for Walney and WODS also consider the way in which the construction should be carried out, in the former recommending soft start piling, and the latter identifying that if construction is carried out in a certain way, the impact on the fish populations will be minimised. The safe construction of the windfarms could not have taken place in the manner in which they did without the information from the studies. However, I do not consider that the studies directly relate either to the necessary design of the windfarms themselves nor to the wind turbines which make up those windfarms. This is notwithstanding that in the study for WODS there is reference to windfarm design and the fact that the lowest area of seabed which would result from the use of monopiles or suction caissons. The study does not go any further and suggest designs for those wind turbines without which the windfarms or the wind turbines could not generate electricity nor to the specific relative positioning of them within the site.

Marine mammal studies

177. I find the following additional facts:

(1) The study for WODS considers the impact on marine mammals such as dolphins seals and porpoises. The construction phase is not expected to have a significant impact on these. It discusses the piling operations required for monopiles and tripods and the time taken for each piling, but in the context that marine mammals are likely to return to the construction site in between piling activities. Noise might have a detrimental impact during the construction phase if no mitigation measures are taken. Such mitigation measures are "expected to include deterrent devices (e.g. pingers or seal scrammers). The exact methodology will be agreed with the authorities in advance of construction." No mitigation measures are planned during the operation phase.

(2) The study for Gunfleet notes that the windfarm may potentially impact on marine mammals at several stages in its development. Initially during the construction of the wind turbines and the placing of the export cables which might cause both acoustic and physical disturbance. Subsequently, the operation of the windfarm will result in a background level of noise and vibration. The positioning of the turbines will result in a reduction in habitat for feeding, breeding and resting and may affect transit routes. The study focuses on seals. It identifies that no medium or long-term mitigation measures are required but the presence of seals should be monitored while construction work is underway during the pupping or moulting seasons. Construction work should be limited during these periods and where seals are lying on sandbanks, piling should stop until seals move. "This does not prevent piling occurring from June to August but does require observations during construction and the cessation of piling if seals are present."

(3) The study for Walney deals in the main with dolphins, porpoises and grey seals but refers also to whales and turtles. It notes that underwater noise is a well-documented factor which affects marine mammal distribution during marine construction works. Loudest noises generated during construction are associated with the pile driving and seismic surveys. It notes that the potentially significant impacts on the target species during pile driving operations will require mitigation methods during that phase. As in WODS it notes that mitigation measures are expected to include deterrent devices but that the exact methodology will be agreed with the relevant authorities prior to construction. No mitigation measures are proposed for gravity and bucket foundations.

(4) The study for Gunfleet II notes that no specific surveys have been conducted for this windfarm but the area was covered during the boat and aerial surveys for birds between January 2002 and December 2005. It deals, largely, with dolphins, porpoises and seals. It notes that pile driving produces very loud underwater sounds that can be fatal or acutely injurious to seals and this might be caused by pile driving operations. Mitigation measures during the construction phase include appointing suitably qualified observers to record sightings of marine mammals and undertaking piling activities only after a period has elapsed and they have not been detected. Piling would be undertaken using the soft start procedure, the duration and nature of which should be discussed and agreed with the relevant observer. The piling will start on low power and increased uniformly over a 20-minute period until full operational power is reached. The same mitigation measures are proposed in respect of dolphins and porpoises. No mitigation is proposed as regards the impact of noise and vibration generated during the operation phase nor in respect of the loss of habitat caused by the presence of wind turbines and associated scour protection. It also notes that the significance of effects as a result of the windfarm is predicted to be no greater than minor adverse, and because of the changes in habitat around wind turbine bases, it is expected that a minor benefit could occur for marine mammals.

178. It is clear from the foregoing that these studies have a direct relationship with the construction phase of each windfarm, and I so find. There are clear mitigation measures which will be taken during that phase to reduce the impact of construction noise on the marine mammals. These relate to the safety of the marine mammal population. But I do not accept Mr Jones' submission that they had an impact on the necessary design of the windfarm or of the wind turbines simply because monopiles and tripods require noisy installation whereas other foundation types such as gravity and bucket foundations can be installed without piling operations. This is not a situation, as in previous studies, where it is clear from the study that a number of alternative foundation designs were actively under consideration at the time of the study. The fact that all of the studies dealt comprehensively with noise during the construction phase makes it clear that it had already been concluded at that stage that there was going to be a foundation which required piling operations. Any reference to alternative foundations which did not require such operations is, to my mind, too remote and the costs of the studies do not directly relate either to the necessary design of the windfarm nor of the individual wind turbines.

Archaeology, wrecks and cultural heritage sites

179. I find the following additional facts:

(1) The study for WODS records that the study area contains 115 terrestrial sites and monuments and 61 maritime records including known wrecks and recorded obstructions. It identifies that the construction of the windfarm and cable route may have a number of impacts on archaeological material. That impact arises from foundations, scour protection, the offshore cable route, cable landfall and trenching, anchoring by construction and maintenance vessels and decommissioning. It notes that further investigation is required since without it, it is not possible to assess the significance of the effect of the development upon unidentified seabed features or unidentified wrecks. It proposes as a mitigation measure that all aspects of any further archaeological work are detailed by a written scheme of investigation which would make provision for other forms of archaeological mitigation that might be required in light of preconstruction investigations.

(2) The study for Gunfleet notes that two types of site might be present within the windfarm and along the line of the marine cable route. Drowned prehistoric sites and landscapes, and

shipwrecks and associated material. As in WODS it identifies the main threats arise from foundations, scour protection, internal electrical infrastructure (i.e. the array cables) the export cables, shore landing points, anchoring and decommissioning. It states that there is one confirmed wreck site and five possible wreck sites which might be affected by the windfarm and the export cable. In view of their potential archaeological significance, a mitigation measure is proposed which places exclusionary zones around the five possible wreck sites and the identified wreck site and that exclusion zones with a diameter of 100 metres are suggested for the wind turbine sites to prevent the cable, piles anchors damaging potential artefacts. It also notes that there are nine recorded losses of military aircraft which are recorded as having "ditched off Clacton-on-Sea" whilst in military service or due to military action. It also identifies six vessels which may have sunk in the region while in military service or due to military action.

(3) The study for Walney, as for the two windfarms above, identifies that construction of the windfarm cable route may have a number of impacts upon archaeological material, and the main threats arise from foundations, scour protection, the array cables, export cable installation, cable landfall and trenching, and anchoring. Known sites lie within the windfarm area and for sites lie within 250 metres of the proposed export cable route. Construction might impact upon unknown wrecks both directly and indirectly due to disturbance and destabilisation of the sites. Mitigation to avoid direct impact on important archaeological findings is by minor adjustments to the locations of turbine foundations or the cable route whenever possible. If the plans cannot be altered to avoid an important archaeological site then excavation may be necessary. There is a proposal that archaeological work following the submission of the environmental study will be set out in a written scheme of investigation which will make provision for other forms of archaeological mitigation which might be required in the light of pre-construction investigations. Suggested mitigation to minimise significant effects upon the archaeological resource includes exclusion zones, archaeological analysis, archaeological monitoring and inspection and a protocol for the recording any finds that may come to light during the course of construction.

(4) The study for Gunfleet II also records the loss of military aircraft and vessels recorded in the study for Gunfleet. It notes that three unidentified wrecks and one possible wreck lie within the footprint of the proposed windfarm, although further possible wrecks lie outside the windfarm area but within the marine study area. There were a number of documented losses of vessels between 1633 and 1943 (including those merchant and military vessels and aircraft previously mentioned) and more over the broader area in which the site would be located. Impacts on these archaeological resources or wrecks are identified arising from the installation of the foundations and scour protection, the array cabling, and the anchoring by construction and maintenance vessels. It proposes mitigation measures, including a possible exclusion zone around the three known wrecks, the dimensions of which depend upon obtaining further information. A protocol for unexpected discoveries should be prepared which would deal with items of archaeological importance which are discovered in the course of construction and which would make provision for the institution of temporary exclusion zones around areas of possible archaeological interest. Any such archaeological discoveries should be reported. Further archaeological research should be detailed in a written scheme of investigation which will make provision for such other forms of archaeological mitigation which might be required. It observes that it is an offence to carry out any unauthorised excavations within the immediate vicinity of any remains of military aircraft discovered in the course of construction.

180. Miss Wilson submitted that the studies go to the configuration or layout of the site as a whole, but not to the design of the wind turbines themselves. I agree. They also directly relate

to the installation of the wind turbines since they are vital for safe installation. It would be disastrous for either a foot of the installation vessel or a foundation to be put down on seabed at the site of an unexploded bomb. It is clear from the foregoing findings that items of archaeological importance would be affected by the particular location of the wind turbines and the array cables, and that where those items have been discovered on the site of the windfarms, mitigation measures such as exclusion zones have been discussed and implemented. Mr Mechali's evidence was that metal objects, including unexploded ordnance and fighter aircraft, would be detected during the geophysical studies and that if they were identified, Orsted would not lay a cable through a site where it is likely that the remains of a pilot was still in the cockpit. And although this was in the context of the geophysical studies, I can see the same applying to the data arising from the archaeological studies. I find from the evidence that the expenditure on the studies did have a direct relationship with the design of the windfarm as a whole, and on its construction and the installation of the wind turbines since the particular locations at which the wind turbines were to be installed was influenced by the location of the archaeological items. But this, to my mind is unnecessary design. There is no evidence that even in the positions influenced by the data from these studies, the windfarms could not generate electricity. Nor had it any direct relationship with the necessary design of the individual wind turbines. Whilst the design of each individual turbine depends upon its particular location within a windfarm, it is only once that position has been decided upon that the necessary design can be undertaken. The studies, therefore, related to the position of, rather than to the necessary design of, the wind turbines themselves once those positions had been identified.

Noise assessment

181. I find the following additional facts:

(1) The study for WODS. The study explains that it considers the noise impact of the proposed windfarm during the construction operational and decommissioning phases. It deals with airborne and underwater noise. It notes that noise levels during the construction phase are likely to arise from short periods of intense activity. Noise levels during operation are likely to be minimal. Mitigation measures for reducing noise during the construction phase will be minimised if the construction phase is of short duration. An auger piling technique could be employed which is quieter than the more traditional impact techniques. Operational phase noise is mitigated by selection of latest turbine technology.

(2) The study for Gunfleet. This repeats the impact of noise on marine mammals mentioned in that study. It notes that the noisiest construction activities will be the insertion of the tower support structure for which a number of alternative methods exist including driven monopiles, augered/drilled monopiles and multiple foundations. The first of these contains the highest potential for noise disturbance. It also considers foghorn noise. It deals with the impact of noise on onshore locations and notes that sleep disturbance will not occur during the construction phase even if the pile is driven during nighttime hours. It notes that noise can be lessened by the use of acoustic shield bubble curtains around the work area; acoustic deterrents should be used so that fish and mammals avoid the area; soft start piling should be used; they repeat the mitigation measures in relation to marine mammals as regards the period in which construction should take place.

(3) The study for Walney. This notes that piling will be the noisiest activity and that noise during the operational phase is likely to be of a lower level. With respect to airborne noise the impacts are so insignificant that no mitigation is deemed necessary apart from the normal

requirements regarding the planning of onshore cable trenching. Mitigation of waterborne noise during the construction phase can be minimised by good engineering and using the correct combination of piles and piledriver for the job.

(4) The study for Gunfleet II. This considers noise from general construction activity, noise from construction vessels, noise from cabling and noise from decommissioning. Apart from general construction activity, the noise from the other three activities is deemed to be insignificant. No mitigation measures are identified for noise generated either during the construction or operational phase.

182. The impacts of noise and associated mitigation measures during the construction phase appear to me to be largely replicating those identified in the marine mammal studies where it is clear that mitigation methods to reduce the impact on those animals directly relate to the construction and safe installation of the wind turbines. This is effected by soft start piling, the periods in which construction operations should not take place, and the identification of mammals in the locality when construction operations are proposed. I have allowed these costs in the context of those studies, and there will be an element of double counting if I were to allow them again in respect of the noise studies. It is clear, too, that the studies have no impact on the necessary design of the windfarm or the wind turbines. The costs associated with the noise studies do not attract allowances.

Telecoms and radar interference

183. I find the following additional facts:

(1) The study for WODS. This study notes that within the immediate local area of the windfarm site there are a total of seven submarine telecoms cables, and 10 television and two radio transmitters which might be impacted by the presence of the turbines. "Normally television transmission does not present an issue for offshore windfarms, however, there remains a possibility that transmissions being received on the Isle of Man from the mainland UK transmissions could be affected." There are also mobile phone facilities and services and two communication links with gas platforms which might be affected. Providing care is taken during the construction phase, the study indicates that there is no perceived impact on communication during construction but the export cable routes will require detailed assessment to check for any need to cross existing telecoms cables. Whilst operation of a windfarm can, potentially, affect radio television and mobile phone signals, the study identifies that it is unlikely that the windfarms will cause any significant impact on radio television or mobile telephone network signals and therefore no mitigation will be required. However the study indicates that in light of the concerns regarding microwave links to offshore infrastructure, a third party organisation was commissioned to calculate the extent of an exclusion zone which would ensure that wind turbines were not situated in the area which would potentially interfere with those links. The study notes that mitigation can be achieved by technical solutions or by design; and to design the issue out, the exclusion zone would be respected and those wind turbine locations presented within three scenarios which breach that zone would be moved between 10 metre and 112 meters to ensure towers and rotors respect the exclusion zone. As a result "the minimum distance between towers may be reduced to 700 m in a few instances. This would be a sufficient mitigation on its own to eliminate the issue."

(2) The study for Gunfleet II. This study notes that as there are no fixed telecommunication case links existing within the site, there will be no impact during the construction operational or decommissioning phases; so no mitigation measures are required.

(3) The study for Gunfleet notes that the proposed turbine design will cause significant backscatter to radio waves which means that the structures will be visible to many radars in the area around the Thames estuary. However the effects will move as the observer moves (for example on a ship) and so can be ignored by radar operators. The turbines will indicate shallow water and thus might be an aid to navigation. Limited shadowing to land radar caused by the windfarms might be mitigated by moving onshore radar. There is expected to be no impact on terrestrial television and radio reception.

(4) The study for Walney. This identifies that there are 10 television and two radio transmitters in the region that could be impacted as well as seven submarine telecommunication cables. It identifies the potential impacts and declares that it is not foreseen that there will be any impact with regard interference of communication links during construction. "Full attention will be given to the BT cable. All vessels working in the area will receive detailed instruction on cable coordinates and safety zones. No impacts are foreseen during operation."

184. In the case of WODS it is clear that the overall configuration of the windfarm was considered, and a suggestion was made to design out an issue relating to interference with microwave links to offshore infrastructure. I find, therefore, that this study has a direct link with the design of the overall windfarm. But this is a link to unnecessary design rather than to necessary design. There is no evidence that if that designing out had not been undertaken, the windfarm would not have been capable of generating electricity. There is nothing in the evidence that suggests to me that the studies had any impact on the configuration of the other three windfarms and I so find. I find, too, that the studies had no impact on the necessary design of the wind turbines nor on their construction or installation. There is no evidence that without the studies, the wind turbines would not have been able to generate electricity. I can see nothing in these studies which directly relate to the safe and effective installation of the wind turbines.

Traffic, transport and tourism

185. I find the following additional facts:

(1) The study for WODS. Marine traffic was tracked not just across the site but over a broader area. This included recreational as well as commercial maritime traffic. It identified that there would be an impact on commercial shipping routes, one of which currently passes through the proposed windfarm site boundary and was used by a large proportion of ferries. Other routes passed very close to the site with the fringe of each route passing over the site boundary. Impacts on recreational vessels can be mitigated by a plan for a marked channel through the area. The "subsea cable" will be buried to a safe depth and subject to periodic inspection to ensure that "it" does not become exposed. The windfarm will have an impact on visual navigation, collisions, search and rescue, which can be mitigated by marine navigational marking as well as a consideration to the use of safety zones which will be established and define an area in which all vessels other than those authorised or those vessels seeking to refuge in an emergency situation or the emergency services are allowed to enter. The study summarises the proposed safety zones including a 500 metre safety zone around the perimeter of the site, 50 metre safety zones around each wind turbine and a safety zone of 500 metres for merchant shipping and vessels whose specific activities represent a risk to the structure and the cables. The study also includes a table identifying mitigation measures "Adopted in principle by WODS Project". This includes navigational aids (lights and fog horns) on selected turbines; towers painted yellow from the HAT up to the level of the navigation lights; navigational buoys installed in the area as required by Trinity House; individual lights and numbering on the turbines; emergency shutdown system for turbines/blades; Nacelle hatches capable of being

opened from the outside; blade tip clearance at a minimum 22 m above Mean High Water Springs; cables buried 1-2 metres where feasible. The study also deals with tourism (a mitigation measure being the consideration of placement of information boards at suitable onshore locations); Leisure (mitigation being the aforesaid safety zones); military (mitigation being ongoing liaison with the Ministry of Defence); aviation (mitigation comprising ongoing discussions with the National Air Traffic Services); offshore development & infrastructure (mitigation including the routing and positioning of any potential crossing points for cables or pipelines will be discussed with other infrastructure owners and operators); to reduce the impact of helicopters which move into the area certain measures will be taken (which largely concern the approaches which those helicopters would make to the site); transportation of the components (mitigation for heavy goods vehicles for the delivery of parts and equipment is largely limited to timing).

(2) The study for Gunfleet. The study states that there will be temporary exclusion zones of 500 metres around the works during construction or large-scale maintenance for commercial fishing, but those zones will fall away once the windfarm is operational. However, there will be a permanent 500 metre exclusion zone around the offshore substation. The study notes that the development area is a natural hazard to vessels and so will generally be avoided and minimum disruption can be ensured through various methods including consideration of navigation routes during construction and notification to those who might use the area of the construction and ongoing operation of the windfarm. There will be little impact on commercial aviation or military activity. To assist navigation, aviation lights will be required on certain wind turbines which will consist of two continuous red lights on each such wind turbines of a certain intensity and which will be shielded so that they are not visible by shipping. Navigation lights are to be placed on each corner of the windfarm development and midway along each side of the windfarm. These will be yellow flashing lights located at least 12 metres above HAT. They will be visible for two nautical miles. All wind turbines will be painted with high visibility yellow paint and fitted with retro reflective material up to the equivalent height of the lights. Foghorns will be positioned on each corner of the windfarm.

(3) The study for Walney. This study also tracks commercial and recreational vehicle activity over the site and the broader area. It identifies many of the same impacts as are set out in the study for WODS (which is unsurprising since they are located adjacent to each other). Safety zones are proposed in relation to the construction and operation of this windfarm as were proposed in the WODS study. And like the study in WODS, this study includes a table entitled "Mitigation Measures proposed by MCA and under consideration by the Walney Project". This table sets out many of the same mitigation measures as are set out in the WODS table including emergency shutdown system; painting towers yellow; cables buried 1 to 2 metres; a 500 metre safety zone during construction activities; individual lights and numbering on turbines; nacelle hatches capable of being opened from the outside and blade tip clearance. The impact on local fishing was identified as being loss to the fishing area and increased steaming distances. Most fishermen consulted thought that it would not be safe for trawlers to operate within the windfarm sites and would respect the safety zones mentioned above. The construction and operation of the windfarm will create a number of local jobs. The impact on aviation was limited. However it is clear that helicopter flight paths might be impacted outside normal operations and so "the boundary of Walney offshore windfarm has subsequently been amended slightly further west compared to the original coordinates proposed to the Crown Estate……."

(4) The study for Gunfleet II. This tracks marine vehicle traffic density over the site and an area beyond the site. It also considers the impact on aviation. Mitigation measures to reduce the impact on these are set out in tables and include; fitting the windfarm with navigational

aids as required by, amongst others, Trinity House; establishing safety zones of 500 metres around each offshore structure during construction; vertical clearance zones above construction vessels; 22 metre clearance of blades; turbine blades having the capacity to stop turning when ice forms; staff training; notification of relevant parties; most of the windfarm site being accessible to medium and large vessels; installation of aviation lighting in a suitable and appropriate manner.

186. It is clear from the discussion and imposition of safety zones during the construction phase which is identified in the studies for all four windfarms that these studies relate directly to the construction of the windfarms and the installation of the wind turbines. In order for the installation to be safe, there must be exclusion or safety zones. Furthermore, the fact that safety zones were also considered in the context of the operational phase, even if they were not adopted as in the two Gunfleet sites is an indication that they are relevant to the overall design and configuration of the sites. Permanent safety zones during the operational phase were adopted in the cases of Walney and WODS and I have no doubt that the necessity for those safety zones would have been fed into the computer model on which the design of the sites was based. Furthermore, it is clear from the foregoing evidence that the boundary at Walney was altered to take into account helicopter traffic, and it was Mr Mechali's evidence that at WODS the originally planned northern and southern boundaries of the windfarm were significantly altered to minimise impacts on shipping navigation.

187. However, in my view this is unnecessary design as regards the windfarms. I have seen no evidence that without the safety zones, there would have been any detrimental impact on the profitability of the windfarms. It is my view that even if these safety zones had not been imposed or implemented, the windfarms would still have been able to generate electricity.

188. Miss Wilson submits that the appellants had not flagged any instance where navigation or aviation issues caused amendments to designs of individual wind turbines. And that lighting, yellow paint, blade tip clearance height, installation of fenders and cable burial depths which might have an impact on individual design are not free choices on the part of the appellants and are standardised across all wind turbines. She observes that all wind turbines in the UK have yellow transition pieces. All turbines will have lights. The appellants are obliged to follow applicable standards of navigational and aviation safety rules. Safety features are requisite across all wind turbines and it is not an individual design choice for each individual location.

189. I agree with certain of these submissions. As I have mentioned before, painting parts of the wind turbine yellow which is required by, for example, Trinity House, does not in my view go to the necessary design of a wind turbine. And I appreciate her point that lighting is undoubtedly something with which the turbines are equipped with when they are supplied by the manufacturer.

190. The studies illustrate that bespoke lighting is required on certain wind turbines on the Gunfleet sites but not on all; similarly foghorns are required on certain wind turbines but not on all; blade tips must have a certain clearance; in the case of WODS and Walney, nacelles must be capable of being opened from the outside and the turbines must have emergency shutdown systems; for Gunfleet II the blades must have the capability to stop turning when ice forms.

191. I appreciate that at first glance these might appear to have a direct relationship with the necessary design of the wind turbine since they identify a number of characteristics which those wind turbines should have. But it is my view that this is not the case. Information regarding

lighting relates to unnecessary design. Blade tip clearance is something that will need to be factored into the height of the wind turbines which will need to have emergency shutdown systems, and nacelles which open from the outside. I appreciate that these characteristics will need to be factored into the design of the wind turbines, but I have seen no evidence that wind turbines which do not demonstrate these characteristics would not have been capable of generating electricity. Even if the turbines arrived from the manufacturer without emergency shutdown systems or nacelles which opened from the outside, there is no evidence that they could not have operated to generate electricity. And this is the case even if these features were inputted into the computer model on which the design of the individual wind turbines was based. So even if those wind turbines which were installed in the particular positions where particular navigational or aviation lights were required have different characteristics to those in other positions, the studies which inform that do not relate to necessary design.

Socio-economic and tourism

192. I find the following additional facts:

(1) The study for WODS. This considers the impact of the construction and operation of the windfarm on the human environment both local, regional and nationwide. It notes that the windfarm has the potential to generate a range of economic and social impacts, the key economic impact being on the creation and support of employment. No mitigation measures are considered necessary as the proposed windfarm is likely to have an overall positive economic impact.

(2) The study for Walney. This notes that the construction and operation of the windfarm will have social and economic impacts in the region. Construction and operation of the windfarm will create a number of jobs. The windfarm may act as a tourist attraction. No mitigation measures are proposed.

(3) The study for Gunfleet. This notes that the project has potential to generate a range of economic and social impacts which are direct and indirect and which relate mainly to employment. These are positive effects of low/moderate significance. There will be a positive effect on local spend of low/moderate significance. Subject to the safety zone, the area may still be used for recreation and leisure purposes and may benefit such activities.

(4) The study for Gunfleet II. This study largely mirrors the study for Gunfleet. It notes the potential for direct and indirect impacts on employment; it notes minor benefits and that no mitigation measures are required; the same is true on the impact on the local economy. A minor beneficial impact is predicted upon tourism and no mitigation measures are required.

193. In light of the fact that the studies show that the windfarm and its construction is likely to be marginally beneficial to the local communities and that no mitigation measures are required to mitigate the impact of the windfarms, I find that they do not directly relate to the design of the windfarm, or of the wind turbines, and have no impact on the construction of the windfarm and installation of the wind turbines. Expenditure on these studies does not attract allowances.

Metocean studies

194. I find the following additional facts:

General

(1) Following the gathering of data modelling, the results of the metocean studies are evaluated and an input to design basis paper is prepared for each windfarm. These documents deal with wind turbine and windfarm design. There are a number of different editions of each document.

Gunfleet and Gunfleet II-primary facts

(2) The final metocean report was submitted in January 2007.

(3) The input to design basis papers for Gunfleet and Gunfleet II windfarms as a whole include the following:

(a) Introductions which make clear that the documents describe the wind and wave conditions used in the windfarms and provide background for the site assessment of wind conditions relevant for the design basis for wind turbine support structures at the sites.

(b) Sections dealing with inter alia wind data, wind distribution direction, turbulence, wind speeds, extreme wind conditions, wave conditions, extreme wave conditions, maximum wave height and steepness, fatigue conditions, water levels, tidal and surge conditions.

(c) Diagrams in which the foregoing elements are shown impacting on the array of wind turbines at each windfarm.

(d) A list of each wind turbine and its location at each windfarm, an indication of the slope of the seabed in each location and the impact of wind and waves on the wind turbines at each location. They also include summaries of operational design conditions and the impact of wind and waves on design ("For design calculations a shear exponent of 0.11 is used").

(4) The Foundations Tender Documents Design Basis for Gunfleet of August 2009, includes the following:

(a) A statement that the document is to be used by the Foundation Designer in connection with foundation design including appurtenances, temporary structures etc on the Gunfleet Sands Project, Phase 1.

(b) A further statement that the Design Basis includes a level of detail sufficient for the detailed design foundation, design of appurtenances, specification of safety levels and development of O & M specifications related to assumptions made in the design basis.

(c) Sections dealing with site conditions, structural layout, design loads for the primary and secondary structures, natural frequencies, steel structure design parameters including steel thicknesses, interface levels between the foundation and the transition piece and the tower and the secondary structures It includes a table of design load cases with load safety factors and scour protection.

(d) Monopile and transition piece primary structure drawings were produced on various dates in 2007 and 2008. There is a separate drawing for the monopile and transition pieces for each wind turbine which sets out the dimensions for the monopiles

and transition pieces along with the steel quality which is required for both. They also deal with welding.

Secondary facts

(5) It appears that some documents for Gunfleet and Gunfleet II are common to both windfarms, which is unsurprising since they are located next to each other. So, for example, the metocean evaluation, input to design basis amendment document of July 2008 describes the metocean conditions for Gunfleet Sands "Round 2" and that since "Round 2 is placed right next to Round 1……..Where there are no changes relative to Round 1, reference is made to the metocean report for the GFS Round 1." So where the studies refer only to Gunfleet or to Gunfleet II I take the view that they apply equally to the other Gunfleet windfarm.

Walney

(6) The final metocean report was submitted in January 2006.

(7) The document for Walney entitled Site Assessment, Design Basis-Part A of May 2009 notes that the document gives the site assessment for Walney, and "covers Wind conditions, Met-ocean conditions, Seabed conditions, and Other conditions." It goes on to say that the site assessment can be used when designing structures for Wind Turbines and Wind Turbine Foundations.

(8) It notes that the windfarm consists of 42 positions which are to be chosen between the positions listed in a table set out in the document. It goes on to deal with wave, current and water levels, operational design conditions arising therefrom including extreme design conditions as well as scour and other conditions.

(9) The document of May 2008 entitled Walney Offshore Wind Farm, Design Basis Part C-Foundation Structures outlines and describes the design basis to be used for the detailed design of the foundation structures for Walney. Together with two other documents made by "the client" and the wind turbine manufacturer, the document forms the design basis for the design and includes the detailed design of the main steel of the monopile foundation structures suitable for all 42 planned wind turbines in the wind park.

(10) It goes on to note that the foundation design must be appropriate to suit each and all locations in the windfarm and that dynamic interaction between foundations and turbine/towers must be taken into account as well as dynamic response from environmental conditions. It observes that when designing support structures natural frequencies must be considered and catered for. It notes there is dynamic simulation of combined wind and wave action on structure which is modelled by an external contractor following which a separate contractor combines various pieces of information and produces a model "to determine the loading on the foundation and then perform the design optimisation."

(11) Monopile and transition piece primary structure drawings were produced on various dates in 2010. There is a separate drawing for the monopile and transition pieces for each wind turbine which sets out the dimensions for the monopiles and transition pieces along with the steel quality which is required for both.

WODS

(12) There are two documents described as Metocean final report, one in December 2010, the second in February 2011.

(13) The document of December 2010 "Site layout Basis of Design" states that it "serves as the basis of design for the site layout in the [WODS] project." It notes that the layout must consider a number of restrictions which include soil data but no mention is made of wind, wave or other metocean data save that "the water depths vary from about 18 metres... in the South Eastern part of the site to about 23 metres…in the North Western part of the site according to Metocean evaluation November 2010".

(14) Monopile and transition piece primary structure drawings were produced on various dates in 2012. There is a separate drawing for the monopile and transition pieces for each wind turbine which sets out the dimensions for the monopiles and transition pieces along with the steel quality which is required for both. They also deal with welding.

Discussion

195. It is clear to me from the foregoing evidence (and the facts that I have found from it) that the detailed metocean studies directly relate to the necessary design of both the windfarms as a whole and to the wind turbines located in each position on those sites. This windfarm specific evidence corroborates the more general evidence given by the oral witnesses which was that the data from the metocean studies was used for the computer models which generated the necessary designs both for the configuration of the windfarms and for the wind turbines.

196. Without these metocean studies the specific design of the wind turbines could not be undertaken and so they could not have been fabricated. They would have been useless for the purpose for which they were intended namely the generation of electricity. So, the expenditure on the studies directly relates to the necessary design of the wind turbines. It follows that they also directly relate to the necessary design of the windfarms, as a whole, (or rather to the generation assets as a whole) since the specific design of each wind turbine means that it must be positioned at a specific site at each windfarm. Without positioning it at that specific site, it would not be capable of carrying out its function of generating electricity. If it was positioned at a different site, it would not have the characteristics required to generate electricity at that particular site. I appreciate that this is slightly circular, in that one cannot design a wind turbine unless one knows the site at which it will be positioned within the overall windfarm site, and so it is the specific position on the overall site which drives necessary design. But once that wind turbine has been specifically designed for that specific position, its installation at that position is a necessary design of the windfarm. If it was located in another position I do not believe the windfarm could generate electricity.

197. The evidence in respect of WODS is less comprehensive than for the other three windfarm sites. However I come to the foregoing conclusion in respect of WODS for the following reasons. Firstly, it is clear that there were two detailed metocean studies compiled. Secondly there were detailed drawings for the foundations and the transition pieces, which, whilst it reflected input from the geophysical and geotechnical studies, I am content to find also reflected input from the metocean studies given the oral evidence to that effect. Thirdly no point was taken by Miss Wilson that the evidence for WODS was inadequate to justify the appellants' submissions in respect of that windfarm even if it might have been adequate to justify their submissions in respect of the others. And I cannot see that the witnesses of fact were challenged on this point. Although I have not been specifically asked to do this by Mr Jones, I suspect because he considers that evidence in respect of WODS to be overwhelming,

I am content to draw the inference that the data from the metocean studies for WODS was used for the computer models which generated the necessary designs both for the configuration of the windfarm and for the wind turbines at WODS on the basis that it is more probable than not that the use of that data in that way is probably the only available inference that can properly be drawn.

198. However, as regards the desktop metocean studies, the evidence is that these were undertaken as part of the EIA and initial yield analysis which provides an expected electricity production figure by combining the wind data with the expected turbine type. The studies at this point mainly used existing information from public available sources such as previous studies in the same area by third parties or Orsted's studies in connection with other projects in the area. But unlike the evidence of the reconnaissance geophysical and geotechnical studies (with which I deal below and where the evidence is that those studies did provide data on which the design of the windfarms and the wind turbines was based) I cannot see any such evidential link between the desk top metocean studies, and the design of the windfarms and the wind turbines. Whilst that evidential link is robust in the context of the detailed metocean studies, the only evidence that there is a link with the desktop metocean studies is the assertion that the studies, and the data they throw up, is iterative, and that (by implication) the detailed metocean studies build on the information in the desktop metocean studies, and since the former influence design, so must the latter. I am afraid this is not good enough for me. In the absence of clear evidence that the desktop metocean studies provided data which was then used in the necessary design of the windfarms or the wind turbines, I cannot find that the costs incurred on those desktop studies directly relates to the design of either.

199. So it is my conclusion that the expenditure on the detailed metocean studies does qualify for allowances since it directly relates to the necessary design of the windfarms as a whole and to the individual wind turbines. It also directly relates to the construction of the windfarms and the effective installation of each individual wind turbine. However, the costs incurred on the desktop metocean studies do not qualify for allowances.

Geophysical and geotechnical studies

200. I find the following additional facts:

(1) The reconnaissance surveys were designed to get a general impression of the whole polygon or the whole site area selected within that polygon.

(2) They were carried out using geophysical and/or geotechnical methods and followed geological desk top studies. They allowed a first direct assessment of site topography, seabed features, geology and variability.

(3) The primary purpose of these investigations was to inform the windfarm layout and turbine and foundation design.

(4) They also fed into the second round or more detailed studies enabling those studies to be more focused.

(5) For each of the windfarms, Orsted undertook two rounds of geophysical and geotechnical investigations, the aim of which was to build up an accurate ground model of the seabed at each site. The first round was undertaken at the development stage and the second round was undertaken in preparation for the manufacture and construction of the wind turbines and windfarms.

(6) Finally, a third round of geophysical and geotechnical investigations were carried out after FID, just before the construction phase. The purpose of these was partly to check whether there had been any changes to the shape of the seabed since the first investigations and to obtain a detailed soil profile of each individual location into which the foundations will be installed and partly to obtain the final geological data input to the 3D ground model.

(7) The data acquired during the first two rounds of these investigations was evaluated and formed an input into the overall design basis for each windfarm. The results of these investigations were essential to determining the design and specification of the windfarms (including the foundations).

(8) The data was interpreted and formulated into geotechnical design parameters for the windfarms and was reflected in Geotechnical Evaluation Input to Design Basis ("**GIDB**") documents.

(9) The GIDB for Walney includes a number of geophysical, hydrographic and geotechnical investigations of the site and declares that it assesses the soil conditions for Walney, the design of the foundations shall be performed in accordance with "DNV(1)"; and that the soil conditions over the site vary considerably and the geotechnical foundation design shall be based upon the individual soil profiles for all locations. The investigation data enabled geological models of the soil layers to be built up which in turn enabled the soil strength parameters, soil profiles, soil design parameters and soil structure interaction to be ascertained for each wind turbine location. Formulae could then be applied to the data to determine the pile diameter and a minimum wall thickness that will be needed at each location.

(10) The GIDB for WODS includes a number of geophysical hydrographic and geotechnical investigations of site. It also notes that the design of the foundations shall be performed in accordance with DNV and that the geotechnical foundation design shall be based upon the individual soil profiles for all locations. It also notes that during the borehole campaign, hard igneous rock was encountered in the centre of the site and further work was undertaken, the outcome of which was a precise definition of where to expect this igneous rock and resulted in a revised layout where positions with less than 25 meters to the igneous rock were avoided. Furthermore, the number of wind turbines for the site was reduced from 118 to 108. The investigation data enabled geological models of the soil layers to be built up which in turn enabled the soil strength parameters, soil profiles, soil design parameters and soil structure interaction to be ascertained for each wind turbine location. Formulae could then be applied to the data to determine the pile diameter and a minimum wall thickness that will be needed at each location.

(11) The Foundations Tender Documents Design Basis for Gunfleet of August 2009, includes the following:

> (a) A statement that the document is to be used by the Foundation Designer in connection with foundation design including appurtenances, temporary structures etc on the Gunfleet Sands Project, Phase 1.
>
> (b) A further statement that the Design Basis includes a level of detail sufficient for the detailed design foundation, design of appurtenances, specification of safety levels and development of O & M specifications related to assumptions made in the design basis.

(c) Sections dealing with site conditions, structural layout, design loads for the primary and secondary structures, natural frequencies, steel structure design parameters including steel thicknesses, interface levels between the foundation, the transition piece, the tower and the secondary structures, a table of design load cases with load safety factors and scour protection.

(12) The investigations at Gunfleet revealed that the seabed was exceptionally mobile and led to a change to the design of the foundations for the wind turbines at this site. The foundations were designed without scour protection. The geotechnical investigations at this site also revealed that it was very unfavourable for jack-up operations (which relate to installation) and it was decided that additional site investigations should be carried out.

(13) Monopile and transition piece primary structure drawings were produced for the wind turbines for all four sites. There is a separate drawing for the monopile and transition pieces for each wind turbine which sets out the dimensions for the monopiles and transition pieces along with the steel quality which is required for both.

Discussion

201. I have no doubt that the evidence, both oral and documentary, and the findings of fact I have made in respect of that evidence, clearly demonstrate that, as submitted by the appellants, the geophysical and geotechnical studies directly relate to the necessary design of both the windfarms as a whole, and to the design of the individual wind turbines. This is the case for both the detailed to geophysical and geotechnical studies and the reconnaissance studies. I say this for the same reasons as to why I have found that the expenditure on the detailed metocean studies qualifies for allowances. The purpose or function of the wind turbines was to generate electricity. To fulfil that purpose or function, the wind turbines had to be specifically designed to take into account the metocean and geotechnical and geophysical conditions which applied at the specific positions at which those wind turbines were to be installed in the windfarms. Without that data, the wind turbines could not be specifically designed and this, in my opinion, would have rendered them useless and unable to fulfil their function of generating electricity. And once they had been so designed, each wind turbine had to be installed at a specific position in each windfarm. And so these studies directly related to the necessary design of the windfarms as a whole.

202. I appreciate Miss Wilson's submissions that, essentially, the purpose of the reconnaissance studies was to assist in coming to a decision as to whether the windfarms were economically viable, rather than to their design or the design of the component wind turbines. And that they were undertaken at a time when the appellants had made no firm commitment, nor come to any decision, that the projects would be followed through to their conclusion.

203. But the acid test is whether the expenditure on these products and studies directly relates to the necessary design of the windfarms or the wind turbines, and it is the effect of that expenditure, rather than its purpose, which is the legal test. The evidence in connection with the reconnaissance studies is that whilst they might have had an impact on the layout of the site within the options presented by the Crown Estate, the information gleaned from them was factored into the computer models which ultimately formed the basis of the necessary design of the configuration of the windfarms and to the design of each particular wind turbine.

204. Miss Wilson suggested that the studies had no impact on the choice of turbine, accepting however that they did influence the design of the foundations and the transition pieces. I accept that the turbines were not individually designed (which was the case for the foundations). But

I do not agree with her that this means the studies did not directly relate to the necessary design of the wind turbines. The design of each wind turbine evolved as additional data was fed into the computer modelling, and the impact of the data relating to the seabed had, as the evidence shows, an impact on the structure of the wind turbine as a whole, and not just to the foundations and transition piece. And even if it did only affect the necessary design of the foundations and transition piece, then that is sufficient, even if it had no impact on choice of turbine which was to be used for the wind turbines. It affected the necessary design of those two component parts of the wind turbines and in my view, therefore, the expenditure incurred on each round of these studies qualifies for allowances.

PRELIMINIARIES

The studies

205. In *JD Weatherspoon Sc* the special commissioners said, at [86] "the entitlement to capital allowances under s 24 depends on the taxpayer having incurred expenditure on the provision of plant or machinery. Such expenditure includes site-related overheads, project overheads and other expenditure treated as preliminaries provided such expenditure can be properly attributed or apportioned to plant or machinery……"

206. Mr Jones submits that the extent that expenditure on the foregoing studies is not itself on the provision of plant, then in the alternative the expenditure is on preliminaries which are a project overhead and are attributable to the windfarm as a single item of plant or to its component parts (i.e. the generation assets).

207. Miss Wilson submits that this is to misunderstand the nature of preliminaries, which are not intended to extend the ambit of the concept of "on the provision of". It simply applies to apportion expenditure of a capital nature which cannot be directly attributed to plant on which allowances are due, between that expenditure (on the one hand) and to items which do not qualify for allowances (on the other).

208. I agree with Miss Wilson. The expenditure on these studies, cannot be described as a project overhead. They are specifically attributable to each windfarm. Whether that expenditure should attract allowances stands or falls on whether it is on the provision of plant. I have decided, for reasons given above, that expenditure on a number of studies does not attract allowances since it is not on the provision of plant. I cannot see how that expenditure then changes its spots and becomes a project overhead. It is not in the nature of the sort of preliminaries which are discussed in the relevant cases and in HMRC's Manuals namely items like insurance, site management, scaffolding, and photographing work in progress. Whilst project management costs (see below) are to my mind, capable of comprising preliminaries since they can be apportioned between the studies to which I consider allowances to be due and to those on which I consider allowances not to be due, the same cannot be said of the costs of those studies for which I have found allowances are not due. To take an example. I have decided that the ornithology study costs are not on the provision of plant. I do not see how I can then re-apportion them across the windfarms on the basis that they are a general overhead of the costs of the windfarms or the wind turbines, nor to those studies on which I have decided that allowances are due. The essence of preliminaries is that they are overheads which cannot be specifically attributed to a particular item of qualifying plant. In the case of the studies, they can be specifically attributed to an item of plant. To the extent that it is qualifying plant, then the costs of those studies attract allowances. To the extent that it is not qualifying plant, they do not.

Project management

209. Mr Jones describes these management costs as costs of procuring and carrying out reporting on the various surveys; analysing the data from the surveys; generally managing the EIA and geo-studies processes; costs of designing the windfarms and procuring the windfarms including contract negotiation with turbine and foundation providers; incidental costs of the studies and to the foregoing activities.

210. As a matter of principle, I consider that these can comprise preliminaries. They are in the nature of general overheads and provided they can be apportioned between those matters which attract allowances and those which do not, then to the extent that they can be apportioned to the former, they should attract allowances themselves.

211. The difficulty I have is, that as a matter of evidence, I simply cannot undertake that apportionment myself. Mr Fraser's evidence, which I deal with below, is inadequate to enable me to undertake that forensic analysis. But I am comforted by the fact that the parties' submissions on the numbers are that I should come to a decision in principle, and it will then be up to the appellants to satisfy HMRC of the amounts of expenditure on the studies which I have decided should attract allowances. I consider this in a bit more detail below, but as far as the project management fees are concerned, my decision in principle is that to the extent that the appellants can satisfy HMRC of the amount of expenditure which they have incurred on:

(1) The costs of negotiating contracts with the manufacturers of the component parts of the wind turbines and with the installation vessel providers, and of overseeing the fabrication of those component parts and the installation of the wind turbines into their specific positions in the windfarms; and/or

(2) the costs firstly of procuring, managing the persons commissioned to produce those studies on which I have decided allowances are available and reporting on them, and secondly the evaluation and analysis of the data provided by those studies;

then allowances are available on those costs as I consider them to be preliminaries.

THE NUMBERS AND MR FRASERS EVIDENCE

212. Mr Fraser is currently the Senior CAPEX Budget Manager at Orsted, a role he has occupied since February 2019. Prior to that he had been involved in the Walney project and prior to that in the WODS project. Exhibited to his witness statement was a compendious volume of financial information on which he was cross examined with skill and determination by Miss Parry.

213. That information included reconciliation tables. These set out different categories of expenditure for each windfarm. But as Miss Parry says in her notes on evidence, the appellants have adopted a categorisation that renders it impossible to ascertain what was spent on which investigations. Furthermore, even were the reconciliation tables and the appellants' primary documents to be of any assistance at all, it is impossible to match any of the mentioned investigations to the actual dates on which they were undertaken. She suggests that the accounting primary documents and the reconciliations may have no value whatsoever.

214. I wholeheartedly agree with her. In doing so I make no criticism of Mr Fraser who attempted, manfully, to assist the Tribunal in going through documents which, as I understand his evidence, he was considering for the first time in cross examination.

215. I have derived little help from these documents when coming to the conclusions earlier in this decision regarding the availability of allowances on the expenditure on the various studies.

216. Furthermore, this evidence was led by the appellants. Yet they made no positive case that the amounts set out in the documentary evidence, and in particular in the reconciliation tables, were the specific amounts incurred on the various studies such that having come to the conclusions as to whether allowances are available on some or all of those studies, I can then go on to determine their cost and thus the parties can determine the allowances which arise therefrom.

217. I am also perplexed by the inclusion of this evidence given that it was the parties submissions that, subject to the quantum and closure notice issues, I should make a decision in principle and that it would then be up to the appellants to justify to HMRC the particular amounts of expenditure which they have incurred on the various studies which attract allowances. And that is what I have done. The numerical evidence submitted gave me no assistance in coming to those conclusions.

CONCLUSION ON THE STUDIES AND PROJECT MANAGEMENT COSTS

218. In conclusion, the expenditure on the studies which qualifies for allowances, and the reasons for that are set out below. For the avoidance of doubt expenditure on any studies which are not so identified do not qualify for allowances. "Windfarm" means the generation assets.:

(1) Benthos studies. WODS - design of windfarm/design of wind turbines/installation of the wind turbines/construction of the windfarm. Gunfleet, Gunfleet II and Walney - installation of the wind turbines/construction of the windfarm.

(2) Fish and shellfish studies. All four appellants - installation of the wind turbines/construction of the windfarm.

(3) Marine mammal studies. All four appellants-installation of the wind turbines/ construction of the windfarm.

(4) Archaeology, wrecks and cultural heritage studies. All four appellants - installation of the wind turbines/construction of the windfarm

(5) Traffic, transport and tourism studies. All four appellants-installation of the wind turbines/construction of the windfarm.

(6) Detailed metocean studies. All four appellants - design of windfarm/design of wind turbines/installation of the wind turbines/construction of the windfarm.

(7) Reconnaissance and detailed geophysical and geotechnical studies. All four appellants - design of windfarm/design of wind turbines/installation of the wind turbines/construction of the windfarm.

(8) Project management. As per [211] above.

ISSUE 4 – THE REVENUE DEDUCTION ISSUE

Whether the appellants are otherwise entitled to relief for the expenditure claimed as a revenue deduction pursuant to s 61 CTA 2009.

219. The appellants raise this an alternative argument to their primary contention that the expenditure on the studies was incurred on the provision of plant. I have mentioned above that at the hearing it became apparent that there was a procedural point in issue, namely whether HMRC had conceded that the accounting preconditions in section 46 CTA 2009 had been met or whether the appellants had to prove that they had been met.

220. I have decided that the appellants' claim for relief under section 61 CTA 2009 does not succeed. It falls within section 53 CTA 2009 as it is capital expenditure. I therefore do not have to decide the section 61 proof point.

221. Section 53 is set out below:

> 53 Capital expenditure
>
> (1) In calculating the profits of a trade, no deduction is allowed for items of a capital nature.
>
> (2) Subsection (1) is subject to provision to the contrary in the Corporation Tax Acts

222. Mr Jones essentially submits that for a payment to be of a capital nature, you need to identify a capital asset on or in respect of which the payment is made. The windfarm and the wind turbines are capital assets, as too are the studies, the leases, the agreements for leases, the consents and other assets which the appellants have acquired in these projects. They are all assets with an enduring benefit to the appellants. If the appellants' primary argument is wrong and the payments for the studies do not attract allowances as they were not on the provision of a capital asset, then, he asks rhetorically, what were they spent on? It cannot have been on the capital assets previously identified to the extent that I have found that expenditure not to have been on the provision of a capital asset. Case law shows that if no capital asset can be identified, then a payment on it cannot be a payment of capital. And since this is the case in respect of the studies on which I have not given allowances, those payments must fall outside section 53 CTA 2009.

223. Miss Wilson says that the payments on the studies are clearly of a capital nature. There is no evidence that they are items of revenue expenditure. If the payments are capital expenditure, then they cannot be revenue expenditure and to be revenue expenditure the appellants need to link the payments to an asset which is not capital in nature. And all of the foregoing assets identified and which the appellants have acquired as part of these projects, are capital in nature. They have an enduring benefit for the appellants. She observes that there are many examples of capital expenditure being incurred which is not incurred on the provision of a capital asset, yet does not qualify as revenue expenditure.

224. In my view there is a logical fallacy with Mr Jones' position. I have found the expenditure on some of the studies not to have been on the provision of either the generation assets or the single item of plant, or the wind turbines and array cables as items of plant. But I have done so on the basis of the highly specific wording that appears in the capital allowances legislation. I have not done so on the basis that the foregoing assets are not capital assets. It is to clear to me that the expenditure on the studies is expenditure on or in respect of assets which are capital in nature, namely the assets identified in [216] above. So there are identifiable capital assets on

which the expenditure has been incurred. The expenditure is therefore on items of a capital nature and so is not deductible under section 61 CTA 2009 as pre-trading revenue expenditure. I appreciate that this has the effect, as Miss Wilson observes, that no deduction is available on these items of expenditure, an odd result as Mr Jones in turn observes. But this is an example of a tax nothing of which there are many examples in the tax code. It is an item of expenditure for which neither a revenue deduction nor capital allowances are available. Simply because it falls out of the arms of the capital allowance legislation does not mean that it falls into the lap of the trading deduction legislation. This is what has happened here, and, unfortunately for the appellants, means that the expenditure on the studies does not qualify for relief under section 61 CTA 2009.

ISSUE 5 - THE QUANTUM ISSUE

Whether it is open for the respondents to put the appellants to proof on the amounts and categories of the disputed expenditure in circumstances where:

(1) Whether such expenditure has been incurred in such amounts and in such categories of expenditure as the appellants claim did not form part of the respondent's enquiries; and

(2) The respondents have closed the enquiries based on the figures provided by the appellants.

225. This issue (which to my mind should more appropriately be called the closure notice issue, but that is by the by) arises in respect of two issues. The first applies to only three of the four windfarms. It does not apply to WODS. It arises because following the closure notices which closed enquiries into the corporation tax returns for the other three windfarms for certain years, and which closure notices rejected the appellants' contention that expenditure on the studies qualified for capital allowances, adjusted not the amount of qualifying expenditure set out in those returns, but the amount of writing down allowances. It is in a nutshell HMRC's position that this is a simple transcriptional error, it is clear to both parties what has happened, and both parties are equally clear that the closure notices were rejecting the appellants' contention that expenditure on the studies qualified for allowances. They are not, therefore, fixed with that error and it is still for the appellants to prove, on the balance of probabilities, that the amounts so claimed as qualifying expenditure are correct. The second issue which applies to all four windfarms is, as the appellants submit, that the scope and subject matter of the appeal is defined by the conclusions set out in the closure notices and by the amendments required to give effect to those conclusions. Those conclusions were that the amount of expenditure incurred before a given decision can attract allowances. There was however no dispute as to the amounts or categories of the expenditure (save as to whether it was incurred before or after the date of the particular decision), and so it is not open to HMRC to argue that the appellants must prove the amounts or categories of the disputed expenditure.

Findings of fact

226. From the documentary evidence I make the following additional findings of fact on this issue:

(1) Between the dates on which the enquiries were opened and the 3 August 2017 email, a great deal of information was sent to HMRC by or on behalf of the appellants which concerned the costs which they had incurred in respect of the windfarm projects and asserted that these costs were qualifying expenditure on plant and machinery.

(2) This information included contracts for the geotechnical and geophysical work for Walney as well as detailed breakdowns of capital expenditure incurred by the appellants.

(3) In correspondence, and in particular in an email dated 1 December 2014, HMRC accepted that the vast majority of the expenditure was capital but that certain elements of the expenditure did not directly relate to the provision of plant and machinery (for example expenditure incurred on the provision of planning, consents and design).

(4) In an email dated 20 January 2015 HMRC suggested that all pre-FID expenditure should be treated as non-qualifying.

(5) In an email dated 16 March 2015 to HMRC, it was the view of Dong Energy (Orsted's predecessor) that most of the development costs incurred pre-FID were capital but were also necessary to construct the windfarm assets and therefore qualified for allowances.

(6) On 22 November 2016 Dong sent HMRC (Mr Seawright) a table of expenditure which summarised Dong's view as to why certain categories of expenditure were necessary for the provision of the plant and machinery.

(7) The 3 August 2017 email set out HMRC's view of planning and preparation costs for an offshore windfarm. HMRC's conclusion was that an offshore windfarm is constructed at the end of an iterative process which comprises 5 stages. It was HMRC's view that the expenditure on phases 1 and 2 were too remote for capital allowances and expenditure on stages 4 and 5 attracted allowances, but there was doubt regarding expenditure at stage 3. Stages 1 and 2 related to identifying the appropriate piece of seabed and designing the windfarm. Stages 4 and 5 related to obtaining consents and building and commissioning the windfarm. Stage 3 involved collection of data from the studies in deciding on the type of foundation and turbine for each wind turbine, and their precise locations within the windfarm.

(8) On 20 February 2018, Orsted sent HMRC figures reflecting the total capitalised development expenditure incurred up to FID, indicating that they were showing willingness to move the process along. It also stated that it did not agree with HMRC's view that it is only when the number, type and layout of the turbines is decided that the development expenditure starts to qualify as being on the provision of plant and machinery. Orsted went on to say that it did not consider that any of the amounts disclosed were too remote to qualify for capital allowances and maintained that the capital allowance claims under enquiry were correct in their then present submitted form. Orsted was providing figures to assist HMRC in issuing closure notices.

(9) The closure notices for the windfarms other than WODS indicate that "I have completed my enquiries into the company tax return and show my conclusions in the following figures and computation of tax payable. This notice amends the return to give effect to my conclusions." There then followed a table of figures, below which is the statement "amended as per communication with Graham Seawright of the 3rd August 2017"

(10) Instead of amending the amount of qualifying expenditure that was claimed by these appellants for the relevant periods, these closure notices adjusted the writing down allowances by the amount of the development costs for which those appellants had claimed qualified for capital allowances.

(11) The closure notice for WODS for the years under enquiry was issued on 28 February 2018. The conclusion was that the returns were incorrect because "the company was not due

capital allowances on the amounts of pre-Fid expenditure as per HMRC's stance as stated in the correspondence sent to you on 3 August 2017 by Graham Seawright." It then went on to indicate that the returns required amendment to reflect that the amount on which allowances had been claimed as additions to the plant pool were not allowable, which thus reduced the tax written down value carried forward. It also meant that the years following those periods were also incorrect and required amendment.

(12) The "categories of expenditure" referred to in this issue is a reference to categories of expenditure set out in an appendix to the reply to HMRC's statement of case submitted by the appellants on 6 August 2019. The appendix identifies categories of expenditure, its nature, and its impact on the design of a windfarm. The categories are all those categories of expenditure which are the subject of the appellants' appeals, including scoping, the EIA studies, the metocean, geophysical and geotechnical studies, and project management.

Discussion

227. Mr Jones submits that the relevant legal principles can be found in *Fidex v HMRC* [2016] STC 1920, and *Daarasp LLP v HMRC* [2021] UKUT 87 ("***Daarasp***"). The scope and subject matter of an appeal are defined by the conclusion stated in the closure notice and by the amendments required to give effect to that conclusion. The closure notice must be read in context in order to properly understand its meaning. When construing a closure notice it is appropriate to consider how the reasonable recipient of the notice, standing in the shoes of the taxpayer, would have construed it. It is not open for HMRC to amend the closure notices once issued. HMRC have incorrectly amended the returns by adjusting the allowances rather than the qualifying expenditure (in the case of three of the windfarms). They cannot depart from these amendments which have been implemented to give effect to the conclusions in the closure notices. The closure notices for all four windfarms reflect the conclusions reached by Mr Seawright in the 3 August 2017 email. That email reflects HMRC's position that spending before the decision about the number and type of specific turbines is too remote but thereafter allowances would no longer be too remote, is a binary distinction; expenditure incurred before the number, type and location of the wind turbines are settled cannot attract allowances; expenditure incurred after that date can. It was no part of HMRC's enquiry, nor of the closure notices that there was an issue about the quantum or categorisation of expenditure, that categorisation reflecting the categorisation set out in the appendix to the reply. The reasonable recipient of the closure notices would not construe them as dealing with the question of quantum or categorisation of expenditure, merely with the question of whether expenditure attracted allowances depending on whether they were incurred before or after a point in time. The numerical information on which the amendments to the returns was based was sent by the appellants to HMRC on 20 February 2018 which noted the distinction between two particular periods, and then, because the appellant had no records regarding turbine location, provided information on the basis of post and pre-FID expenditure. HMRC enquired no further. However, the conclusions in the closure notice and their reflection in the amendments to the returns was based on this distinction between two time periods and not on any conclusions or amendments which related to quantum or categories of expenditure. These define the scope and subject matter of the appeals, and it is thus not open to HMRC to argue that there is a quantum issue or put the appellants to proof of the amounts or categories of the disputed expenditure.

228. He also submits that HMRC accept that they have amended the wrong parts of the appellants' returns and agrees that the amendments do not reflect the conclusions and indeed make no sense. But that does not change the fact that amendments have actually been made,

and that those amendments have effect. It is not right that HMRC's amendments make no sense at all. It is not a question of construction. It is a question of fact. They have amended the writing down allowances and not the qualifying expenditure. And in contrast to Miss Wilson's submission that section 50 of the Taxes Management Act 1970 ("**TMA**") is statutory authority which enables me to determine these appeals by giving effect to such necessary adjustments pursuant to section 50(6) and (7) TMA as the case may be, that only applies to assessments and not to amendments, and it is the amendments to the returns against which the appellants have appealed in these cases.

229. Miss Wilson also relies on *Daarasp*. She accepted that the amendments to the tax returns for the three windfarms had inaccurately reflected the conclusions and should have amended the qualifying expenditure and not the writing down allowances. But this was simply a transcriptional error which was obvious to everyone, as, too, was the transcriptional error which HMRC had made in confusing the expenditure incurred by the two Gunfleet companies and so making incorrect adjustments to their returns. A reasonable recipient of the closure notices would consider the eligibility of the disputed expenditure to be squarely in issue and would not consider it to be a binary question, as contended, of whether the expenditure was incurred before or after a point in time. Quantum and categories of expenditure were clearly an issue as the correspondence between the parties during the enquiry, and the 3 August 2017 email on which the closure notices were based, shows. A large amount of information had been provided to HMRC on quantum and categories during their enquiry and the use of the words "remoteness" or "remote" in the 3 August 2017 email clearly demonstrate that the conclusion was not restricted to whether the qualifying expenditure was incurred before or after a point in time. Nothing turns on the fact that the appellants provided post and pre-FID numbers to HMRC. This is a conventional appeal in which the onus is on the appellants to show why the disputed expenditure meets the relevant statutory test and thus can be put to proof on the amounts of that disputed expenditure. There is nothing in the closure notices nor in HMRC's behaviour to justify any submission that they should not be put to proof, and indeed their pleadings, evidence, and submissions at the hearing, reflect recognition that it is up to them to show that the expenditure is not too remote. I should also be alive to the venerable principle, the taxpayer should pay the right amount of tax, and a narrow confinement of the subject matter of the appeal is not intended to be one of the protections which form one of the checks and balances in the closure notice, amendment and appeal regime which is designed to protect the taxpayer.

230. On the section 50 TMA point, Miss Wilson's submits that it does apply by dint of section 117 Finance Act 1998 and that it applies to amended returns since such returns includes a self-assessment. She cites the decision in *R (Archer) v HMRC* [2018] STC 38 ("***Archer***") as authority for that proposition. In her view the appellants' appeals extend not just to the correctness of the conclusion in the closure notices but also to whether the conclusion stated has been reflected in the amendments to the returns. My determination of these appeals must be given effect by making all necessary adjustments pursuant to section 50 TMA and that is clearly within the policy of the venerable principle set out above.

231. It is my decision that it is open for HMRC to put the appellants to proof on the amounts and categories of the disputed expenditure. I say this for a number of reasons.

232. The reasonable recipient of the closure notices which referred to the 3 August 2017 email would have concluded that they deal with the quantum and categories of expense and are not restricted, as submitted by the appellants, to a timing issue. That email refers to the basic question as being "is the expenditure related to the plant and machinery". It goes on to identify

five stages in the process of constructing an offshore windfarm and then sets out HMRC's view that expenditure incurred at certain stages is too remote and thus does not qualify for allowances. This is wholly consistent with the context in which that email was drafted and with the previous communications between the parties, in which the appellants had provided a substantial amount of information to justify their position, namely that the development expenditure attracted capital allowances, and the parties' assertions that the expenditure was, or was not, directly related to or necessary for the construction of the windfarm and its component parts. As far as I can see, all that happened in the 3 August 2017 email was that these principles of "remoteness", "directly related to", and "necessary", were applied to the stages in the construction of an offshore windfarm, and HMRC came to the view that expenditure in the early stages did not attract allowances, whilst those in the later stages did.

233. The position was then blurred by the request by HMRC to provide numerical information for periods before and after the design and layout of the turbines, and the appellants' provision of information for the periods pre-and post-FID, as they did not have the records pre-and post-wind turbine design/layout. In this they were seeking to be helpful, and the information was submitted on a without prejudice basis to the appellants' contention that none of the claimed expenditure was too remote and all of it qualified for allowances.

234. So at that stage the appellants were not accepting HMRC's (in the appellants' view) artificial distinction between two periods of time. They were still maintaining that none of the disclosed expenditure was too remote to qualify for allowances.

235. HMRC then amended the writing down allowances rather than the qualifying expenditure in the tax returns for the three windfarms other than WODS. This was a simple transcriptional error (and I will deal with the consequences below) but as far as the reasonable recipient of the closure notices was concerned, in light of the foregoing correspondence, it is inconceivable that the reasonable recipient would have thought those amendments restricted the ambit of the closure notices in the way suggested by the appellants. In the same way that was a mix-up over the numbers for the two Gunfleet sites, the recipient would have concluded that HMRC had simply made a secretarial error.

236. I agree however with Mr Jones that that error has real consequences and that Miss Wilson needs to point to a specific statutory provision to show that I have statutory power to adjust the amendments pursuant to section 50 TMA. Mr Jones submits that I have no such power since that statutory provision applies to assessments and not to amendments. However, I think the answer lies in [22] and [26] of *Archer*. In [22] Lewison LJ said "the self-assessment that the taxpayer is required to file as part of his return must state the amount of tax for which the taxpayer is liable. One would naturally expect that an amendment to that assessment must likewise state the amended amount of tax for which he is liable….." and in [26]: "…it is true that the self-assessment regime places the burden on the taxpayer, at least in the first instance, to work out the amount of tax for which he is liable and to state it in his return. It is also true that for some purposes, including time limits, an amendment to a self-assessment is not an "assessment". But in functional terms an amended self-assessment is still a variety of assessment (even if preceded by the prefix "self ")….."

237. The appellants have appealed against the conclusions in the closure notices and to the amendments to their corporation tax returns. Those corporation tax returns contained self-assessments. Those amended self-assessments are, on the authority of *Archer,* self-assessments and thus within the ambit of section 50 TMA.

238. So, to the extent that I have found that expenditure on the studies qualifies for allowances, the appellants must prove, on the balance of probabilities, the amounts of such expenditure. They will also have to show that it is they, and not another person, who has incurred that expenditure given that HMRC have contended that as regards the expenditure on certain of the studies, that expenditure was not incurred by the appellants but by other persons.

ISSUE 6 - THE CLOSURE NOTICE ISSUE

Whether the amounts of qualifying expenditure in the returns of Gunfleet II (the appellant in TC/2018/04806), Gunfleet (the Appellant in TC/2018/04807) and Walney (the appellant in TC/2018/04809) for the periods ended 31 December 2009, 31 December 2009 and 31 December 2011 respectively (as not amended by the closure notices) have been conclusively determined for the purposes of paragraph 88 of Schedule18 to the Finance Act 1998.

239. This issue, which does not affect WODS, has been neatly explained by Miss Wilson in her skeleton argument and I can do no better than to set out that explanation below:

> "Taking Walney as an example, the Appellants contend that because the company included the amount of £15,576,689 in its aggregate amount of "*qualifying expenditure*") in the relevant box on the company's return and because the HMRC officer made a mistake and deducted that amount from the total figure in the WDA box, rather than the QE box, that "*amount*" of £15,576,689 is now "*conclusively determined*" for subsequent or consequential periods because it "*can no longer be altered*" within the meaning of paragraph 88(2) of Schedule 18 to the Finance Act 1998. In other words, they say, that amount of £15,576,689 can be carried forward and used to reduce profits for later APEs even if this Tribunal decides that the amount is not "*qualifying expenditure*"."

240. In her view this reflects a misreading of paragraph 88, and I agree with her.

241. Paragraph 88 is set out below:

(1) This paragraph applies to an amount stated in a company tax return for an accounting period which is required to be included in the return and which affects or may affect—

> (a) the tax payable by the company making the return for another accounting period, or
>
> (b) the tax liability of another company for any accounting period.

(2) If such an amount can no longer be altered it is taken to be conclusively determined for the purposes of the Corporation Tax Acts in relation to that other period or other company.

> Sub-paragraphs (3) to (5) explain what is meant by "can no longer be altered".

(3) An amount is regarded as one that can no longer be altered if—

> (a) the period specified in paragraph 15(4) (general period for amendment by company) has ended,
>
> (b) any enquiry into the return has been completed (or is completed so far as relating to the matters to which the amount relates by the issue of a partial closure notice),

(c) if an officer of Revenue and Customs amends the return under paragraph 34, the period within which an appeal may be brought against that amendment has ended, and

(d) if an appeal is brought, the appeal has been finally determined.

242. She submits that these tests are cumulative and whilst the first three have been met, subparagraph (d) has not been met since an appeal has been brought which has not been finally determined (namely this appeal). So as matters stand at the moment, the amount can be altered. And for the reasons given in respect of the quantum issue, I have jurisdiction to do so.

243. Mr Jones suggests in his skeleton argument that HMRC's point is that the amended returns have not been finally determined and points out that it is not the returns but the amounts with which paragraph 88 deals. He suggests that since the closure notices cannot be altered once issued and that they define the scope and subject matter of the appeals, there is no mechanism to alter the unamended amounts stated in the returns following the closure of the enquiries. Amendment in paragraph 88 should be read as referring to an amendment to the relevant amount set out in the returns. He also submitted that the sub paragraphs in paragraph 88 should be read sequentially and as soon as one comes to a subparagraph which deals with the facts of a particular case one goes no further. So in this case one would stop at subparagraph (b). The "amount" referred to in the sub paragraphs is the amount set out in a return, and for the reasons given in his submissions on the closure notice issue, this amount has not been amended. Accordingly, the enquiries into the returns which relates to the amount has been completed and one goes no further to consider the remaining sub paragraphs. Since that enquiry resulted in a closure notice which amended the writing down allowances and not the qualifying expenditure, the qualifying expenditure has therefore been conclusively determined.

244. I disagree with these submissions. I prefer Miss Wilson's interpretation of the legislation which accords with the plain words of paragraph 88. On the facts of this case, sub paragraphs (a)-(c) have been met. The period for amendment has ended, an enquiry has been completed, the returns have been amended. Those returns might have been amended incorrectly, as both parties accept, and the mistakes were made in reflecting the conclusions in the closure notices in the amendments to the returns. But the plain fact is that the returns were amended under paragraph 34 even if they were incorrectly amended. However, subparagraph (d) has not been met to date since the appeal against those amended returns has not been finally determined.

245. Miss Wilson also prays in aid paragraph 34 (2A) of Schedule 18 which gives HMRC power to make consequential amendments to other returns to give effect to conclusions in a closure notice. Since the closure notices reduced the amounts of qualifying expenditure, and HMRC have power to give effect to those reductions by amending other returns of the appellants, any such amendments would only be finally determined once appeals against any amounts in those amendments were finally determined.

246. Mr Jones responds that that might very well be so, but in this appeal, the amounts referred to in paragraph 88, namely the qualifying expenditure, can no longer be altered.

247. In respect of the quantum issue I have found against Mr Jones, and that the amount of qualifying expenditure is something which the appellants must prove in accordance with section 50 TMA. And it would seem most odd to me in those circumstances that the appellants have no need to do so under paragraph 88 by dint of the qualifying expenditure claimed in the returns having been finally determined. For the technical reasons set out above, it is my view that the amounts of qualifying expenditure in those returns have not been finally determined. Such a conclusion also accords with the venerable principle that the taxpayer should pay the

right amount of tax. I do not believe that the appellants should be able to avoid the reach of this principle simply by dint of a transcriptional error by HMRC.

248. My conclusion on the closure notice issue, therefore, is that the qualifying expenditure set out in the returns referred to have not been conclusively determined for the purposes of paragraph 88.

DECISION

249. To draw all these conclusions together, I have concluded, and it is my decision in these appeals that, in principle:

(1) On the single/multiple plant issue, each windfarm, meaning in this context, the generation assets, comprises a single item of plant and machinery for the purposes of the capital allowances legislation. If I am wrong on this, then each wind turbine, and each array cable, comprises a single item of plant for the purposes of that legislation.

(2) On the qualifying expenditure issue, the expenditure on the studies and project management qualifies for capital allowances to the extent and for the reasons summarised at [218] above.

(3) On the revenue deduction issue, the appellants are not entitled to relief for expenditure claimed as pre-trading revenue expenditure pursuant to section 61 CTA 2009 on expenditure on the studies and project management which does not qualify for capital allowances.

(4) On the quantum issue, it is open to HMRC to put the appellants to proof on the amounts and categories of the disputed expenditure.

(5) On the closure notice issue, the amounts in the returns of Gunfleet, Gunfleet II and Walney have not been conclusively determined for the purposes of paragraph 88.

RIGHT TO APPLY FOR PERMISSION TO APPEAL

250. This document contains full findings of fact and reasons for the decision. Any party dissatisfied with this decision has a right to apply for permission to appeal against it pursuant to Rule 39 of the Tribunal Procedure (First-tier Tribunal) (Tax Chamber) Rules 2009. The application must be received by this Tribunal not later than 56 days after this decision is sent to that party. The parties are referred to "Guidance to accompany a Decision from the First-tier Tribunal (Tax Chamber)" which accompanies and forms part of this decision notice.

NIGEL POPPLEWELL
TRIBUNAL JUDGE
Release date: 03 FEBRUARY 2022

Appendix 1

1. There shall be a hearing to determine the following issues in principle ("the Issues"):

(a) Whether or to what extent the particular offshore windfarms in issue in this case constitute a single item of "plant or machinery" for the purposes of s 11 CAA 2001 or setting; and if not plant, what is the "plant and machinery" for the purposes of s 11 CAA 2001 ("single/multiple plant issue").

(b) In respect of that plant so identified, whether or to what extent the expenditure satisfies the conditions of s 11(4)(a) CAA 2001 and is "qualifying expenditure" incurred "on the provision of" the plant and machinery. ("qualifying expenditure issue").

(c) Whether the Appellants satisfy the conditions of s 11(4)(b) ("the person incurring the expenditure owns the plant or machinery as a result of incurring it") ("ownership issue").

(d) Whether the Appellants are otherwise entitled to relief for the expenditure claimed as a revenue deduction pursuant to s 61 CTA 2009 ("revenue deduction issue").

(e) Whether it is open for the Respondents to put the Appellants to proof on the amounts and categories of the disputed expenditure in circumstances where:

i. whether such expenditure has been incurred in such amounts and in such Categories of Expenditure as the Appellants claim did not form part of the Respondent's enquiries; and

ii. the Respondents have closed the enquiries based on the figures provided by the Appellants (the "quantum issue"); and

(f) Whether the amounts of qualifying expenditure in the returns of Gunfleet II (the Appellant in TC/2018/04806), Gunfleet (the Appellant in TC/2018/04807) and Walney (the Appellant in TC/2018/04809) for the periods ended 31 December 2009, 31December 2009 and 31 December 2011 respectively (as not amended by the closure notices) have been conclusively determined for the purposes of paragraph 88 of Schedule18 to the Finance Act 1998 (the "closure notice issue").

Appendix 2

THE RELEVANT STATUTORY PROVISIONS

Capital Allowances

1. Section 1(2)(a) of CAA 2001 provides allowances in respect of capital expenditure in respect of, inter alia, plant and machinery.

2. Section 11 of the Act sets out the general conditions as to the availability of plant and machinery allowances. It provides:

> 11 General conditions as to availability of plant and machinery allowances
>
> (1) Allowances are available under this Part if a person carries on a qualifying activity and incurs qualifying expenditure.
>
> (2) "Qualifying activity" has the meaning given by Chapter 2.
>
> (3) Allowances under this Part must be calculated separately for each qualifying activity which a person carries on.
>
> (4) The general rule is that expenditure is qualifying expenditure if—
>
> (a) it is capital expenditure on the provision of plant or machinery wholly or partly for the purposes of the qualifying activity carried on by the person incurring the expenditure, and
>
> (b) the person incurring the expenditure owns the plant or machinery as a result of incurring it.
>
> (5) But the general rule is affected by other provisions of this Act, and in particular by Chapter 3.

3. The term "qualifying activity" is defined in Chapter 2 of Part 2 of CAA 2001 and includes a trade.

4. Chapter 3 of Part 2 of CAA 2001 qualifies the general rule set out in section 11(4) (as stated by section 11(5)). In particular, section 21 provides that expenditure on the provision of plant or machinery does not include expenditure on the provision of a building; and section 22 provides that expenditure on the provision of plant or machinery does not include expenditure on (a) the provision of a structure or other asset in list B in section 22, or (b) any works involving the alteration of land. Both of these sections are subject to section 3, which provides that they do not affect the question of whether expenditure on any item described in list C in section 23 is expenditure on the provision of plant or machinery. Item 1 in list C is "Machinery (including devices for providing motive power) not within any other item in this list".

Pre-trading expenses

5. Section 61 of the Corporation Tax Act 2009 ("**CTA 2009**") makes provision for the deduction of expenses incurred for the purposes of a trade before that trade is commenced. It provides, so far as is material, that:

61 Pre-trading expenses

(1) This section applies if a company incurs expenses for the purposes of a trade before (but not more than 7 years before) the date on which the company starts to carry on the trade ("the start date").

(2) If, in calculating the profits of the trade—

(a) no deduction would otherwise be allowed for the expenses, but

(b) a deduction would be allowed for them if they were incurred on the start date,

the expenses are treated as if they were incurred on the start date (and therefore a deduction is allowed for them).

(3) …….

6. The profits of the trade have to be computed in accordance with generally accepted accounting practice ("**GAAP**") subject to certain adjustments. This is set out in section 46 CTA 2009

46 Generally accepted accounting practice

(1) The profits of a trade must be calculated in accordance with generally accepted accounting practice, subject to any adjustment required or authorised by law in calculating profits for corporation tax purposes.

7. There are two relevant provisions which might warrant such adjustment in the circumstances of this appeal. These are set out in sections 53 and 54 CTA 2009.

53 Capital expenditure

(1) In calculating the profits of a trade, no deduction is allowed for items of a capital nature.

(2) Subsection (1) is subject to provision to the contrary in the Corporation Tax Acts

54 Expenses not wholly and exclusively for trade and unconnected losses

(1) In calculating the profits of a trade, no deduction is allowed for—

(a) expenses not incurred wholly and exclusively for the purposes of the trade, or

(b) losses not connected with or arising out of the trade.

(2) If an expense is incurred for more than one purpose, this section does not prohibit a deduction for any identifiable part or identifiable proportion of the expense which is incurred wholly and exclusively for the purposes of the trade.

Tax Returns and Closure Notices

8. Schedule 18 to the Finance Act 1998 ("**FA 1998**") contains a set of detailed provisions dealing with company tax returns, assessments and related matters including enquiries by HMRC into a company's tax returns.

9. Paragraph 3(1) of Schedule 18 provides that an officer of HMRC may by notice require a company to deliver a return (a "*company tax return*") of such information, accounts, statements and report (a) relevant to the tax liability of the company, or (b) otherwise relevant to the application of the Corporation Tax Acts to the company, as may reasonably be required by the notice.

10. Paragraph 24 of Schedule 18 provides that HMRC may, if they give notice, enquire into a company's tax return. Such an enquiry is concluded by the issue of a closure notice, as provided for by paragraph 32(1) of Schedule 18:

> An enquiry is completed when [HMRC] by notice (a "closure notice") inform the company that they have completed their enquiry and state their conclusions.

11. More detailed requirements as to the form and contents of a closure notice are set out in paragraph 34 of Schedule 18 of FA 1998, which provides, so far as is relevant:[1]

> (1) This paragraph applies where a closure notice is given to a company by an officer.
>
> (2) The closure notice must–
>
> (a) state that, in the officer's opinion, no amendment is required of the return that was the subject of the enquiry, or
>
> (b) make the amendments of that return that are required–
>
> (i) to give effect to the conclusions stated in the notice, and
>
> (ii) in the case of a return for the wrong period, to make it a return appropriate to the designated period.
>
> (2A) The officer may by further notice to the company make any amendments of other company tax returns delivered by the company that are required to give effect to the conclusions stated in the closure notice.
>
> (3) An appeal may be brought against an amendment of a company's return under sub-paragraph (2) or (2A).

12. Part IX of Schedule 18 to FA 1998 makes provision for how and when claims to capital allowances, which must be made in a tax return (section 3 CAA 2001), are to be made.

[1] Paragraphs 32 and 34 of Schedule 18 were each in a different form prior to 1 April 2010 but their effect was materially the same for the purposes of these appeals.

13. Part XI of Schedule 18 to FA 1998 contains certain "*supplementary provisions*", one of which, paragraph 88 ("**paragraph 88**") governs the conclusiveness of amounts stated in the return.

The paragraph provides, so far as is relevant:

> (1) This paragraph applies to an amount stated in a company tax return for an accounting period which is required to be included in the return and which affects or may affect—
>
> > (a) the tax payable by the company making the return for another accounting period, or
> >
> > (b) the tax liability of another company for any accounting period.
>
> (2) If such an amount can no longer be altered it is taken to be conclusively determined for the purposes of the Corporation Tax Acts in relation to that other period or other company.
>
> Sub-paragraphs (3) to (5) explain what is meant by "can no longer be altered".
>
> (3) An amount is regarded as one that can no longer be altered if—
>
> > (e) the period specified in paragraph 15(4) (general period for amendment by company) has ended,
> >
> > (f) any enquiry into the return has been completed (or is completed so far as relating to the matters to which the amount relates by the issue of a partial closure notice),
> >
> > (g) if an officer of Revenue and Customs amends the return under paragraph 34, the period within which an appeal may be brought against that amendment has ended, and
> >
> > (h) if an appeal is brought, the appeal has been finally determined.
>
> (4) If the return is amended by the company under a provision that allows an amendment after the end of the period specified in paragraph 15(4), an amount affected by the amendment ceases to be regarded as one that can no longer be altered until after whichever is the last of the following—
>
> > (a) the end of the period within which notice of enquiry into the return may be given in consequence of the amendment;
> >
> > (b) if such a notice is given, the completion of the enquiry (or the completion of the enquiry so far as relating to the matters to which the amount relates by the issue of a partial closure notice);
> >
> > (c) if an officer of Revenue and Customs amends the return under paragraph 34, the end of the period within which an appeal against that amendment may be brought;
> >
> > (d) if an appeal is brought, the date on which the appeal is finally determined.

(5) If the return is amended by an officer of Revenue and Customs under paragraph 83(3) (consequential amendment of return where amount available by way of capital allowances is reduced), an amount affected by the amendment ceases to be regarded as one that can no longer altered until after—

(a) the end of the period within which an appeal against that amendment may be brought, or

(b) if an appeal is brought, the date on which the appeal is finally determined.

14. Section 50 of the Taxes Management Act 1970 ("**section 50 TMA**") states relevantly:

50 Procedure

(1) ……..

(2) ……..

(3) ……..

(4) ……..

(5) ……..

(6) If, on an appeal, it appears to the majority of the Commissioners present at the hearing, by examination of the appellant on oath or affirmation, or by other lawful evidence, that the appellant is overcharged by any assessment, the assessment shall be reduced accordingly, but otherwise every such assessment shall stand good.

(7) If on any appeal it appears to the Commissioners that the person assessed ought to be charged in an amount exceeding the amount contained in the assessment, the assessment shall be increased accordingly.