PLANNING ACT 2008 ("PA 2008")
THE PROPOSED TIDAL LAGOON SWANSEA BAY (GENERATING STATION) ORDER (THE "ORDER")
PLANNING INSPECTORATE REFERENCE NUMBER: EN010049

Applicant's response to submissions made by interested parties at Deadline VI (25 November 2014)

Where no specific response is provided in this document to an interested party's submission, TLSB considers that the issues raised by that interested party have been responded to during the course of the examination, either through written representations and/or during oral hearings.

Where no comment is made, TLSB should not be assumed to accept the position stated and its position is reserved accordingly.

3.17. TLSB has provided a detailed response to Annex 3 of NRW's submission, upon which CCSC's concerns are based. Please see Appendix 3 of this submission.

4. Dan Morrissey Ltd

4.1. TLSB notes the withdrawal of objection.

5. Fish Legal

General Position: *TLSB has sought to engage with Fish Legal and its members throughout the application for development consent. It has provided the only scientific evidence of the prospective effects of the Project on fish stocks and fisheries. As such, whilst Fish Legal may disagree with the evidence submitted, TLSB's evidence is to be preferred.*

5.1. TLSB has not evaded queries made by Fish Legal. Where responses have not been given this was felt to have been addressed in previous submissions throughout examination or in comments on that representation.

Deadline IV submissions

5.2. Fish Legal has highlighted TLSB's comment on a Deadline IV representation, that "modelling indicates a very low probability of fish being delayed in the Bay by the Lagoon". To clarify, each run of the IBM model tracks the movements of individual fish past or into/out of the Lagoon, and therefore provides information with regard to any delay.

5.3. Fish Legal repeats from its deadline IV submission:

5.4. *"These comments [by TLSB in the issue-specific hearings] appear to ignore much of the detail of the Mee et al. paper, which concluded that fish moving into the Tawe estuary made on average four approaches – rather than just leaving the bay after one approach as has apparently been modelled for a limited number of 'stray' fish – and were probably disoriented and subjected to other stress impacts as a result of the delays caused by the barrage, impacts which could easily be mirrored by the effects of the lagoon."*

5.5. In the IBM modelling, none of the modelled fish left the model domain by crossing the Tawe Barrier. All 10,000 of the modelled fish attempted to cross the Tawe barrier continually until the model run was terminated. Model fish would attempt to cross indefinitely until the model run was terminated, sometimes individually attempting to cross 4 to 10 times, throughout the full range of tidal conditions. Therefore each run incorporated at least 40,000 attempts to cross and subsequent backing off before attempting a re-entry across a wide range of fish capability and behavior and across the full potential range of hydrodynamic movements related to tide. These attempts can clearly be seen on the video evidence resembling a kind of swarming around the entrance to the river. As such, the concern that attempts to cross the barrage had not been identified is unfounded.

5.6. No fish, which had attempted to cross the barrage and had subsequently "backed off" before trying again, ever interacted with the turbines. The navigational uncertainty, swimming capability and behavior after hitting land were all maintained consistently

throughout. These behaviours and parameters had been calibrated from a study of over 50 acoustically tagged fish, over several years and conditions, using the relevant species (Davidsen at el. 2013) and had been corroborated with numerous other studies of this and closely related species, and are similar to all individual based modelling studies of which we are aware (Willis 2011). This range of behaviours have never been falsified (shown to be wrong) in THA's expert opinion, in knowledge of the scientific literature, or in any discussions had with experts or interested parties. Based upon this evidence the Examining Authority may conclude that it has sufficient evidence that the concern has been appropriately addressed.

5.7. Furthermore, the parameters were different for each of the 10,000 fish of each run. The variation incorporated into the model aimed to capture the real variability in the population as well as any uncertainty resulting from experimental or measurement inaccuracies. No turbine avoidance behaviour was incorporated in the model. Likewise it was not appropriate to incorporate any 'probably disorientated' type of behavior, or other 'stress impacts' mentioned in the above statement. Another opinion, none of which was forthcoming during consultations including with appointed external advisers to Fish Legal/PASAS, would be any more useful than any other opinion. Thus, there appears to be no opinion or evidence that can be used to inform this situation in any other way than that which has been undertaken. The Mee *et al*. paper mentioned by Fish Legal above is not informative in this respect. It is a conference paper, not subject to the rigorous peer review process applied to a respected scientific journal.

5.8. TLSB have commented on the findings of the Mee et. al study in previous submissions throughout examination.

5.9. Regarding Fish Legal's comment on the application of the precautionary principle; it remains TLSB's position that the assessment and mitigation secured adhere to the purpose of the directive. Where uncertainty exists due to the dynamic nature of the environment, the AEMP provides a sufficient mechanism to manage any effects that occur outside of the likely significant effects that are predicted.

Comments on the AEMP

5.10. TLSB will continue to discuss and refine the AEMP with the relevant local planning authority authorities in consultation with NRW as secured by requirement 6.

5.11. In relation to hydroacoustic surveys, TLSB are aware that there may be confusion in distinguishing species of fish. Best practice therefore requires physical sampling (e.g. netting the same waters) to ground truth observation from hydroacoustic methods such as DIDSON camera's. This is accommodated in the AEMP.

5.12. With regard to the use of power analysis as presented in the AEMP, this relies on finding a 'signal' amongst the noise in the data. Dealing with the raw data the variability is, as Fish Legal point out, high. However, using an approach where changes are expressed as proportionate to the (for example) ten year running average of the rod catch, changes are easier to detect. THA's biostatistician has also consulted American biostatistician colleagues who agree the approach is mathematically sound, and who have proposed other statistical methods that achieve similar results.

Comments on the draft DCO

5.13. Regarding Article 38(1); TLSB does not view this amendment as required.

5.14. Regarding Article 46(1); it is appropriate to constrain the power in order to ensure that it will be within the undertakers powers to carry out any works as required.

5.15. Requirement 7; the mechanisms outlined in relation to the AEMP are based on precedent and are designed to ensure that recommended courses of action are achievable and within the scope of TLSB's powers.

5.16. Requirement 28(4); TLSB considers that the approach contained in Requirement 28(4) is entirely appropriate. If the modelling confirms an effect is predicted, then AFDs will be installed. If not, then there is no need to do so.

6. Jill and Brian Burgess

6.1. TLSB has responded to the views of NRW highlighted in this submission in its previous submission and has provided an agreed note at deadline VI in relation to mitigation of potential mud accretion.

6.2. The piling referred to as being undertaken in daylight hours and good visibility is in relation to the marine piling associated with navigation safety piles. JNCC measures will be implemented during these works. The piling associated with the slurry wall is "terrestrial" as it will be from on top of the sand bund. These works will be 24/7 as the nature of the works necessitate this, but it will not have percussion piling characteristics. In terms of noise effects, as assessed in the ES, vibro-piling of the twin sheet-piled cofferdam which was "marine" piling did not require mitigation and it was only percussive or impact marine piling which would require JNCC measures. As such, the noise emitted from the slurry wall piling, being land based will be even less and no mitigation is needed. In terms of terrestrial receptors, the levels presented in the ES Chapter 19 provide a worst case assessment for the twin sheet piled cofferdam (both impact and vibro piling) and no mitigation was identified as necessary.

7. Matthew Cartmill

7.1. TLSB has no comment to make on the representation of Mr Cartmill.

8. National Grid Electricity Transmission

8.1. TLSB has no comment to make on the representation of National Grid Electricity Transmission.

9. Neath Port Talbot County Borough Council

9.1. TLSB has responded to NPTCBC's comments on the draft DCO in Appendix 1.

10. Natural Resources Wales

10.34. In relation to the Eels Regulations, NRW states that regulation 17 of the Eels Regulations applies. TLSB does not agree that the definitions under regulation 17 are met because:

*10.34.1.*the project does not abstract any water and does not return water to the sea because it never takes water out of the sea;

a "diversion structure" is defined as a "conduit or channel by which water is abstracted from its usual channel or bed or from the sea, or by which water is returned to that (or another) channel, bed or sea" and TLSB does not consider that the project comprises anything that can be defined as such a "diversion structure"; and

10.34.2.while the project may be considered a dam, it is not a structure that is likely to impede eels.

However, should it be considered that regulation 17 of the Eels Regulation applies to the project, the Secretary of State is legally empowered to include a provision in the Order that addresses the requirement to place eel screens for the same reasons that apply to salmon screens under SAFFA, as explained above. The omission of such screens is important for the operation of the project in respect of maintaining water flows through the turbines by which electricity is generated. Therefore, eel screens are not necessary.

11. Peter A. Ross

11.1. TLSB has no comment on the representation of Peter A. Ross.

12. Pontardawe and Swansea Angling Society

***General Position**: TLSB and PASAS disagree as to the effect of the project on riverine fisheries, TLSB considers that there is sufficient information before the examining authority, which is derived from scientific study on behalf of TLSB, to prefer its evidence. In this regard, TLSB has provided the only model of fish behaviour to the examination and supported it with independent expert witness evidence. No alternative evidence of that nature is before the Panel.*

TLSB has also made precautionary provision (it does not consider it necessary to do so since it predicts no effect) for the compensation of those injuriously affected as a result of the Project.

12.1. TLSB have commented and responded to most of the concerns raised in this representation in submissions throughout examination.

12.2. PASAS has suggested that the application should not have been accepted. However, this was a matter where the Planning Inspectorate was able to exercise its discretion on behalf of the Secretary of State. TLSB maintains that the effects of the project on riverine and migratory fish species will be so small as to be undetectable meaning that no claim can properly be made in respect of the effects of the project. As such, injurious affection will not be suffered by those whom PASAS and other riparian bodies represent.

12.3. PASAS has complained about the fisheries evidence. However, it has not made such complaints on the basis of any scientific information, merely on the basis of anecdotal evidence. TLSB has used state of the art modelling, which has been made available to various parties, including PASAS. TLSB has sought to meet PASAS and, unfortunately, this has only been possible on one occasion. However, it has sought to provide information and it has sought input from PASAS wherever possible.

12.4. In light of this, TLSB considers that the Examining Authority and the Secretary of State both have sufficient information to reach a conclusion in respect of the effect of the project on species. There is mitigation available which will prevent adverse effects on fish populations through the deployment of suitable turbine technology and, should that not be sufficient in and of itself, the deployment of AFD. With these measures, the effects of the project are barely detectable and certainly acceptable.

12.5. The assertion at paragraph 5.h. that the turbine array can be altered is not correct. As the Order is drafted, it must be constructed in accordance with the planning drawings, which are to be certified. Should a materially different orientation of the turbine housing be proposed, then the consent of the local planning authority would be required. If this would be likely to have different environmental effect then, under the case of *R v London Borough of Bromley, ex parte Barker* (ECJ ref: C-290/03), CCSC would be entitled to request a further environmental impact assessment. Essentially, such deviation is not permitted;

12.6. At point 6.a. of PASAS's representation, PASAS comment on 'burst swimming speeds' when referring to some of the information provided to PASAS by TLSB on the 14th December. Although TLSB are unsure as to where PASAS believe this relates to, the data presented in relation to turbine flows and AFD design provided used Maximum Sustainable Swimming Speeds (MSSS) in line with the Environment Agency guidance.

12.7. At point 10.c. PASAS mentions its illustration of the ways in which salmon and sea trout are likely to interact with the turbines. As mentioned previously the IBM model and assessment undertaken for the EIA are based on scientific knowledge and expert judgement, using the best tools available for this kind of assessment. TLSB used objective methods to investigate responses to flows. It should be noted TLSB had, in early consultations, invited PASAS to contribute information to assist in development of a fish behaviour model that would reflect valid observations from those who may constitute locally knowledgeable people including anglers, but PASAS declined to take part.

12.8. PASAS believe that the project is likely to harm salmon and sea trout and that TLSB has failed to propose any mitigation / offset measures to counter the harm which even its own modelling predicts. However, the ES is a worst case assessment based on fixed speed turbine which predicts an insignificant impact on salmon. The conservative nature of the assessment is demonstrated when the modelling was re-run using real smolt tracking data and the impacts were reduced by a further 75%, namely from 0.12% to 0.03%. These levels of effect will not be discernible within the natural fluctuation of fish which can be up to 30%.

12.9. PASAS have commented that, as in the case of the Cardiff Bay Barrage, where lessons had been learned from the Tawe Barrage, there should be a package of measures:

i. to compensate for an assumed level of harm, equal to the minimum detectable level;

ii. to remedy / compensate for any actual harm established in excess of that.

12.10. However it should be noted that the lagoon is not a barrage and does not block any rivers, unlike the Cardiff Bay Barrage and Tawe Barrage. An assessment has been untaken showing no significant effects requiring compensation. The AEMP will monitor the effects of the Lagoon.

12.11. PASAS comment "No such measures are proposed either in the AEMP or in the DCO. The applicant's latest response to this point, in the "*Note addressing mitigation actions and acceptance for / rejection of inclusion in AEMP*" submitted on 4th November, merely says "*TLSB does not predict there will be significant impacts on fish populations as a result of the Project.*" We are not satisfied with that response."

12.12. The final submissions of PASAS are that:

- The proposals fail to meet certain requirements, including:
  - implementation of mitigation and offsetting measures. However, mitigation is secured, including the use of AFD, which would result in negligible, if even detectable, impact upon fish populations;
  - proper monitoring of the effects of construction and operation of the project are provided for in the AEMP;
  - offsetting measures to account for an assumed level of harm. However, whilst the Cardiff Bay Barrage is suggested as an alternative model, that project is very different to this one since it included construction of the barrage across the mouth of the River Taff. There will be no barrage across any river as a result of this project;
  - compensation arrangements to take effect if monitoring shows that fish and fisheries have been harmed. However, this is addressed by the inclusion of wording on a precautionary basis to provide financial compensation in the event of effects on fishery interests;
  - requirement to remedy any damaging effect of the project. This is so vague as to be unhelpful, since it does not make clear what damaging effects are predicted and, as TLSB has noted elsewhere, there is no identifiable and measureable effect predicted following mitigation; and
  - security to cover compensatory liabilities of TLSB. However, this is not normally a necessity in these cases. As matters stand, sufficient provision is made through mitigation to avoid the need to pay compensation. Should that be different, then compensation will be payable by TLSB.
- TLSB has failed to "propose any mitigation/offset measures", which is inaccurate, since the harm predicted is very small and AFD are proposed where turbine selection itself does not mitigate effects upon fish in order to address this;
- compensation for assumed levels of harm and remedial/compensation provision should be based upon the Cardiff Bay Barrage model. However, this relates to impacts which are not relevant since the barrage obstructs access to the Rivers Taff and Ely, which is not the case in the project;
- PASAS criticises TLSB's conclusion that there will not be significant impact on fish population. Whilst PASAS may not be satisfied with this statement, it is the product of scientific modelling carried out using state of the art approaches and which is the only scientific model available. Furthermore, the use of the

scientific model has been verified by the use of testing, applying data from the salmon smolt tagged at the mouth of the Tawe, which performed almost exactly as predicted (indeed more conservatively) by the model. PASAS has not provided any scientific assessment, let alone scientific assessment that contradicts that presented by TLSB;

- the monitoring is unsatisfactory, which TLSB does not accept; and
- that it is inappropriate to address the application of SAFFA in the DCO at this stage. TLSB considers that it is entirely appropriate to address SAFFA at this stage.

13. Porthcawl Environment Trust

13.1. TLSB considers concerns raised in this submission of Porthcawl Environment Trust to have been responded to in TLSB's previous submissions throughout examination.

14. Public Health England

14.1. TLSB has no comment on the representation of Publ ic Health England.

15. Rhossili Working Group

15.1. TLSB has no comment to make on the representation of Rhossili Working Group.

16. Royal Society for the Protection of Birds

16.1. TLSB has responded to comments on the AEMP in Appendix 2 of this submission.

17. Tony Colburn

17.1. TLSB has no comment on the representation

18. Trinity House

18.1. TLSB commented on this representation in the comments on consultation responses made at Deadline VI.

19. Welsh Government

19.1. TLSB disagrees that the "amenity development" is not an enabling part of the development. It also disagrees that the works which form part of the project are such amenity development in any case. Nevertheless, TLSB has sought to accommodate the concerns of the Welsh Government and amended the approach in the Order accordingly.

19.2. In relation to Work No. 1a, the visitors centre has been deleted and is proposed to be secured by development consent obligation.

19.3. It is noted that all other elements are not identified as being of particular concern at this stage to the Welsh Government.

19.4. The reference to viewing areas and public works of art is noted in relation to Work No. 2a. However, viewing areas are no more than widening of the crest of the sea wall.