

Cockenzie Masterplan

Review of the Cockenzie 'Masterplan' in regard to the Cruise Port question

Prepared for Prestonpans Community Council

by

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1. The Masterplan (MP) consultants appear not to have properly investigated or adequately described the potential for a cruise port at Cockenzie. More than this, in the MP the consultants appear to be intentionally seeking to discredit any cruise port potential for the former power station site. This is done by presenting a host of highly negative yet mostly un-researched arguments as to why a cruise port should not be built at the site. This is not a professional approach. Consequently, there is no real expert knowledge or reflections presented in the MP concerning international cruise port development research and port industry trends that would be of relevance to a cruise port development at Cockenzie. There is in fact no attempt to investigate and outline even what a cruise pier might look like at Cockenzie, how it would best be configured and aligned, and who would use it. The MP is therefore devoid of any quality analysis and discussion about a cruise port at Cockenzie with comment dependent on ad-hoc, mostly unjustified statements built around a negativity bias that appears to be opposed to any cruise port development being included in the MP at all. Most of the remarks below relate to section 07 of the MP which contains the main discussion on the cruise port opportunity. The review concludes by providing an outline of a basic cruise ship pier arrangement at Cockenzie, taking into account available water depths.

Section 07 Strategic Issues

2. Energy: the MP states that: "*employment and investment in the former Cockenzie Power Station site will be led by the energy sector (and its supply chain), and the value it creates will drive the demand that will ultimately support other sectors and activities*" (p. 39). This statement is not supported by any actual evidence and it also completely ignores the potential impact of a commercial cruise port at the site. As with many recent port development projects there is likely to be tremendous synergy between maritime transport and energy in such projects. There is an opportunity at Cockenzie to exploit this synergy. But this will not be possible if the

key emphasis of any development is predominantly focused only on energy, which as the MP acknowledges remains highly uncertain, whereas the maritime cruise market is proven and hence relatively easier to assess. There is therefore a need to recognise in the MP this potential synergy effect between maritime transport and energy, and not to ignore one to its disadvantage and elevate the other based largely on conjecture, or hope.

3. Consultants use the term '*Port Variant*' (p. 43) which reflects a rather biased terminology (i.e. opposition to a port?), the term 'variant' meaning: "*a form or version of something that differs in some respect from other forms of the same thing or from a standard*". To many consultees the port option proposal forms potentially the most important and rather obvious opportunity for the former power station site, not least given its coastal position, tri-modal connectivity, and brownfield status, plus the fact it is already a port facility with a pier. The port is not therefore a 'variant' at all, and arguably the port option should be considered as the more standard solution for a coastal former power station site considering that many power stations are located within ports, and in fact the Cockenzie site does already have a port facility (i.e. a pier) as part of its essential infrastructure, as illustrated in the masterplan slides; thus, a 'port' facility already exists at Cockenzie, so in effect, how can a 'port' (extension or revision) at this location possibly be conceived of as a 'variant' of what already exists? The use of the term 'variant' simply reflects the inherent bias of the MP against any port development.
4. The MP states (p. 43) that: "*the port variant has been considered in terms of its technical requirements, environmental impacts, operational land requirements, the market & feasibility, and operational cost implications*". However, it is clearly evident that the MP has not undertaken any of these analyses in sufficient detail necessary to make any conclusions as to the feasibility of a cruise port facility.
5. The MP states that (p. 44): "*The depth of the sea bed at a distance of 300m from the shore is 5m and at 3.6 km this increases to 10m. These depths severely limit the types of vessels which could utilise a port operation (without significant dredging).*" No maritime chart evidence is provided to substantiate this statement and there are some fundamental inaccuracies in it. According to Admiralty Chart 734, depths approximately 300m from the shore range from 5.9 to 7.1m chart datum, and thereafter rapidly increase to 8.6m, with large 'pools' of 10.2m depth within 1000m from the shoreline. In other words, a new pier running out 300-400m further on from the 300m position would require minimal dredging to give 8.5m depth (adequate for most cruise ships), with the potential to create a 'berth pocket' of 10m depth for largest vessels; moreover, any approach channel to the pier at just over 1,000m from the shore is already mostly around 9m cd depth or more which means it is already sufficiently deep enough for most vessels, whilst the relatively few very largest ships of 8.5-9m draft would be able to access the pier either side of High Water without any need for channel deepening.

6. Dredging will therefore be considerably less than the MP envisages. Assuming a causeway/bridge is built/reclaimed out to the 300m area (as in Kirkwall), and then an 8.5m depth area say 400m long and 100m wide is dredged an average of 2.5m, this would result in some 100,000 cubic metres of dredged material. A dredge even to provide for 10m berth pocket depth would amount to 160,000 cubic metres. This is rather insignificant when compared with the recent approach channel deepening and berth pocket dredging along an 800m quay length and up to 16.5m depth at Liverpool which totalled over 5 million cubic metres of dredged material at a cost of some £35-40 million¹. The latter amounts to about £8 million for every 1 million cubic metres dredged and suggests that any dredge at Cockenzie could cost less than £8m. The MP consultants are therefore wrong to suggest that a cruise port at Cockenzie would not be possible “*without significant dredging*” or that adjusted existing depths would “*severely limit the types of vessels*”. The amount of dredging required at Cockenzie is considerably less than at other recent port developments such as Liverpool or London Gateway. The MP should have offered such a comparison.
7. The illustration of a large container ship with a draft of 16m (p. 44) is irrelevant to the proposal for a cruise port, cruise ships having a much-reduced draft (i.e. about 50% that of the largest container ship). However, a point worth noting here is that the channel in Liverpool has been dredged to 8m cd, which means the largest container vessels are able to access that port only during High Water periods, the tidal range exceeding 8m there. On the Forth the tidal range provides for 4-5m of additional depth over and above what is available at cd. Thus, if the minimum depth is 7m cd, this rises gradually to 11-12m with the tide, which means most of the time (80%+) there will be more than 9m depths close to (i.e. within 1,000 metres) Cockenzie, and sufficient for most cruise ships to be handled, whilst even the very largest ships can be moved a few hours either side of High Water. The dredging of a berth pocket means larger ships can remain afloat whilst alongside the pier even at Low Tide. The MP has taken no account of tidal range advantages or the possibility to create sufficiently deep berth pockets.
8. Environmental Impacts: In terms of environmental impacts the MP states that due to SPA designations this could mean a cruise port development may be impeded (p. 44). The reality as noted above is that any required dredge and size of cruise pier would be rather limited in comparison to most other recent major UK port developments or in regard to the vast area of the Firth of Forth and the SPA’s within it that would not be impeded in any way.

¹ <http://www.dredgingtoday.com/2015/02/10/dredging-of-liverpool-2-well-underway/>

9. Design, Operation & Logistics: In terms of '*Design, Operation & Logistics*', the MP states that this requires '*significant land*' (p. 45). Arguably a cruise terminal requires only sufficient coach and vehicle parking plus check in and baggage building and most if not all of this can be contained within the immediate shoreside part of the site, including any multi-storey car park. A cruise-ferry pier may require some additional land, but this need not necessarily be significant, with accompanied cars, coaches and trucks merely requiring parking for a brief period (say 1-2 hours) prior to loading onto a ship, with drop-trailers needing a limited storage area. The required parking area for this might best be provided within the reclaimed area close to the start of the main pier.
10. The images of the ports of Grangemouth and Leith placed over the site by the MP consultants (p. 45) can only be described as misleading. Both these extensive Victorian harbours were designed to accommodate dozens of smaller ships common to that period. Most of the port of Leith is today obsolete and lies unused, whilst only around half of Grangemouth is used for maritime operations, and much of that for tanker traffic; less than a quarter of the port land area at Grangemouth is used for container feeder operations, albeit even the latter is not envisaged for Cocksenzie. As the layouts of outdated ports such as Leith and Grangemouth bear no relationship to the land take of modern marine terminals or the ships they serve, these illustrations and related text should be removed from the MP.
11. Sadly, the consultants have made no attempt at providing any illustrations of a cruise pier at Cocksenzie and associated terminal arrangements. This means people looking at the MP have little idea of what a cruise facility at Cocksenzie would look like, leaving any observer to conclude that the MP designers have little interest in the cruise pier option.
12. The idea that a cruise port would have to be completely fenced off to the public is also rather misleading. In Kirkwall a temporary fencing arrangement is put in place around cruise ship passenger access points which still allows members of the public to access the rest of the pier when dealing with domestic ferry services and other vessels. Whilst the ISPS security requirements must be met, ports are still able to offer the public viewing areas, restaurants etc. In many ports '*Cruise Villages*' shopping areas are provided outside the ISPS area which cruise passengers as well as local communities can use.
13. Market & Feasibility: the MP states a need for 9m depth for cruise ships (p. 46). With existing depths close to the site approaching 6-7m cd only some 300m out from the shore, it would be relatively easy to dredge and create berth pocket depths of 9m cd and more which relatively modest dredging would permit. Around 1,000m from shore the depths increase to 9m cd thereby giving a sufficient approach channel and with a tidal range of 4-5.5m this means the largest vessels can access a pier at Cocksenzie provided berth pockets are deep enough (e.g. 10m).

14. It is stated that cruise lines '*prefer city locations*'; Cockenzie is under a 30-minute drive to the centre of Edinburgh which is perfectly adequate for cruise lines. Of course, not all passengers want to go to the city and will look for other options. Cockenzie is far better placed for larger ships that currently must anchor off Hound Point where it can take two hours or more for passengers to reach Edinburgh from the ship, aside from the added port fees and pilotage incurred there. Only relatively small cruise ships are currently able to access Leith (6.7m cd channel), and all cruise ships prefer to avoid such lock entrance ports anyway due to risk of damage in windy weather and the extra expense of tugs which are obligatory. The consultants have simply ignored these and other key market issues which would have indicated that a new bespoke cruise pier at Cockenzie would be highly differentiated from the current sub-standard port offer on the Forth.
15. The MP states that 'vessels do not consistently call at the same locations' (p. 46). Evidence from cruise ship itineraries increasingly suggest the opposite. Moreover, a key opportunity for Cockenzie would be in attracting turnaround cruises where ships can be positioned at the port for a whole season running weekly cruises. At present the lack of a bespoke cruise terminal on the Forth prohibits turnaround cruises, particularly for larger vessels that are unable to berth at existing constrained harbours and must anchor offshore. For turnarounds the ship must come alongside to transfer passengers, baggage, and to take on board stores for the cruise, and for any maintenance and repairs to be done etc.
16. The MP seems unnecessarily pessimistic regarding cruise passenger excursion opportunities, and makes rather irrelevant statements such as "*..one off events (e.g. a golf tournament) cannot sustain the construction of a port facility and its operation.*" There are an enormous range of excursion possibilities and significant job opportunities for local guiding etc.
17. The MP states: "*There are very few global locations which can sustain a dedicated cruise terminal*" (p. 46). This again is simply untrue. Many major city ports around the world are now developing their third, fourth or even more cruise terminals (e.g. Hamburg, Dubai) whilst many small island destinations have developed advanced cruise terminals as a matter of course, capable of berthing even the largest cruise ships in the world (e.g. Kirkwall, St. Maarten, St. Lucia). Adapting the cruise terminal to also accommodate the similar needs of cruise-ferries is an evolving theme at such ports (e.g. Genoa, Barcelona, Kirkwall, Stavanger, Copenhagen, Tallinn), suggesting a cruise pier at Cockenzie should also be able to facilitate cruise-ferry operations.
18. The MP states that "*In terms of the ferry market, passenger ferries to Europe are not considered to be commercially viable as proven by the cessation of the passenger ferry at Rosyth*" (p. 46). This again is an inaccurate statement. The Superfast service between Rosyth-Zeebrugge was in fact profitable. The service ended due to several

factors, including high port charges and insufficient land area for vehicles at the Rosyth terminal. When a good offer was received for one of the ships, Superfast sold it off, and the second ship was moved to Baltic routes. The Superfast service did nevertheless prove that sufficient demand exists to sustain a direct Scotland-Continent ferry connection which can easily attract 250,000 passengers, 50,000 cars and 50,000 freight units a year, even more if greater ship capacity (cabins, car deck space etc) is provided. It can be argued on this basis that a superior, lower-cost, and better positioned cruise-ferry terminal on the Forth at Cockenzie could attract a new daily cruise-ferry connection to the continent. A daily cruise ferry service would provide a Cockenzie port with a year-round client and revenue stream, offering an important balance with and support for cruise ship seasonal peaks. This would also prevent continuing leakage of Scottish tourism and jobs due to Scotland's dependence on cruise-ferry services via ports in England, particularly Newcastle and Hull.

19. The MP consultants seek to promote Rosyth rather than Cockenzie, stating that: *"Rosyth, ... is already an established port with all necessary infrastructure in place."* As noted above, the reality is that the cost of using Rosyth is prohibitive to cruise ferry lines, and land space there is limited. In addition, the air draft of the bridges is too low (43m) for larger cruise ships (60m+ air draft) or for some cruise-ferries to reach Rosyth, which in any case also has depth issues (8m channel/berth draft) to contend with. A further benefit of Cockenzie is the saving in ship steaming time and associated cost of about 1 hour each way to/from the open sea, 2 hours in total which, for a daily cruise-ferry connection would amount to a fuel cost/time saving in the region of about 10% annually, which is highly significant in addition to likely savings in port charges. It is therefore not true to say that Rosyth has *"all the necessary infrastructure in place"*, nor is it accurate to simply assume that Rosyth would be more competitive for shipping services. Recent experience, location, and technical impediments suggests Rosyth is not attractive for cruise-ferries or for cruise ships.
20. Reference to cross-Forth ferry (passenger) connections and tall ships is not really of great significance for a cruise pier, nor are the issues mentioned regarding rail.
21. Cost & Finance: the MP states that: dredging costs *"could be in excess of £25 million, assuming disposal at sea was acceptable"* (p. 46). However, there is no evidence provided as to how such a figure is arrived at. As noted above, the extent of the dredge at Cockenzie could be less than 20% compared to the £35m dredge recently undertaken in Liverpool, which would suggest dredging costs at Cockenzie would be considerably less than £25m, and most probably below £10m. Moreover, dredged material can be better used to allow for backfilling to help create additional terminal land and/or a causeway (i.e. to allow for a pier to begin out from deeper water about 300m from shore), thereby reducing the need for disposal of material in designated

areas at sea. The MP consultants have not considered such options, which is regrettable as they are relatively common place in many port projects.

22. The maritime charts show that 7m natural depth can be reached some 300m out from the shore, and within 1,000m from shore there are in fact pools of 10m depth. This means there is not really very significant dredging required to get down to 8.5m cd or even a bit more. Moreover, the natural approach channel beyond is already adequate as it is 9m+cd allowing for depths of up to 15m (at high tide) and for most of the time (80%+) depths above 10m. A typical port engineering solution would be to create berth pockets at the pier which would enable most ships to access and remain afloat at all times whilst also allowing for the very biggest boats to access the pier a few hours either side of high water. The sea bed around Cockenzie is mud, so not difficult for dredging. As noted it is not a large dredge relative to other major port projects, so this would be a relatively modest dredge which will have far less impact and will probably cost under £10m (not over £25m as the MP consultants suggest). In addition, the area at Cockenzie is not a fast-moving river 'narrows' like at Rosyth which over time silts up, or on the Mersey, which suggests any maintenance dredging at Cockenzie would be minimal. Again, the MP consultants appear to have simply ignored what is a relatively standard solution in terms of port construction.
23. A brief description of the Hatston-Kirkwall pier is given (p. 47). However, the MP analysis could have been extended to consider Kirkwall's key essential design aspects (e.g. causeway built out to reach deeper water, dredging, pier alignment, landside requirements, and overall cost (£30m approximately). To a large extent what is provided at Kirkwall could be a close 'model' for a similar development at Cockenzie. (The MP consultant and a council planner were invited to Orkney and myself and the OIC Director of Marine Services gave them a tour and full cost/technical briefing of the Kirkwall-Hatston cruise-ferry terminal, however they seem to have ignored virtually everything we told them and instead gone on a rather negative bias against a cruise port. Very disappointing.)
24. The bunded coal yards area at Cockenzie, or part of it, and the presence of rail sidings there, would make for an excellent intermodal freight terminal able to service the port. This is an area already well protected from nearby housing. Arrangements for freight movements could be put in place over the Edinburgh Road to maintain separation from local traffic. There are also inland waterway options to serve Cockenzie, such as the proposed 'Diageo barge' taking whisky containers from Methil, and with upriver options to Rosyth and Grangemouth, possibly connecting this traffic with a daily continental cruise-ferry. None of these virtues of what is potentially a valuable and highly competitive 'trimodal' site well able to support a vibrant port are considered in the MP. Indeed, the MP alludes to lifting the railway spur!

25. A trimodal freight terminal with frequent international trading connections would also be a lever to attract associated logistics investments and jobs. Such logistics activity does not need to be within the port, it can be clustered around the area wherever appropriate sites exist. This is in part what also makes a seaport an important and unique 'economic engine'. However, the MP does not consider such important impacts.
26. A cruise pier could easily create an opportunity for a protected inner harbour suited to smaller commercial vessels, fishing and leisure craft, tour boats, and yachts etc. This would give the Forth the only non-tidal yacht harbour east of the bridges, and adjacent to the more open expanse of the Forth closer to the North Sea. This would also be an ideal facility for East Lothian schools and water sports groups, as well as various maritime training providers, plus RNLI, Fisheries Protection, and marine energy support craft etc. The MP does not mention any of these major opportunities many of which would have significant benefits for the local community and for employment more generally.
27. Conclusion: The main conclusion in the MP to the effect that Cockenzie would need *“substantial frontend investment to achieve appropriate sea depths – **potentially several hundred million pounds**”* is not justified in the text, and has no actual detailed evidence or analysis to back it up. A more detailed evaluation and analysis of water depths and cruise pier construction options at Cockenzie would indicate the cost to be far less than this, also considering comparative costs incurred at similar projects elsewhere (e.g. Kirkwall, Tallinn, St. Maarten, Gotland etc), and where most cruise piers cost below £50m, with some as little as £10m. Another unsubstantiated statement in the MP is that *“it is not clear whether there would be a sufficient market hinterland to sustain a port at Cockenzie”*. The consultants are unable to justify such statements largely because they have not provided any real research evidence or analysis to back them up; for instance, there is absolutely no analysis of the (booming) European cruise market, nor any analysis of whether existing ports on the Forth can meet the needs of cruise lines or cruise ferries (arguably they cannot). There are then doubts expressed as to the land that would be left for a port once *“the energy requirement’ of the site is fulfilled”*, however what the owner of the site does with it is not necessarily dependent on any definitive ‘energy requirement’, as if that were somehow a compulsory part of the site’s future use, or there being a fundamental energy priority over other uses as seems to be implied in the MP. Moreover, there is in any case no evaluation or analysis in the MP as to why a cruise port could not fit around such (largely undefined/theoretical) energy activities if necessary. There is no evidence here either of any detailed port engineering and cruise market analysis study on which to base any decisions on cruise port feasibility. The unjustified conclusion merely reinforces the view that the MP appears to set out intentionally to oppose and indeed to ‘rubbish’ the idea of a cruise port, yet without undertaking any detailed evaluation to base such a conclusion on. This leaves the MP exposed to justified criticism that it is not sufficiently robust, that it is largely biased

against a cruise port, and in fact that it is in research terms a rather lazy and inadequate piece of work.

Outline of basic cruise pier arrangement at Cockenzie

28. The figure below illustrates what the MP should have provided in any analysis of a cruise port. The main elements shown on the chart with depths in metres cd (chart datum) are: the reclaimed area, the pier(s), the ship turning circle, and the approach channel.
- Here the cruise port could begin with a reclaimed area, shaded blue, constructed out some 300m from the shore. This might also be part bridge-like towards the seaward end, with side quays offering added berthing space for smaller vessels.
 - Pier 1 would begin from this point, stretching for a further 300m into water depths of up to 7.4+m cd, with an alongside berth pocket dredged depth either side of 8.5m cd. This is sufficient for most existing cruise ships and cruise-ferries. A second (Phase 2) and longer 400m pier could then be constructed into deeper water, the outer half of which could consist of mooring dolphins, in current water depths of 7.4m+ cd and extending into a 'pool' depth of 10m cd towards the end of the pier. Here a berth pocket depth of 10m cd could be dredged, and with its 400m length the second pier able to accommodate the largest vessels envisaged. This 2-pier phased arrangement means the cruise terminal could accommodate 4 large vessels simultaneously or a larger number of smaller ships.
 - A ship turning circle seaward of the pier(s) already benefits from natural depths of 7.7-9.8m cd, and this area could be dredged to make it slightly deeper at 10m cd throughout.
 - Thereafter the approach channel is already offering 9m+ cd and probably requires no dredging considering this is sufficient for most cruise ships plus the tidal range means the water depth available here over most of the day (80% or more) will remain above 10m.
29. Given the benefit of useful existing water depths, and the added advantage of tidal range (+4-5.5m above cd), the overall dredging requirement for a cruise port at Cockenzie is unlikely to be significant (i.e. probably less than 20% of the recent Liverpool dredge, which was 5m cubic metres). Any dredging that is required can be made good use of as backfill material to help create the reclaimed area/causeway/bridge (e.g. to provide back-up land/parking areas for cruise-ferry vehicle marshalling etc) out to 300m into the deeper water area and the start of the main pier.
30. This brief analysis demonstrates that a well-designed cruise ship pier at Cockenzie, with appropriate alignment and making effective use of available water depths, tidal range, and dredged material, could be constructed at relatively low cost. Other design options exist, such as opting for just a single pier arrangement perhaps with a deeper berth pocket (10m cd) and longer pier (400m). The outer sides of the

reclaimed area/bridge closer to shore could also provide for added berthing space for smaller vessels of up to about 100m length and 5.5m draft. This implies that a relatively simple, low-cost pier arrangement could benefit from offering multiple flexible berths (e.g. up to perhaps 1,600m berthing space overall) and hence increasing revenue potential.

