RURAL ECONOMY AND CONNECTIVITY COMMITTEE

INQUIRY INTO THE CONSTRUCTION AND PROCUREMENT OF FERRY VESSELS IN SCOTLAND

SUBMISSION FROM ORKNEY ISLANDS COUNCIL

Introduction

Orkney Islands Council welcomes the opportunity to offer evidence for the Inquiry into the Construction and Procurement of ferry services in Scotland and particularly so as the scope of the inquiry covers all ferry services for all of Scotland. It is therefore considered that the Inquiry presents a significant opportunity for a nation-wide approach to be taken to the procurement, construction and indeed the equally important of matters of through life support/maintenance/reliability/refit. This latter point is crucial as the risks surrounding through life costs over the in-service life of a ferry are invariably set at the design, procurement and construction stage.

The fact that an 'all of Scotland' approach is being taken by the Inquiry appears to recognise that the issue is not just one for the CALMAC or indeed CMAL Fleet. Of the 58 or so publicly owned/leased ferries in Scotland, 43% are not part of the CALMAC Fleet. Furthermore, if the totality of ferry provision in Scotland, and hence the totality of the risks and opportunities for Scotland and its ferry, ship building and ship maintenance industry are to be considered then the privately owned and local authority and operated ferry sector should also merit some consideration.

As stated, the overarching scope of the Inquiry does appear to be broad and for all of Scotland and this is very much welcomed. However, the guiding questions to the call for evidence appear to be heavily focussed on the procurement and construction of the two hybrid ferries at Fergusson's and hence Orkney Islands Council has a concern that too much focus on this albeit very significant matter could divert attention away from the much bigger challenge of how best to procure, construct and then support a large and hopefully increasingly lower carbon ferry fleet for all of Scotland over the next 25 years or so. The following evidence from Orkney Islands Council is therefore based on a long-term challenge for the whole of the Scottish ferry and ship building/support sector rather than on the specifics of vessels 801 and 802.

Ferry provision to and from and within Orkney

As evidence that ferry services across Scotland have a much broader scope than perhaps the public perception that the main focus is the Clyde and Hebrides, Orkney Islands Council believes that it is worth considering the scope and totality of services and vessels elsewhere. For Orkney, the totality of ferry provision can be characterised in Table 1 at Appendix 1.

From Table 1, it can be seen that there are 19 ferries, of which 14 are publicly owned/operated, servicing the various routes to, from and within Orkney. There is no cohesion whatsoever between the 6 separate owners/operators when it comes to

replacement/procurement/construction and virtually no interaction for maintenance and refit cover. This latter point has added significance for Orkney for the Scottish Government funded service on the Pentland Firth where the CMAL system which owns/leases 38 ferries across Scotland is repeatedly unable to provide an appropriate vessel to cover for refit or breakdown of one of its own vessels. This highlights the point that whilst the focus of the Inquiry is very much on ferry procurement and construction, the matter of in service support which spans up to 30 years or so of a ferry's life is as important, if not more important, than the build phase which generally lasts just 2 – 3 years. It also highlights that as looked at as a whole, there is a major gap in the Scottish fleet capacity, which is manifest in inadequate refit cover for key lifeline Scottish services.

In summary, it is considered that, when considering the Scottish Ferries Plan and all of the Scottish Ferry Fleet and the opportunities and risks which exists within it, the totality of the Fleet should be considered and that the totality of the life cycle, from service need through to design and construction and all the way through to eventual disposal MUST be considered. Focussing on just the procurement/construction phase and for only a proportion of the entire Fleet would be a mistake and whilst the private sector vessels should be a matter for the private sector, efficiencies and opportunities for the ship build/support sector may well exist if they are at least a factor when establishing sector strategies. Furthermore, if Climate Change aspirations are to be met, the entirety of the ferry provision must be part of the decarbonisation plan and this can only be achieved if the entire Scottish Ferries sector is considered as a whole irrespective of ownership or operator.

The Orkney Ferries Fleet and its replacement

With regards to ferry age, Table 1 highlights that the average age of the Orkney Islands Council Fleet is 32.5 years compared to 22 years for the CALMAC Fleet. Arguably the internal ferry fleet in Orkney is significantly more 'lifeline' than the external ferry fleets and hence this very clear difference in average age should be a cause for very significant questions as to how this has come about. Furthermore, questions about the reliability of the two fleets may well signpost differences in engineering standards, maintenance and original build quality as it is far from clear that the CALMAC fleet is more reliable despite its relative youth.

Setting aside the age differences across the Scotland ferry fleets, the evidence draws out some significant factors with regards to ferry procurement and construction.

The first is that the youngest ships in the Orkney Ferries Fleet is 2 years older than the average age of the CMAL owned Fleet. This of course highlights the lack of a co-ordinated financial and age-related replacement plan for publicly funded ferries across Scotland. Irrespective of separate discussions with regards to fair funding for all of Scotland's ferry services which have been ongoing for at least 10 years, such a disparity in the age of the overall Fleet will be an impediment to ship building opportunities in Scotland as well as missed opportunities for training, the establishment of design expertise, progress with regards to standards of service and disability access and, of course, significant challenges with regards the pace of

change towards zero carbon. The fragmented approach and lack of an overall Scottish Strategy for vessel ownership and replacement is completely unhelpful to the aspirations for efficiencies, a Scottish ship build and support industry and for low carbon migration.

The second factor is the age of the vessels and the inevitable ‘bow wave’ of vessel replacement activity. When the Orkney requirement is added to an ageing CMAL Fleet, it is clear that the ship build challenge is very great indeed and that a very clear strategy is required. Budget pressures and procurement processes mean that, despite the best of intentions, publicly owned ships be they warships or ferries tend to be in service for 30 years or so and it would be naive to expect this to change much. Hence, and even if the vessel age profile was more evenly spread, a programme would be required which would deliver at least 2 ships per year, every year and given that ships take 2 – 3 years to build, capacity will be required for at least six ships to be under construction for Scotland at any one time – the fact that there are currently only two half built and significantly delayed ships on the stocks should be a matter of extreme concern. For Orkney, the requirement is even more extreme as the vessels are so much older with procurement timeframes for some vessels which should be immediate and hence the Orkney requirement alone is 2 vessels per year over the next 5 years or so. Unless there is a clear ship building and procurement strategy for Scotland, it appears unclear as to how this can be co-ordinated and achieved within Scotland far less the United Kingdom.

The third factor relates to the ‘bow wave’ referred to above and how the decarbonisation requirement will exacerbate this issue. It is beyond doubt that replacing all ferries over the next 30 years on an evenly scheduled programme will not enable the ferry fleet to meet its decarbonisation requirements. This therefore means that a front loaded/compressed build programme will be required and that even then, it will only be achieved if the technologies involved are relatively mature and/or the ship designers and builders have the necessary skills and the shipyards are sufficiently modern to build such low carbon vessels in an efficient and volume manner. For Orkney, the current tug construction programme is an example of selecting a yard with the track record, skills and purpose built modern facilities to deliver state of the art tugs on time and to budget – both tugs are within budget with the first tug being 1 week behind schedule at launch and the second tug ahead of schedule. In addition to selecting a yard with a pedigree for tug design and construction, a ruthless control of variation orders, a very clearly defined specification, open competition and the avoidance of anything too bespoke have been key to delivering to time and cost. It is far from clear that such a discipline has been applied to the current ferry build project or that equivalent skills and facilities exist for low carbon ferry construction within Scotland or indeed anywhere in the UK hence, if they are to be developed, then perhaps significant and rapid investment in new purpose built high capacity facility or facilities with the necessary skills is required. If Government were to be placing orders for new low carbon ferries for Orkney over the next 2 years or so, then there is no obvious current solution for that to be within Scotland not least because the only yard to have built ferries recently is fully occupied with the delayed hulls 801 and 802.

As stated, a yard with the capacity to have, under construction, at least 6 vessels of varying sizes and capabilities at any one time does not exist and the skills to design and develop low/zero carbon ferries in a timely manner and in larger numbers do not exist either. Should there be a need to compress the build programme further for reasons of low carbon migration as mentioned previously or to replace the large number of overage ferries, particularly from Orkney or indeed, to force commonality across Scotland over a much shorter timeframe, then a ship build programme of significantly more than 6 vessels under construction simultaneously will be essential. This need not necessarily be in one location but the whole programme will require detailed co-ordination and joint working if much greater commonality of vessel types is to be achieved. The benefits of commonality are significant and include efficiencies of design and construction, common spares, training and maintenance arrangements and inter-changeability.

The service need

Although the Inquiry is for all of Scotland, the focus on the current construction of hulls 801 and 802 runs the risk of missing the crucial earlier parts of the procurement cycle, namely service specification, operational solutions, design, buildability investigation, affordability and only then the procurement and contractual process. Without a tightly controlled process, characterised as the CADMID (Concept, Assessment, Design, Manufacture, In Service, Disposal) for military procurement, there are huge risks of the wrong ferry, poorly designed, unbuildable and significantly costly to support.

The first part of the process is, self-evidently, the service need and this has to be established on an evidence basis, devoid of emotion. The STAG process now incorporated into the Initial/Outline/Final Business Case process should be rigorously followed, as has been the case in Orkney where the Council has followed every stage of the set process exactly. However, it is clear that there is unfairness in the service provision between different parts of Scotland with different standards being delivered dependent, to some extent, on who is paying for the service. It is submitted that the Scottish Ferries Plan should apply to all of Scotland in an equal fashion, that service provision should be fairly and equitably established, not only for the purposes of fairness but also for the purposes of the proper planning of ferry procurement and construction – it is not possible to have a coherent plan if different standards of service delivery (and hence vessel numbers) and vessel age are being applied and where there is inequality in the funding programme for different parts of Scotland.

In order to achieve a properly established vessel plan, the necessary Business Case must be developed in the firsts instance. The undertaking of a proper, analytical Business Case is a lengthy and costly activity. Orkney received a quarter share financial support from the Scottish Government for the first phase of its Business Case development for future ferry/inter isles transport services and the replacement of its circa 30-year-old fleet. However, no such funding has been provided for the second essential phase hence indicating a lack of appreciation, within Government/Transport Scotland, of the essential need for strong Business Cases to inform the assessment of correct and fair levels of service but also to enable the

development of a coherent, co-ordinated and affordable Strategy and plan for services and vessels across Scotland. This in turn, harms the ability of the Scottish Government to develop a procurement and ship building plan based on Business Case evidence.

The transition to a Zero Carbon ferry service

The partial focus of the Inquiry on hulls 801 and 802 has, at as one of its root causes, the need to transition to a zero-carbon ferry provision across Scotland. As stated above, the evidence indicates that the migration to a low/zero carbon fleet will significantly exacerbate the ship procurement and construction challenge, not least because of the relative inexperience within the country in low carbon ship technology, particularly gas technology.

The relative inexperience in gas ship construction may well be a factor in the situation for hulls 801 and 802 but Orkney is not in a position to comment other than the fact that the 801/802 programme has overlapped with Orkney's involvement in the HYDIME and HYSEAS III programme. The HYDIME (Hydrogen Diesel Injection Marine Engine) and HYSEAS III (EU Horizon 2020 programme for the development of a hydrogen ferry power and propulsion system for subsequent installation into a new build Scottish ferry project have Fergusson's Shipyard as participants. The difficulties at Fergusson's have impacted on these programmes financially and timing with both programmes having slipped and both requiring separate/additional financial support. It will be for other investigations and inquiries to comment on the detailed effect on these two programmes hence Orkney Islands Council believes that further comment form it on this matter would be inappropriate.

However, Orkney Islands Council would submit that it believes that Orkney remains the ideal location to test and develop low and zero carbon shipping technologies not least because of its world leading position on low carbon and renewables generally but also because of its leading position with regards to hydrogen production and its aspirations for low carbon transition fuels.

This point therefore raises the strategic matter of future marine fuels for ferries and indeed all ships, what those fuels are, what logistics infrastructure will be required to supply those fuels and ergo, what the ship design, procurement and construction policies and facilities need to be to ensure a coherent and deliverable programme for transition to zero carbon. When coal and then liquid marine fuel (whether it be fuel oil then gas oil and now ultra-low sulphur Marine gas oil) were the universal fuels, the logistics and supply chain of those fuels was relatively simple as all vessels used essentially the same type of fuel and this in turn used fundamentally the same supply chain as terrestrial liquid fuels. The migration to zero carbon fuels raises the transition question of what are the fuel or fuels of the future with batteries, LNG, Hydrogen and Ammonia all presenting as possibilities. Each has a very different supply chain and each has a very different range anxiety and hence refuelling periodicity factor. When the Inquiry is considering ferry procurement and construction, it is absolutely vital that this and the supporting shore infrastructure is

given equal weight to the ship design and service requirement. It may be that shipping is about to enter a generation of multiple fuel solutions, but the Scottish Ferry Plan must be clear about its fuel decisions based on technology maturity and, ideally, as few fuel variants as possible.

Orkney's involvement in the HYSEAS III project is having to place significant importance on the fuel production, fuel supply and refuelling cycle of the proposed hydrogen ferry and this in turn is signposting challenges with regards to vessel speed and the need to refuel every day as opposed to once a week for the current gas oil ships. It is not clear from ships 801 and 802 that the LNG supply chain was fully considered or indeed the total gas fuel capacity of the ships themselves hence the need for a sub optimal hybrid.

For Orkney, the evidence held thus far with regards to its ferry requirements, the transition to low then zero carbon ferries and ports/harbours opportunities indicate that hydrogen and battery for very short routes is a realistic medium term aspiration but that for the longer routes, internal as well as external, LNG is the transition marine fuel for the next generation of shipping. The fact that LNG will be the marine transition fuel is already manifesting itself with the arrival in Orkney of its first LNG powered cruise ship in February and the fact that LNG powered crude oil tankers have already been to Scapa Flow. It would therefore appear to make sense to place significant support to LNG, and its supply, as the transition fuel for the longer routes whilst continuing to pursue battery/battery hybrid for the very short routes Orkney presents an ideal location for a fuelling Hub within Scapa Flow. However, this will require a clear policy steer and a procurement strategy which assures itself that the skills to do so are available. As discussed previously, the evidence is that those skills and construction facilities, for both capability and multiple build capacity, will have to be developed if a Scotland/UK design and construction solution is desired.

Summary

In Summary, Orkney Islands Council key messages with regards to the Inquiry are:

A. Although the Inquiry was triggered by vessels 801 and 802, Orkney Islands Council welcomes the fact that the Inquiry is considering the procurement and construction of all ferries for all of Scotland.
B. In considering all ferries, Orkney Islands Council emphasises the fact that over 43% of publicly owned/operated ferries in Scotland are not part of the CLAMAC Fleet and hence any Inquiry outcomes with regards to procurement, construction or indeed strategy development must incorporate the risks, opportunities and need for coherence and equality around the 60 or so ferries and the services they deliver.
C. To replace 60 or so ferries in a planned and smooth manner would, based on a realistic 30-year life, require at least 2 ferries to be delivered per year with at least 6 under construction at any one time. Currently there are only 2 under construction and no others on order hence a significant problem is already upon us.

D. The average age of the Orkney 9 ferry fleet is 32.5 years. The average age of the CALMAC Fleet is 22 years hence the need to commence construction of new vessels for Orkney is by far the most pressing requirement.
E. A focus on just procurement and construction will miss the absolutely fundamental matter of through life support and hence reliability, maintenance and refit. This must be fully considered at the concept, design and build stage if lifelong problems and high costs of support are to be avoided.
F. The migration to low carbon and then zero carbon ferries is crucial to Climate Emergency solutions. This must be factored into any procurement and construction, and indeed through life support and fuel supply infrastructure considerations and strategy.
G. A swift migration to zero carbon will also compress the ship build programme and exacerbate the challenge highlighted at point C above. Furthermore, the design and construction skills for low carbon solutions, particularly low/zero carbon gas solutions do not currently exist to any great extent in Scotland and these will have to be acquired/created if the country is to benefit from an intense period of ship and shore infrastructure construction.
H. Given that the challenge, and opportunities, are for all of Scotland's ferry fleets, the fundamental bed rock of the methodology for the service specification must be against a common set of service standards, equitably funded and, ultimately, equitably financed at the construction and operational phases. If this is not done at a national level, then many of the benefits of commonality, interoperability, common fuel solutions, progress to zero carbon and a strategic approach to ship building will be unachievable.

APPENDIX 1

FERRY FLEET SERVICING ORKNEY

TABLE 1

Vessel	Owner/Operator	Size	Type	Route	Age
Golden Mariana	Orkney Islands Council	16m/33 tons	Passenger	Papa Westray	47
Earl Sigurd	"	45m/771 tons	Ropax	Orkney North Isles x 6	31
Earl Thorfin	"	45m/771 tons	Ropax	Orkney North Isles x 6	31
Varagen	"	50m/928 tons	Ropax	Orkney North Isles x 6	32
Shapinsay	"	35m/385 tons	Ropax hard ramp	Shapinsay	32
Eynhallow	"	29m/104 tons	Ropax hard ramp	Rousay, Egilsay & Wyre	33
Hoy Head	"	53m/482 tons	Ropax	Flotta & Hoy	26
Graemsay	"	22m/58 tons	Passenger	Graemsay	24
Thorsvoe	"	35m/385 tons	Ropax	Relief	29
Average Age of the Orkney Islands Council Ferries Fleet					**32.5**
Hjaltland	Scot Govt/Serco Northlink	125m/7434 tons	Ropax	Aberdeen/ Lerwick	18
Hrossey	"	"	"	"	18
Helliar	"	122m	RoRo Freight	"	23
Hildasay	"	122m	RoRo Freight	"	21
Hamnavoe	"	112	Ropax	Pentland Firth	18
Average age of the Serco Northlink Fleet					**19.6**
Alfred	Pentland Ferries	85m/550 tons	ROPAX - multicat	Pentland Firth	1
Pentland Venture	John O Groats Ferry	30m/186 tons	Passenger only	Pentland Firth	34
Flotta Lass	Flotta Oil Terminal	22m/72 tons	Passenger only	Orkney mainland to Flotta	13

Herston Lass	“	22m/75 tons	Passenger only	Orkney mainland to Flotta	27
Charles Ann	Groat ferries	12m	Out of Hours passenger only	Kirkwall to Shapinsay	26
TOTAL 19 Ferries					

For comparison – average age of the CALMAC Fleet	**22**