TRANSPORT SCOTLAND

TRANSPORT SCOTLAND
CÒMHDHAIL ALBA

CALMAC FERRIES LTD

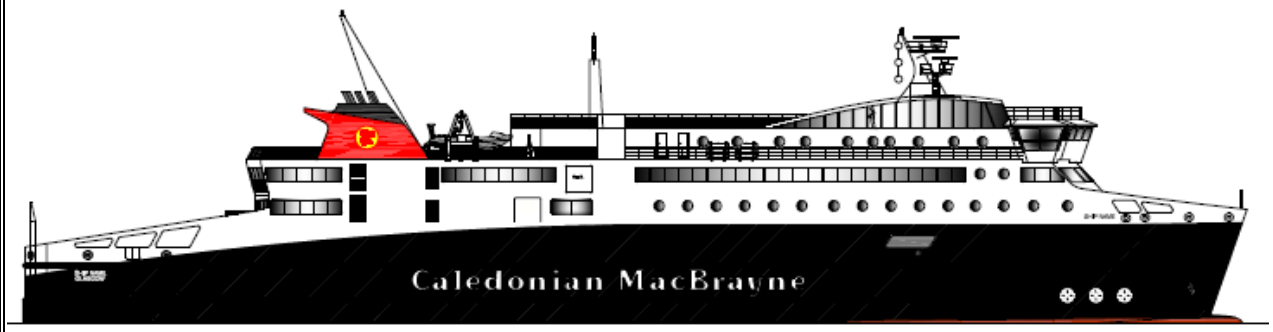
Caledonian MacBrayne
Hebridean & Clyde Ferries

CALEDONIAN MARITIME ASSETS LIMITED

CMAL
Caledonian Maritime Assets Ltd
Stòras Mara Caileannach Eta

Subject:

Vessel Replacement and Deployment Plan



Document:

Annual Report 2014

Date: 02/10/15

1 CONTENTS

2 INTRODUCTION

1. In October 2013 Transport Scotland sponsored a project which had the objective of advising Transport Scotland (TS), Caledonian Maritime Assets Limited (CMAL) and CalMac Ferries Limited (CFL) what a programme of major vessel retentions, cascades, acquisitions and disposals may look like in order that the delivery of the *Scottish Ferry Services: Ferries Plan (2013-2022),* as it relates to the CHFS Contract, could be fulfilled in the timescales indicated by the Scottish Government.
2. The Ferries Plan included a proposed Vessel Replacement Programme as well as a proposed Programme of Port and Harbour Works. CFL advocated that as operator of the Clyde and Hebrides Ferry Services (CHFS) network it was best placed to lead the development of such programmes for the major vessels – this approach was agreed by the three parties and CFL set about this task in November 2013.
3. Since November 2013 the 'tri-partite' (TS, CMAL and CFL) have met on a monthly basis and the scope of the project has subsequently been broadened to include non-major vessels.
4. This Annual Report summarises the outputs from the Project up to the end of 2014.

3 BACKGROUND

5. CFL operate a fleet of 10 major vessels and 21 non-major vessels in the delivery of the CHFS passenger and vehicle services. These vessels are chartered from CMAL by CFL.
6. The major vessels were built between 1984 and 2014 with the non-major vessels ranging from 1975 to 2014. The average ages of the two 'fleets' in 2014 was 18 years and 20 years respectively. (The definition of a major vessel is a vessel which operates to/from a linkspan and has Euro Class B certification. Non-major covers all other vessels in the fleet.)
7. The fleet of vessels serve 49 ports across the west coast of Scotland with facilities ranging from unmanned slipways to ports with multiple linkspan berths.
8. CFL is solely responsible for deciding, in line with operational requirements, which vessels are deployed on which routes in order to deliver the CHFS contract.

4 ASSUMPTIONS

9. In developing a vessel replacement and deployment plan the tri-partite agreed a number of assumptions which were to shape the analysis and outputs from the work. The key assumptions were as follows:-
    1. The fundamental scope of the project is the Ferries Plan and End of Life / Use;
    2. Any recommendations will be based broadly on current (2014) timetables and will take into account future Ferries Plan enhancements;
    3. Road Equivalent Tariff (RET) will be rolled out to all remaining routes by October 2015;
    4. Demand in excess of 70% of the available weekly capacity is unsatisfied;
    5. Changes in fuel prices for road going vehicles will not have a significant bearing on demand;

6. The two 'pilot' services will continue as is;
7. New vessel capacities will be based on vehicle capacity utilisation reaching an average of 70% across July and August in the 11th year of the vessel's deployment; and
8. Average vehicle sizes and weights will be unchanged during the analysis period.

10. The Ferries Plan sets out a future service requirement for Colonsay which is based around MV Lochnevis – a non-major vessel. Some further work needs to done around this option so the working assumption for now is that Colonsay will continue to be served by a major vessel. On the basis of this assumption the full delivery of the Ferries Plan would require a fleet of 11 major vessels.

5 PRIORITIES

11. CFL set out the operator's main criteria for vessels undertaking the CHFS services. The prioritised list was as follows:-

1. Safe;
2. Reliable;
3. Cargo deadweight capacity;
4. Manoeuvring, berthing and station keeping;
5. Sea keeping and passenger/crew comfort;
6. Redundancy; and
7. Fuel efficiency and emissions reduction.

12. This priority list was agreed by the tri-partite as a common set of principles by which new vessels should be designed and built.

6 APPROACH

6.1 The Ferries Plan

13. In December 2012 Transport Scotland published *"Scottish Ferry Services: Ferries Plan (2013-2022)"* on the back of the earlier Scottish Ferries Review. The Ferries Plan provides a basis for the shape of all of Scotland's subsidised ferry services until 2022 (and beyond as vessels have a 30 year design life) and underpins the development of this vessel replacement plan as it pertains to the operator of the Clyde and Hebrides Ferry Services (CHFS) contract. Whilst the Ferries Plan refers to the deployment of specific vessels it also makes it clear that it is for the CHFS operator to decide how fleet vessels are deployed whilst ensuring that the phased delivery of the Ferries Plan is ultimately fulfilled.

14. The Introduction[1] to the Routes and Services Needs Based Assessment stated that:

> *"One of the key elements for the Ferries Review has been the development of a robust overarching framework or methodology for the determination of routes and services for those communities served by a ferry service. We developed this approach because we felt that it was absolutely essential that any changes to routes and services are based on objective evidence. Second, it is important that each community is treated on an equal footing by the Review. By choosing to develop and adopt an evidence-based methodology, we have insured against the prospect of favouring one community over another. Finally, we want a methodology that can be replicated to inform future changes to routes and services."*

15. The Routes and Services Proposals contained in the Ferries Plan focus primarily on frequency of service and length of operating day. They do not directly address meeting volume demand, either by further increasing frequency or by increasing the capacity through the vessels utilised. It is a matter for the operator to deploy the fleet as they see fit to best meet capacity (and other operational) requirements.

16. The Vessel Replacement and Deployment Plan (VRDP) is intended to complement the Ferries Plan by considering historical and projected customer demand and the on-going provision of capacity to meet that demand.

6.2 Independent Forecasts

17. Estimates of unconstrained demand for each of the communities served by CFL were prepared by Reference Economic Consultants. Traffic types included were passengers, cars, coaches and commercial vehicles and covered the period 2014 to 2039. The base carryings year was 2013 and this was for satisfied demand only.

18. At this time, no quantitative analysis exists for true levels of unsatisfied demand in the CHFS network. CFL is exploring options for how this may be gathered in the future.

6.3 Capacity/Demand Model

19. To assist with the qualitative assessment of a demand led solution for vessel deployment and replacement two spreadsheet models were developed – one for the major fleet of vessels and the other for the non-major fleet. The models included the following main attributes:-

- All CHFS routes modelled on a week-by-week basis for the period to 2039;
- 2013 weekly carryings for passengers, cars, coaches and commercial vehicles as the base year for demand;
- 2014 scheduled weekly capacity as the base;
- Unconstrained demand forecasts by traffic type for 2014 to 2039;
- The ability to change weekly capacity provision (vessel and no. of sailings) over the life of the model;
- Sensitivity analysis on low, central and high demand forecasts; and
- Ability to apply RET demand uplifts independently of the unconstrained forecasts.

[1] Chapter 3; What kind of ferry services should be funded? Scottish Ferry Service, Ferries Plan 2013 -2022

20. In order that an analysis of capacity utilisation can be performed the model calculates the percentage utilisation of both actual and forecast passenger capacity and vehicle deck capacity. (It should be noted that the available passenger capacity was adequate to satisfy current and projected demand and that no further detail modelling was considered in this area.)
21. As well as ensuring that all routes are analysed on a consistent basis the model output is core to informing the decision making process for vessel deployment and future capacity requirements.
22. The spreadsheet models and the methodology followed will give the required evidence based process which can be replicated in future years. One of the key strengths of the CHFS network is the increasing ability to re-deploy vessels around the routes.

7 VESSELS – Demand and Capacity Analysis

7.1 Model Outputs – Major Vessels

23. For the major vessel fleet 2 distinct options for vessel replacement and deployment were developed and analysed. Both of these were fully aligned to the Ferries Plan, however, the second option focussed primarily on satisfying current and forecast peak season vehicle deck capacity utilisation. (The first option was based broadly on replacing vessels in the order in which they were indicated in the Ferries Plan. This order was indicative, broadly age-based and was made without any detailed analysis.) As the second option best addressed the needs for evidence based, demand-led solution it is the option which is detailed further in this report.
24. The tri-partite steering group members agreed that the priority order for vessel deployment and replacement should be driven specifically by the average vehicle deck utilisation during July and August i.e. a demand-led solution. On this basis, the peak 9 week utilisation for option 2, in the period 2013 to 2019, was as follows:-

Peak 9 weeks capacity utilisation	2013	2014	2015	2016	2017	2018	2019
Ardrossan-Brodick	47%	50%	64%	67%	70%	73%	56%
Kennacraig-Islay	75%	68%	71%	74%	76%	64%	66%
Oban-Craignure	72%	74%	76%	44%	45%	43%	44%
Ullapool-Stornoway	65%	67%	70%	72%	74%	69%	71%
Uig-Tarbert/Lochmaddy	67%	69%	72%	74%	76%	59%	60%
Oban-Colonsay	39%	43%	43%	44%	45%	46%	46%
Oban-Coll/Tiree	64%	67%	69%	71%	73%	61%	63%
Oban-Castlebay/Lochboisdale	68%	72%	73%	71%	72%	62%	64%

25. Taking each year in turn, the modelled outcomes were as follows:-

7.1.1 2013

26. The Kennacraig-Islay route was the most heavily utilised route in the major vessel network. This follows the introduction of RET to the route in October 2012. Oban-Colonsay is the route displaying the lowest capacity utilisation.

7.1.2 2014

27. 4 additional round trips per week were added to the Kennacraig-Islay schedule - this saw a reduction in utilisation (based on 2014 projected levels of demand). The route now displaying the highest utilisation levels is Oban-Craignure.

7.1.3 2015

MV Loch Seaforth deployed on the network (Stornoway-Ullapool service)

7.1.4 2016

28. The availability of the MV Isle of Lewis may allow the redeployment of vessels to bring about an opportunity to enhance the capacity provision on the Oban-Craignure route, bringing forward the Ferries Plan requirement that the route be served by two vessels during the summer timetable period, by 2017. The operator, CFL, is investigating these options. Even with a significant uplift in demand from the commencement of RET on the route from October 2015, this approach could bring about a large reduction in capacity utilisation.

29. This is the first opportunity to enhance capacity provision on the Oban-Craignure route. This is achieved through the retention and modification of MV Isle of Lewis and the Ferries Plan requirement for the route to be served by two vessels during the summer timetable period. Even with a significant uplift in demand from the commencement of RET on the route from October 2015 there is a large reduction in capacity utilisation. With four major vessels based in Oban there is an opportunity to increase slightly the capacity available on the Oban-Castlebay/Lochboisdale route – this accounts for the slight reduction in capacity utilisation on that route.

30. This leaves services between Uig-Tarbert/Lochmaddy as being the route exhibiting the highest capacity utilisation. With no current scope to enhance the timetable, the only short to medium term solution is to deploy a larger vessel on the route. In order to satisfy the projected demand on the route (determined by a projected 70% capacity utilisation in year 11 of the vessel's deployment) a vessel of 130 passenger car equivalent units (PCU[2]'s) would be required. No such vessel is available in the fleet; therefore, a new vessel will be required to fulfil demand. (A procurement programme commencing in 2014 will likely see a new vessel available on the route around 2018.)

31. Two of the other routes which have forecast capacity utilisation in excess of 70% - Kennacraig-Islay and Ullapool-Stornoway – can increase capacity further by operating more sailings than are currently timetabled and through the extended use of mezzanine decks (as part of managing demand).

32. Ferries Plan Deliverable – the additional vessel for Oban-Craignure summer service commences in summer 2016 with the re-deployment of MV Isle of Lewis to the route pending conclusion of work to assess her operation from the two ports.

33. Other Deliverables – the availability of an extra vessel in the winter allows the Oban-Castlebay/Lochboisdale and Oban-Coll/Tiree services to be covered by two major vessels for the whole of the winter thus avoiding the three week period of reduced frequency which currently happens. In addition to this there will also be an opportunity to extend the period of the two vessel service between Ardrossan-Brodick/Campbeltown by a month - the current service runs May to September and this could be extended to run April to September.

[2] PCUs – Passenger Car Unit; a homogenised metric applied within traffic capacity and flow analysis, reflecting the various types of vehicle carried by ferry. :

7.1.5 2018

34. A new build vessel is deployed on services between Uig-Tarbert/Lochmaddy. This allows MV Hebrides to be re-deployed to Oban-Castlebay/Lochboisdale and Oban-Coll/Tiree services giving an uplift in capacity on the routes. This is forecast to result in capacity utilisation on these routes reducing significantly.

35. The model forecasts that in 2018 capacity utilisation on the Ardrossan-Brodick route will exceed 70%. With no opportunity to enhance capacity on the route through additional frequency, the only option is to deploy a larger vessel. To satisfy demand on the basis of capacity utilisation reaching 70% after 11 years a vessel of 120 PCUs would be required. As a vessel of this size is not available in the fleet a new build is required. (A procurement programme commencing in 2014 will likely see a new vessel available on the route around 2018.)

36. Ferries Plan Deliverable – the first of these new build vessels will be major vessel number 11 giving a fleet size which allows the full delivery of the Ferries plan.

37. Other Deliverables – cascade benefits (more capacity and shorter journey times) from the re-deployment of MV Hebrides to Oban-Castlebay/Lochboisdale and Oban-Coll/Tiree.

7.1.6 2019

38. A new build vessel is deployed on services between Ardrossan-Brodick/Campbeltown allowing the disposal of MV Isle of Arran. The new vessel would be the primary vessel on the route with MV Caledonian Isles assuming the role of second vessel.

39. Ferries Plan Deliverable – the new vessel for Ardrossan-Brodick will be the second new build vessel.

7.1.7 Beyond 2019

40. An indicative program of acquisitions, cascades and disposals has been modelled for the period up to 2025. With the satisfaction of peak season demand at the core of the program the following way forward resulted:-

- **2021** – new build vessel for **Kennacraig-Islay** services. Likely to be MV Finlaggan sized in order to maintain service to the 3 ports. MV Hebridean Isles would be disposed of.
- **2023** – new build vessel for the services covered by **MV Lord of the Isles**. The size of this vessel may be limited by the accessibility of Mallaig. MV Lord of the Isles would be disposed of.
- **2024** – new build vessel for Oban-Craignure with passenger and vehicle capacities likely to be for around 1000 passengers and 100 PCU's. MV Isle of Mull would be disposed of.
- **2025** – new build vessel for Ardrossan-Brodick with capacity likely to be for around 1000 passengers and 120 PCU's. MV Caledonian Isles disposed of.

7.1.8 Summary - Major Vessels

41. The analysis determined the following outcomes:

- 2016 – Step 1. MV Isle of Lewis modified and deployed to Oban-Craignure;

- 2018 – Step 2. New Vessel for Uig services (130 pcus);
  Step 3. MV Hebrides cascaded to Oban services to increase capacity.

- 2019 – Step 4. New Vessel for Arran (120 pcus);
  Step 5. MV Isle of Arran disposed.

- 2021 – Step 6. New Vessel (80 pcus) for Islay;
  Step 7. MV Hebridean Isles disposed.

- 2023 – Step 8. New Vessel (capacity to be confirmed) for 'various';
  Step 9. MV Lord of the Isles disposed.

- 2024 – Step 10. New Vessel for Oban-Craignure (capacity to be confirmed);
  Step 11. MV Isle of Mull disposed.

- 2025 – Step 12. New Vessel for Arran (capacity to be confirmed);
  Step 13. MV Caledonian Isles disposed.

42. The above programme of investment fully addresses the Ferries Plan (2013-2022): Routes and Services Proposals by 2018 and the programme of vessel replacements is broadly in keeping with that indicated in the Plan.

43. Subject to available funding it is possible that the first two new vessels (for Uig based services and Arran) could be ordered at the same time. These vessels could be identical with an order for 'two-of-class' vessels realising a saving of between 8 and 15% on capital costs according to CMAL. This approach could be adopted for subsequent vessel orders with savings of up to 25% realisable for 3 identical vessels. (Note: CMAL estimate that savings resulting from an order for multiple LNG powered vessels could be even greater.)

44. The fleet additions and disposals have the effect of reducing the average age of the fleet from 21 years in 2017 to 12 years by 2025.

7.2 Model Outputs – Non-Major Vessels

45. An identical approach to that used for the major vessels has been adopted for the non-major vessels i.e. the creation of a statistical spreadsheet model to support the decision making process for deployment and replacement of the 21 vessels in the non-major vessel fleet.

46. It should be noted that the non-major vessels can be subdivided into 2 groups – those which only (or regularly) operate to linkspans and those which operate to slips. Within the group which operate to linkspans (MVs Bute, Argyle, Coruisk and Lochnevis) there is a degree of interchangeability which addresses seasonality factors and relief cover. For the vessels which operate to slips this flexibility also exists, if anything to a greater degree, however, a factor which can limit the deployment of larger vessels to routes is the suitability of overnight berthing facilities (and charging points for the hybrid vessels).

47. With the exception of the service between Mallaig and the Small Isles the Ferries Plan does not envisage extensive changes to the routes and services on the non-major CHFS routes.

48. With 2013 as the base year for carryings data and assuming that RET will be fully rolled out on all services by winter 2015/16 the projected levels of vehicle deck utilisation across the non-major vessels is as shown in Table 9.

Peak 9 weeks cap utilisation	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Claonaig & Tarbert-Lochranza	30%	34%	43%	44%	46%	46%	47%	48%
Largs-Cumbrae	37%	31%	31%	36%	37%	37%	37%	38%
Wemyss Bay-Rothesay	36%	33%	34%	39%	40%	41%	42%	43%
Colintraive-Rhubodach	21%	20%	21%	21%	21%	21%	22%	22%
Tarbert-Portavadie	22%	18%	19%	23%	24%	25%	25%	26%
Tayinloan-Gigha	35%	42%	43%	48%	49%	50%	52%	52%
Fionnphort-Iona	11%	10%	11%	11%	11%	11%	11%	11%
Oban-Lismore	36%	19%	20%	25%	25%	26%	26%	26%
Lochaline-Fishnish	30%	32%	33%	37%	38%	38%	39%	40%
Tobermory-Kilchoan	22%	27%	27%	36%	37%	37%	38%	39%
Small Isles	24%	15%	15%	15%	15%	15%	15%	15%
Mallaig-Armadale	67%	67%	68%	81%	82%	84%	86%	87%
Sconser-Raasay	40%	21%	21%	23%	24%	24%	24%	25%
Sound of Barra	38%	45%	45%	55%	55%	56%	57%	58%
Sound of Harris	52%	54%	55%	67%	69%	70%	71%	71%

49. Overall levels of vehicle deck utilisation are considerably lower than that typically seen on the routes served by the major vessels – the exceptions to this being the routes between Mallaig and Armadale and across the Sound of Harris (Berneray-Leverburgh). Whilst not evident in the figures shown, the Sound of Harris service can experience high loading levels in the winter as the route is restricted to daylight operation only. During this period the frequency of sailings can be restricted to two round-trips per day.

50. The routes from Fionnphort to Iona and Mallaig to the Small Isles exhibit very low levels of utilisation. This is principally due to the restrictions placed on vehicles travelling to these communities – limited to residents only and vehicles connected with the provision of lifeline services e.g. refuse collection, tradesmen and utilities.

51. The majority of the non-major vessel routes are non-bookable for cars i.e. they operate on a turn-up-and-go basis. This can lead to short-term periods of high demand, full sailings and vehicles being left behind (usually until the next sailing but occasionally longer). Some routes have the ability to increase the capacity available by operating additional sailings when capacity requires, or, operating a 'shuttle' service.

52. From the analysis it is clear that there is no compelling short/medium-term need for additional capacity in the non-major fleet, other than perhaps the Sound of Harris and Mallaig-Armadale.

53. For the Sound of Harris service an additional round-trip is possible for the bulk of the summer timetable period should the need arise. This will provide a 25% increase in capacity, adequate to satisfy forecast demand in the medium/long term.

54. For Mallaig-Armadale, this highly seasonal tourist route is likely to see considerable levels of unsatisfied demand post the introduction of RET. As the route has an alternative fixed link connection it will be looked at in the longer term.

55. It is the intention that these routes will be kept under review once RET is rolled out across the full CHFS network in October 2015, via the annual Vessel Replacement and Deployment Plan analysis and Annual Report.
56. As part of a more strategic deployment of vessels these services will be considered in due course in conjunction with the following:-
    - Winter overhaul relief cover for the Sound of Harris;
    - Winter relief cover (overhaul and unplanned outages) for the Small Isles and Armadale;
    - Addressing the identified needs of the Small Isles in the summer; and
    - The possibility of additional non-major routes requiring Euro B class vessels.

7.2.1 Summary – Non Major Vessels

57. There is no identified demand/capacity requirement for investment in the non-major fleet at this time.
58. Should any additional routes be added to the CHFS services in the future these will be considered through the annual review of this Vessel Replacement and Deployment Plan.

8 PORTS

8.1 Major Vessel Ports/Harbours

59. In order to deliver the vessel replacement and deployment plan, a number of ports may require modification to support the delivery of such a programme.

60. Only once a detailed analysis has been undertaken will the full extent (and cost) of the works required become clearer. (The full extent of costs involved may challenge the assumptions made in this paper and the satisfactory delivery of the Ferries Plan: Routes and Services Proposals in the medium/longer term.)

8.2 Ports impacted, ownership and the year of introduction of New Vessels are as follows:-

8.2.1 By 2016

61. Deployment of MV Isle of Lewis to Oban-Craignure:
    - **Craignure** - port owned by Argyll and Bute Council, passenger access system owned by CMAL
    - Required to support deployment of MV Isle of Lewis
    - Anticipated extent of work – Moderate to major

8.2.2 By 2018

62. New Vessel for Uig based services to Tarbert and Lochmaddy:
    - **Uig** – port owned by the Highland Council
    - Required to support a vessel of similar capacity to MV Loch Seaforth
    - Anticipated extent of work – Major

- **Lochmaddy –** port owned by Comhairle nan Eilean Siar
- Required to support a vessel of similar capacity to MV Loch Seaforth
- Anticipated extent of work – Major

- **Tarbert** – port owned by CMAL
- Required to support a vessel of similar capacity to MV Loch Seaforth
- Anticipated extent of work – Major

8.2.3 By 2019

63. New Vessel for Ardrossan-Brodick

- **Ardrossan** – port owned by Clydeport (Peel Ports Group)
- Required to support a vessel of similar capacity to MV Loch Seaforth
- Anticipated extent of work – Major

- **Brodick** – port owned by CMAL; major development work already planned
- Required to support a vessel of similar capacity to MV Loch Seaforth
- Anticipated extent of work – None

64. Beyond 2019, the next significant developments required are likely to be at the Islay route ports and Mallaig; however, these are dependent on the vessels deployed to operate to/from the ports.

8.3 Non-Major Vessel Ports/Harbours

65. As Mallaig is dealt with above (as a major vessel port) there are no identified needs at this time for modifications to any of the facilities used by the non-major vessels.

66. The Ferries Plan refers to modifications required on Gigha and at Fionnphort. These are independent of this paper, however, at the point of consideration an evaluation of the long-term options will be made. (The classification of the Sound of Iona service will have a bearing on future infrastructure.)

9 OTHER FACTORS Impacting on Service Delivery

9.1 Annual overhauls

67. Vessel classification societies require vessels to be dry-docked every two years for a hull inspection whilst the Maritime and Coastguard Agency (MCA) have an annual regime of testing and inspections. Without these being successfully completed vessels would be unable to operate.

68. CFL endeavour to overhaul the majority of vessels during the period of the winter timetable. Service frequency reductions and the total cessation of some routes makes this possible and ensures that the maximum number of vessels are available for deployment during the peak summer season.

69. With an average of three weeks required to overhaul each vessel a total of 36 weeks (MV Loch Seaforth requires two vessels to cover its overhaul) is required for the major vessel fleet. Docking two vessels at the same time is a requirement if this is to be achieved largely within the winter timetable period.

70. For the non-major fleet the total dry-docking time required is between 50 and 60 weeks. During the winter it is possible for 5 non-major vessels to be undergoing overhaul at the same time.

71. The use of quicker, in-water surveys has been considered on many occasions, however, a number of factors have precluded this on the west coast of Scotland:-

- Poor weather reliability leading to uncertainty around dates in a tight program;
- Poor port infrastructure with lack of supporting local businesses;
- Inability to change-out MES systems with vessels in service; and
- No spare MES systems - takes 12 to 14 days to service an MES system.

9.2 Changes in legislation

72. The ferry industry is heavily regulated and significant changes in the way that ferries are constructed and operated are frequent. These changes usually have the effect of increasing the costs of moving passengers, vehicles and goods by sea.

73. The majority of the most significant changes resulting from revised rules tend to affect new build vessels; however, occasionally rule changes can be applied retrospectively to existing vessels. Retrospective changes often result in reductions in the number of passengers which can be carried, reduced cargo capacity and/or increased crewing levels. If vessel dimensions change as a result then this can have a knock-on effect on port infrastructure – if vessels visit a number of ports, as many of the CFL vessels do, it can be a very costly exercise to modify them all.

74. Whilst new vessels will be built to the applicable rules at the time, changes which affect the existing vessels may have a bearing on the investment programme indicated – financial resources would likely have to be ear-marked for fleet modifications rather than a programme of new builds.

75. The most significant rule change expected is that of reduced sulphur oxide (SOx) emissions from January 2020. This will have an impact in the CHFS area of operation requiring existing vessels to be modified, or use expensive low-sulphur fuels, and for new builds to be built to comply with the regulations. Use of LNG as a fuel type is being considered by a number of owners/operators.

76. Rule changes will be taken account of during detail vessel design; however, they are highlighted at this stage to emphasise the fact that retrospective changes can have a bearing on the delivery of services.

10 CONCLUSIONS – Constraints and Considerations

77. Whilst the conclusions of the analysis, as detailed in Section 7, satisfies the requirements of the Ferries Plan, and was acknowledged as being the optimum path to follow to best satisfy forecast demand, significant investment in port infrastructure would be required, as detailed in Section 8, ahead of any new vessel commencing service.

10.1 Considerations

78. New vessels for Uig and Arran services are likely to require major investment in infrastructure to support the deployment of vessels of the ideal capacity, which would be similar to that of the MV Loch Seaforth, the largest vessel in the current fleet. The five ports indicated have four different owners and it is essential that a co-ordinated approach is adopted to the consideration of options for capital investment in vessels and harbours. This will take time and potentially significant funding to progress.

10.2 Constraints

79. The long timescales associated with major infrastructure works / civil engineering projects and the shorter term imperatives to address capacity issues and an ageing fleet give rise to a need to identify an amended shorter-term program of investments focused initially on new vessels.

80. TS, CMAL and CFL have made it a pre-requisite that any amended program should not prevent the delivery of the full demand-led Plan as detailed in the VRDP – it is to be primarily a re-sequencing of the steps which allows the fleet replacement programme to continue whilst longer-terms decisions are made.

81. Transport Scotland budgetary provision provides the opportunity to take advantage of available funding providing commitment is underway by late spring of 2015.

82. With this in mind, a vessel replacement program has been drawn up which helps address short term challenges whilst still contributing to the delivery of the longer term plan. It was agreed to proceed with the procurement of 2 vessels for the Uig Triangle and Ardrossan-Brodick routes which would bring additional capacity in response to current demand pressures, be designed to use existing berths without significant redevelopment, contribute to the delivery of the Ferries Plan and improve reliability and passenger experience. This procurement was announced by the then Transport Minister Keith Brown MSP on 15th October 2014.

11 RECOMMENDATIONS

11.1 Recommended Plan

83. In consideration of the points made in Section 10, the recommendations of the Vessel Replacement and Deployment Plan for 2014 are as follows:-

A. Bring forward Step 6 (New Vessel for Islay) and procure a c. 100 metre vessel. To be initially deployed early 2018 on the Ardrossan-Brodick (or the Uig-Tarbert/Lochmaddy) route to quickly deliver some of the benefits required before being deployed longer term to satisfy the services to Islay (requiring modifications to the Islay route ports to accommodate a vessel of this size);

B. Bring forward Step 10 (New Vessel for Oban-Craignure) and procure a second c. 100 metre vessel. This vessel to be initially deployed on the Uig-Tarbert/Lochmaddy (or the Ardrossan-Brodick) route in early 2018.

C. In parallel with A and B, work with the various harbour owners to identify any infrastructure modifications associated with the delivery of the 2 new vessels set out above;

D. Work with the 3 harbour owners to identify the infrastructure requirements associated with the delivery of new MV Loch Seaforth capacity vessel to Uig-Tarbert/Lochmaddy (Step 2);

E. Work with the 2 harbour owners to identify the infrastructure requirements associated with the delivery of Step 4 - new MV Loch Seaforth capacity vessel to Ardrossan-Brodick;

(For the above two steps, consider on the basis of an analysis of capital and operating costs and forecast traffic levels alternative options involving additional vessel deployment.)

F. Once a new vessel is delivered for Uig services (Step 2), re-deploy MV Hebrides to Oban services (Step 3); and

G. Consider the disposal of MV Isle of Arran or MV Isle of Mull (subject to Islay relief vessel provision, and other, requirements) once a new vessel is delivered for Arran services (Step A).

84. The investment required (total project costs) for the two vessels indicated in steps A and B above is expected to be of the order of £90 million. An appraisal of the sequence of the deployment of the new vessels will be made in 2016 to ensure that the route with the greatest requirement is first to benefit from the new investment.

85. In parallel with the above but with delivery by March 2016 is the work required to operate MV Isle of Lewis on the Oban-Craignure route. Vessel modifications will be required to both vehicle ramps and some berth work is likely to be necessary at Craignure. Given the high passenger loadings on this route vessel access and egress for passengers may require modification/replacement of the passenger access system (and possibly a vessel modification). Overnight berthing at Craignure for up to 2 vessels will also require to be considered.

11.2 Annual Review

86. It is the intention of Transport Scotland, CalMac Ferries Limited and Caledonian Maritime Assets Limited (the tri-partite) that this Vessel Replacement and Deployment Plan will be kept under annual review (with the review period commencing when the previous calendar year's carryings data is confirmed). All of the elements contained in this paper as well as the outputs from the updated statistical spreadsheet model will be included in the review ensuring that a robust process of vessel deployment and replacement is followed.

87. Prior to any significant investments being made all options will be subject to the satisfactory outcome of a high-level business case before they will be approved. The business case produced will consider the financial position of each of the tri-partite members.

88. This first iteration of the Vessel Replacement and Deployment Plan will initiate investment in two new major vessels as well as a consideration of the adequacy of some of the ports/harbours and facilities in meeting the needs of the communities and supporting the long term delivery of the Ferries Plan.

12 STATUS - December 2014

12.1 New Vessels – Confirmed

89. On 15 October 2014 the Transport Minister announced the commencement of the procurement process for two new 100 metre vessels to be initially deployed on the Ardrossan-Brodick and Uig-Tarbert/Lochmaddy routes. The vessels will have capacity for up to 1000 passengers and in excess of 110 PCU's (final number will be dependent on detailed design) and will likely be LNG dual-fuel powered.

90. Dialogue with the respective port owners has commenced and will focus on any berth, passenger access system and port hinterland requirements to accommodate the new vessels. It is the intention that the vessels will fit existing facilities so no major work is expected.

12.2 New Vessels – To Be Confirmed

91. With the two new larger vessels expected to be similar to MV Loch Seaforth no detailed vessel design work has yet been undertaken - MV Loch Seaforth will be used as the template.

92. Preliminary discussions have taken place with the owners of the ports concerned to determine the potential scope of works associated with what may result in a step change from the way services have been delivered in the past.

93. With respect to the longer-term potential procurement/cascade of larger vessels for Kennacraig-Islay and Mallaig/Oban-Outer Isles services initial discussions will be required with the port owners to explore the feasibility of larger vessels providing the services.

94. Major port infrastructure requirements, i.e. (re) construction, could take up to 10 years to deliver and will require very substantial investment. These are potentially significant undertakings and will challenge a number of the assumptions made in this piece of work.

12.3 Existing Vessels

95. With regard to MV Isle of Lewis becoming the second Oban-Craignure vessel from summer 2016, detailed discussions are underway between tri-partite members and Argyll & Bute Council (owners of Craignure port) to further the works required to ready the vessel and ports for deployment on the route.

13 ACTIVITIES for 2015

13.1 Challenge Current Thinking

96. We recognise that the current port and harbour infrastructure plays a key role in the delivery of an effective strategy for the network fleet. Indeed this Annual Report 2014 highlights the need to examine ports and harbours, and develop a connected strategy. Delivering optimal solutions for both the fleets and the ports / harbours requires thinking beyond the current assumptions and in 2015 we will be asking questions such as:

- Is frequency of service a more effective means of managing capacity?
- Has 'go-large' had its day? Would multiple smaller vessels serve the network better?
- Have we got our geography right; should routes and port locations be under review too?

13.2 Annual Review - Re-run of demand/capacity Model

97. The analysis models will be updated to reflect carryings activity for 2014 and scheduled capacity provision for 2015. This will satisfy the Minister's requirement for this to be a process which can be replicated and used to inform future changes.

98. The demand forecasts which were undertaken for the first run of the models will be refreshed, and a new additional 'deep dive' focus and assessment will be carried out on one third of the network routes served (the remaining thirds will be dealt with in future years on annual rotation, meaning that each will benefit from the specific consideration every three years.)

99. It is also the intention that seasonal variations in demand will be researched and forecasts will be amended to take account of any significant variations.

13.3 Tri-partite Meetings

100. The program of monthly tri-partite meetings will continue in 2015. Agenda items will include the following:-

- Re-deployment of MV Isle of Lewis to Oban-Craignure
- The 'third hybrid' entry into service;
- On-going procurement of the two 100 metre new builds;
- Infrastructure requirements for the new builds;
- Review of the demand/capacity model outputs;
- The longer-term vessel and port strategies;
- On-going review of core assumptions.

14 Glossary & Acronyms

TS	Transport Scotland
CMAL	Caledonian Maritime Assets Ltd
CFL	CalMac Ferries Ltd
VRDP	Vessel Replacement and Deployment Plan
RET	Road Equivalent Tariff
PCUs	Passenger Car Units
LNG	Liquid Natural Gas
CHFS	Clyde & Hebrides Ferry Service