

Caledonian Maritime Assets Limited



CMAL

Caledonian Maritime Assets Ltd
Stòras Mara Cailleannach Eò

Project: New Vessels 1 & 2

100m Dual Fuel Ro-Pax Ferries

Yard Numbers: 801 & 802

**Quarterly Update Report for
Transport Scotland**

November 2015 to January 2016

Project: New Vessels 1 & 2– 100m Dual Fuel Ro-
Pax Ferries
Yard Numbers: 801 & 802



Quarterly Update Report for Transport Scotland:
November 2015 to January 2016

EXECUTIVE SUMMARY

Contract signed on 16th October 2015. Stage payment certificates 1, 2 and 3 for vessels 1 and 2 processed. FMEL delay in achieving the planned dates for stages 1 and 2.

Steel cutting for vessels 1 and 2 carried out 15th December 2015; FMEL achieved the planned dates for this first production milestone. There has been no further steel production since steel cutting; the next production milestones for vessel 1 and 2 “10% fabrication” are scheduled for 18th April 2016, the drawing approval schedule and master construction plan have been issued later than planned, the build strategy for the master construction plan has still to be issued, given recent progress and shipyard redevelopment there is the possibility that the next production milestone will not be achieved.

Model tests confirm speed/power predictions, installed engine power proposed change to 2 x 6L34 (3000kW each) dual fuel engines plus 2 x 6L20 (960 kW each) dual fuel auxiliary engines. Impact report due from FMEL.

Dimensional port analysis carried out at Ardrossan, Gourock, Uig, Tarbert, Lochmaddy, Lochboisdale, Castlebay and Oban.

Project: New Vessels 1 & 2– 100m Dual Fuel Ro-
Pax Ferries
Yard Numbers: 801 & 802



Quarterly Update Report for Transport Scotland:
November 2015 to January 2016

Table of Contents

EXECUTIVE SUMMARY	ii
Table of Contents.....	iii
List of Tables	iv
1. Actual Progress compared with Schedule	1
1.1 Design/Production Progress	1
2. Actual Expenditure compared with Profiled Expenditure	3
3. Vessel Procurement and Construction Risk Register	5

Project: New Vessels 1 & 2– 100m Dual Fuel Ro-
Pax Ferries
Yard Numbers: 801 & 802



Quarterly Update Report for Transport Scotland:
November 2015 to January 2016

List of Tables

Table 1-1	Yard No 801 Actual production progress compared with schedule.....	1
Table 1-2	Yard No 802 Actual production progress compared with schedule.....	2
Table 2-1	Yard No 801 Actual expenditure compared with profiled expenditure	3
Table 2-2	Yard No 802 Actual expenditure compared with profiled expenditure	4
Table 3-1	Vessel Procurement and Construction Risk Register	5

Project: New Vessels 1 & 2 – 100m Dual Fuel Ro-Pax Ferries
Yard Numbers: 801 & 802

Quarterly Update Report for Transport Scotland:
November 2015 to January 2016

1. Actual Progress compared with Schedule

1.1 Design/Production Progress

Contract awarded 16th October 2015. The following delivery items required within the period of this report.

<u>Item</u>	<u>Due Date</u>	<u>Actual Date</u>
Drawing Approval Schedule	16 th Nov 2015	15 th Dec 2015 (4 weeks later than planned) Note: FMEL have still to provide any shipyard drawings for formal approval
Master Construction Schedule	16 th Nov 2015	15 th Dec 2015 (4 weeks later than planned) Note: FMEL have still to provide a build strategy for the master construction plan
Dimensional analysis at ports	30 th Nov 2015	16 th Dec 2015 (Gourock & Ardrossan), 18/19/20 th January 2016 (Uig, Tarbert, Lochmaddy, Lochboisdale, Castlebay, Oban). (7 weeks later than planned)

Model Tests

Model tests carried out at Vienna model test facility on 16th and 17th November 2015. Further models test has been carried out during December 2015; figures show that the results for the speed/power are better than the CFD calculations at the tender stage. Within the shipbuilding contract if it was demonstrated that model test results were in line with CFD calculations, the option was in place to change from 2 x 8L34 engines (4000 kW each) to 2 x 6L34 engines (3000 kW each). Given that model tests carried out confirms CFD calculations, the proposed engines are 2 x 6L34.

Project: New Vessels 1 & 2 – 100m Dual Fuel Ro-Pax Ferries
Yard Numbers: 801 & 802

Quarterly Update Report for Transport Scotland:
November 2015 to January 2016

Ship Design Risk Analysis

A meeting was held on 14th January 2016 – “Assessment of risk based designs – LNG as fuel”. Attended by FMEL, CMAL, CFL, Wartsila, LR and MCA. The next stage in the process is a HAZID meeting scheduled for 22/23rd March. This is a four stage process; stage 3 FMEA, safety critical equipment and bunkering safety study. Stage 4 HAZOP – final design assessment.

Vessel

Vessel length, FMEL investigating possibility to reduce length to 101.8m (not including aft belting).

Project: New Vessels 1 & 2 – 100m Dual Fuel Ro-Pax Ferries
Yard Numbers: 801 & 802



Quarterly Update Report for Transport Scotland:
November 2015 to January 2016

Table 1-1 Yard No 801 Actual production progress compared with schedule

YARD NO. 801			
Milestone	Scheduled Date	Actual Date	Comments
Cutting of Steel	15 Dec 2015	15 Dec 2015	Master Construction plan issued by FMEL 15 December 2015 (4 weeks later than originally specified). FMEL working on build strategy towards next production milestones
10% Fabrication	18 Apr 2016		
25% Fabrication	14 Jun 2016		
35% Fabrication	15 Aug 2016		
50% Fabrication	14 Oct 2016		
Major Equipment and Lock Out Items Installations	14 Nov 2016		
75% Fabrication	15 Dec 2016		
100% Fabrication	16 Jan 2017		
Berth Join Up	14 Mar 2017		
Hull Inspection Prior to Paint	17 Apr 2017		
Launch	14 Aug 2017		
Delivery	25 May 2018		

Project: New Vessels 1 & 2 – 100m Dual Fuel Ro-Pax Ferries
Yard Numbers: 801 & 802



Quarterly Update Report for Transport Scotland:
November 2015 to January 2016

Table 1-2 Yard No 802 Actual production progress compared with schedule

YARD NO. 802			
Milestone	Scheduled Date	Actual Date	Comments
Cutting of Steel	15 Dec 2015	15 Dec 2015	Master Construction plan issued by FMEL 15 December 2015 (4 weeks later than originally specified). FMEL working on build strategy towards next production milestones
10% Fabrication	18 Apr 2016		
25% Fabrication	14 Jun 2016		
35% Fabrication	15 Aug 2016		
50% Fabrication	14 Oct 2016		
Major Equipment and Lock Out Items Installations	14 Nov 2016		
75% Fabrication	15 Dec 2016		
100% Fabrication	16 Jan 2017		
Berth Join Up	14 Mar 2017		
Hull Inspection Prior to Paint	17 Apr 2017		
Launch	12 Oct 2017		
Delivery	26 Jul 2018		

Project: New Vessels 1 & 2 – 100m Dual Fuel Ro-Pax Ferries
 Yard Numbers: 801 & 802



Quarterly Update Report for Transport Scotland:
 November 2015 to January 2016

2. Actual Expenditure compared with Profiled Expenditure

Table 2-1 Yard No 801 Actual expenditure compared with profiled expenditure

YARD NO. 801						
Instalment Number	Milestone	Profiled		Actual		Comments
		Date	Expenditure	Expenditure	Date	
1	Receipt of Refund Guarantee	30 Oct 2015	£2,400,000	£2,400,000,	13 Nov 2015	Invoice received 13 November 2015. Two week hold up for refund guarantees to be ratified.
2	Procurement Deposits Long Lead Items (1)	12 Nov 2015	£12,100,000	£12,100,000	18 Jan 2016	FMEI issued the main equipment technical proposals on 26 th Nov 2015. CMAL raised many points on the proposals. FMEI issued updated technical proposals on 06 th and 12 th Jan 2016.
3	Cutting of Steel	15 Dec 2015	£1,400,000	£1,400,000	15 Dec 2015	First cutting steel carried out 15 Dec 2015.
4	Procurement Deposits Long Lead Items (2)	15 Jan 2016	£1,000,000			
5	10% Fabrication	18 Apr 2016	£2,400,000			
6	25% Fabrication	14 Jun 2016	£3,650,000			
7	35% Fabrication	15 Aug 2016	£3,650,000			
8	50% Fabrication	14 Oct 2016	£2,400,000			
9	Major Equipment and Lock Out Items Installations	14 Nov 2016	£1,375,000			
10	75% Fabrication	15 Dec 2016	£1,200,000			
11	100% Fabrication	16 Jan 2017	£1,200,000			
12	Berth Join Up	14 Mar 2017	£1,200,000			
13	Hull Inspection Prior to Paint	17 Apr 2017	£1,200,000			
14	Launch	14 Aug 2017	£1,200,000			
15	Delivery	25 May 2018	£12,125,000			
TOTAL			£48,500,000.00	£15,900,000.00		

Project: New Vessels 1 & 2 – 100m Dual Fuel Ro-Pax Ferries
 Yard Numbers: 801 & 802



Quarterly Update Report for Transport Scotland:
 November 2015 to January 2016

Table 2-2 Yard No 802 Actual expenditure compared with profiled expenditure

YARD NO. 802						
Instalment Number	Milestone	Profiled		Actual		Comments
		Date	Expenditure	Expenditure	Date	
1	Receipt of Refund Guarantee	30 Oct 2015	£2,400,000	£2,400,000	13 Nov 2015	Invoice received 13 November 2015. Two week hold up for refund guarantees to be ratified.
2	Procurement Deposits Long Lead Items (1)	12 Nov 2015	£12,100,000	£12,100,000	18 Jan 2016	FMEI issued the main equipment technical proposals on 26 th Nov 2015. CMAL raised many points on the proposals. FMEI issued updated technical proposals on 06 th and 12 th Jan 2016.
3	Cutting of Steel	15 Dec 2015	£1,400,000	£1,400,000	15 Dec 2015	First cutting steel carried out 15 Dec 2015.
4	Procurement Deposits Long Lead Items (2)	15 Jan 2016	£1,000,000			
5	10% Fabrication	18 Apr 2016	£2,400,000			
6	25% Fabrication	14 Jun 2016	£3,650,000			
7	35% Fabrication	15 Aug 2016	£3,650,000			
8	50% Fabrication	14 Oct 2016	£2,400,000			
9	Major Equipment and Lock Out Items Installations	14 Nov 2016	£1,375,000			
10	75% Fabrication	15 Dec 2016	£1,200,000			
11	100% Fabrication	16 Jan 2017	£1,200,000			
12	Berth Join Up	14 Mar 2017	£1,200,000			
13	Hull Inspection Prior to Paint	17 Apr 2017	£1,200,000			
14	Launch	12 Oct 2017	£1,200,000			
15	Delivery	26 Jul 2018	£12,125,000			
TOTAL			£48,500,000.00	£15,900,000.00		

Project: New Vessels 1 & 2 – 100m Dual Fuel Ro-Pax Ferries
 Yard Numbers: 801 & 802



Quarterly Update Report for Transport Scotland:
 November 2015 to January 2016

3. Vessel Procurement and Construction Risk Register

Table 3-1 Vessel Procurement and Construction Risk Register

Risk No		Risk Description	Significance	Risk Likelihood 1 – 5	Risk Impact 1 – 5	Risk Level H/M/L	Mitigating Controls	Further Actions	Current Status
1	Contractual/Commercial	Ship not capable of making contract speed	Cannot meet timetables	2	4	M	<ul style="list-style-type: none"> Model testing Shipbuilding Contract (LDs) Terminate contract Installed propulsion power margins 		Model Tests Undertaken
2	Contractual/Commercial	Excessive fuel consumption	Increased cost to operate the vessel and higher emission levels	3	4	M	<ul style="list-style-type: none"> Factory testing of engines Model testing Shipbuilding Contract (LDs) Engine rejection included in contract 		
3	Contractual/Commercial	Ship not capable of making contract deadweight	Cannot carry freight requirements	2	4	M	<ul style="list-style-type: none"> Analysis of lightship make up Regular requirement to update lightship estimates Regular progress meetings On site supervision Inclining test Shipbuilding Contract (LDs) Terminate contract 		
4	Contractual/Commercial	Ship delivered late	Increase cost to CMAL due to loan interest payments and crew and site inspector costs increase. Vessel cannot enter service	3	3	M	<ul style="list-style-type: none"> Monitoring progress Shipbuilding Contract (LDs) Terminate contract 		Slow start to design/ production
5	Contractual/Commercial	The shipbuilder is deemed insolvent	Possible non delivery of vessel	2	4	L	<ul style="list-style-type: none"> Monitoring progress Regular progress meetings Title Shipbuilding Contract Refund guarantee Final stage payment 		

Project: New Vessels 1 & 2 – 100m Dual Fuel Ro-Pax Ferries
 Yard Numbers: 801 & 802



Quarterly Update Report for Transport Scotland:
 November 2015 to January 2016

Risk No		Risk Description	Significance	Risk Likelihood 1 – 5	Risk Impact 1 – 5	Risk Level H/M/L	Mitigating Controls	Further Actions	Current Status
6	Contractual/Commercial	A major supplier is deemed insolvent	Increase cost to CMAL due to loan interest payments and crew and site inspector costs increase. Vessel cannot enter service	2	4	L	<ul style="list-style-type: none"> Monitoring progress Regular progress meetings Title Shipbuilding Contract Refund guarantee Final stage payment Identify alternative suppliers 		
7	Contractual/Commercial	Late ordering of equipment	Late delivery of vessel	3	4	M	<ul style="list-style-type: none"> On site supervision Regular progress meetings Monitoring progress Shipbuilding Contract (LDs) 		
8	Contractual/Commercial	Modifications and Changes	Proposed modification has detrimental effect on performance	2	3	L	<ul style="list-style-type: none"> Plan approval Equipment approval Regular progress meetings 		
9	Contractual/Commercial	Failure of equipment during warranty period	Vessel downtime Costs Reputation	2	4	L	<ul style="list-style-type: none"> Warranty period in shipbuilding contract Selection of equipment Equipment/FAT/Dock/Sea Trials 		
10	Contractual/Commercial	Loss and damage to equipment	Late delivery of vessel Quality of finish	1	3	L	<ul style="list-style-type: none"> Shipbuilding Contract (LDs) On site supervision 		
11	Contractual/Commercial	Late issue of drawings	Late delivery of vessel	3	4	M	<ul style="list-style-type: none"> Shipbuilding Contract (LDs) On site supervision Regular progress meetings 		
12	Contractual/Commercial	Force majeure	Late delivery of vessel	2	4	L	<ul style="list-style-type: none"> On site supervision Regular progress meetings 		
13	Technical	Substandard equipment or construction	Equipment is unreliable, expensive to maintain or not supported by manufacturers	2	4	L	<ul style="list-style-type: none"> Technical schedule (makers list included in contract) Equipment approval process included in contract Built under class supervision Experienced site inspectors 		

Project: New Vessels 1 & 2 – 100m Dual Fuel Ro-Pax Ferries
 Yard Numbers: 801 & 802



Quarterly Update Report for Transport Scotland:
 November 2015 to January 2016

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14	Technical	Freight deck arrangements restrict carriage of dangerous goods	Passenger deck aft may need to be modified to increase open deck area on freight deck	3	4	M/H	<ul style="list-style-type: none"> Early discussions with MCA regarding arrangements 		Proposed change to increase open deck area
15	Technical	Shipyard does not resource the works accordingly. Shipyard does not recruit required quality of staff; technical, supervisory and production	Late delivery of vessel Quality of finish	3	4	M	<ul style="list-style-type: none"> On site supervision Regular progress meetings Monitoring progress Shipbuilding Contract (LDs) 		A number of new managerial staff appointed
16	Technical	Cannot meet passenger, car or freight numbers	Detailed designs and calculations result in passenger decks and freight deck dimensions reducing	1	4	L	<ul style="list-style-type: none"> Contract and specification requirement Detailed and rigorous preparation of general arrangement drawings Plan approval process 		
17	Technical	Changes in rules/regulations	Late delivery of vessel Increase in costs	2	4	L	<ul style="list-style-type: none"> Meetings with MCA/LR Updates from LR rule finder 		
18	Technical	Complications of dual fuel designs	New rules regarding installation of gas systems on vessels need to be fully understood and followed	3	4	M	<ul style="list-style-type: none"> Classification specialists MCA specialists Equipment supplier specialist 		Risk analysis with major parties underway
19	Technical	Design cannot comply with various aspects MCA or LR rules	Major changes required to design (or part constructed vessel). Shipyard responsibility	2	4	L	<ul style="list-style-type: none"> Early dialogue with LR and MCA Early confirmation of meeting stability, evacuation, DG requirements 		
20	Technical	Vessel cannot berth at all the ports	Unable to serve route	2	4	M	<ul style="list-style-type: none"> Dimensional analysis to be carried out Port studies to be carried out 		Dimensional analysis underway
21	Performance	Weather	Late delivery of vessel. Poor paint finish if not completed indoors	2	3	L	<ul style="list-style-type: none"> On site supervision Paint under cover 		

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 Yard Numbers: 801 & 802



Quarterly Update Report for Transport Scotland:
 November 2015 to January 2016

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22	Performance	Shipyard have other projects	Late delivery of vessel	2	3	L	<ul style="list-style-type: none"> On site supervision Regular progress meetings Monitoring progress Shipbuilding Contract (LDs) 		
23	Performance	Progress not in accordance with build programme	Late delivery of vessel	3	4	M	<ul style="list-style-type: none"> On site supervision Regular progress meetings Monitoring progress Shipbuilding Contract (LDs) 		
24	Performance	Shipyard rebuilding works not in accordance with rebuilding programme	Late delivery of vessel	3	4	M	<ul style="list-style-type: none"> On site supervision Regular progress meetings Monitoring progress Shipbuilding Contract (LDs) 		
25	Performance	Performance of workforce	Late delivery of vessel	3	4	M	<ul style="list-style-type: none"> On site supervision Regular progress meetings Monitoring progress Shipbuilding Contract (LDs) 		