

Implicit Intraday Functionality in AMP

Ian McClelland
6th May 2015



PURPOSE OF SESSION

To provide Auction Management Platform (AMP) Users with information relating to the implementation of a new Implicit Auction module.



Background to Implicit Auctions

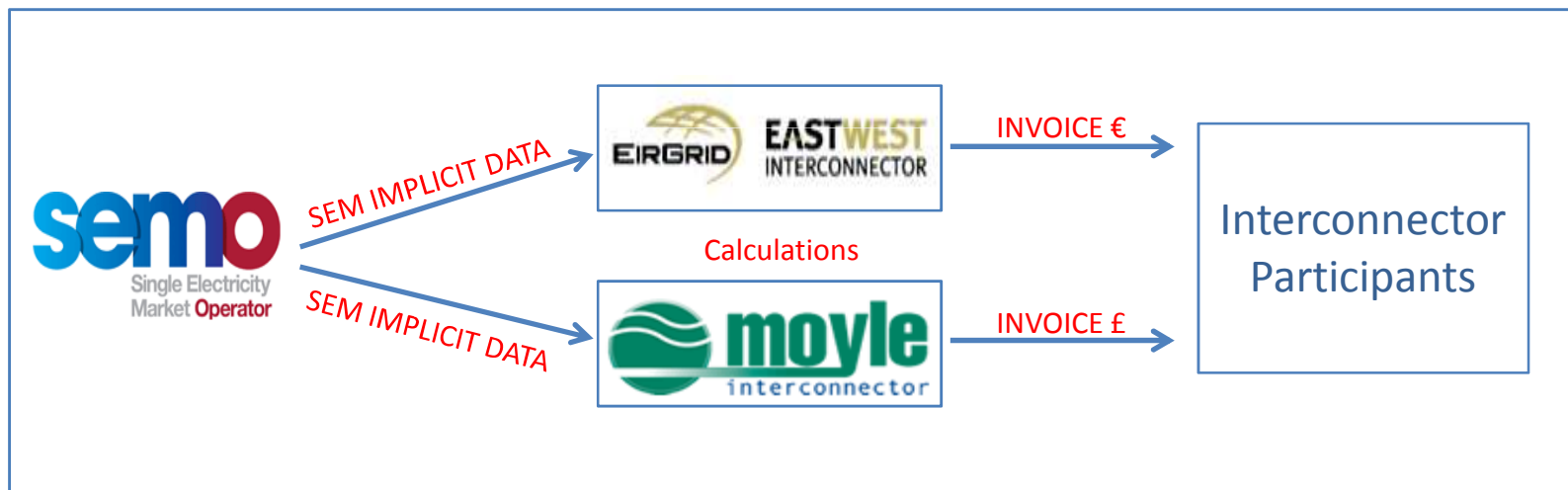
July 2012

- SEMO implemented Intra-Day Trading (IDT) arrangements
- IDT introduced two additional Market Gates (EA2 & WD1) per Trade Date
- Based on new Use-It-Or-Sell-It (UIOSI) principles, IC Users can re-bid for any unused IC capacity (via SEMO systems)
- IC Users were either compensated / charged depending on whether they sold or bought capacity



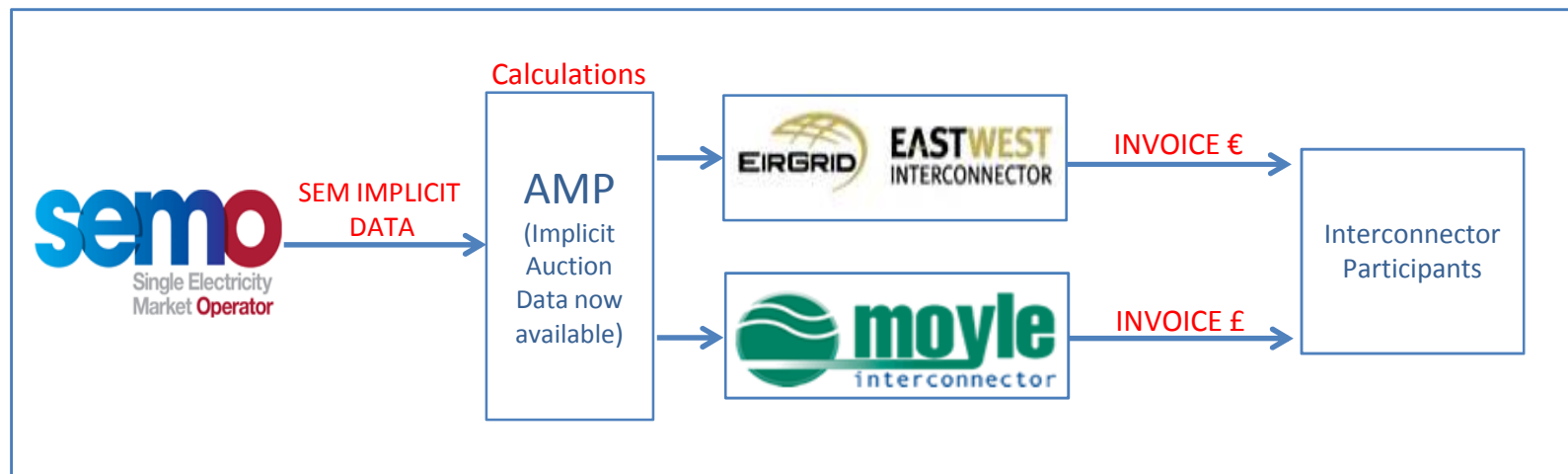
Background to Implicit Auctions

- Until now, IC Owners have calculated the monthly charges/payments using SEMO data and invoiced accordingly



Background to Implicit Auctions

- From May 2015, AMP will receive and make available to IC Users the EA2 and WD1 Implicit Auction data from SEMO
- AMP will undertake the charges / compensations calculations with the IC Owner invoicing based on this data



Release Phases

Phase 1 Rollout: 25th March 2015

- Introduced Implicit Auction charges and UIOSI compensations to the credit cover calculation in AMP
- IC Owners continued to calculate invoices

Phase 2 Rollout: 6th May 2015 (Outage:19:00 – 20:30)

- Will introduce several revised screens for AMP users
- These will show:
 - SEMO Implicit Auction Data
 - SEMO UIOSI Data
 - Implicit Auction Charges / Payments



New AMP file from SEMO

A new IART (Intra-Day Auction Results Transaction) file will transfer Implicit Auction data from the SEMO systems to AMP shortly after the EA2 and WD1 market runs.

- EA2 IART file :- contains Moyle and EWIC aggregate data (06:00-06:00) from the SEMO EA2 Implicit Auctions.
- WD1 IART file:- contains Moyle and EWIC aggregate data (18:00-06:00) from the SEMO WD1 Implicit Auctions



Revised AMP Screens

- SEM Implicit Auctions > **Implicit Auction Statistics**
- SEM Implicit Auctions > **Implicit Auction Results**
- Nominations > **UIOSI/UIOLI Overview**
- Settlement & Credit Management > **Settlement Data Overview**
- Settlement & Credit Management > **Credit Limit Overview**



New AMP Reports

Additional Reports:

- Settlement Data Download (MS Excel) > [Day-Ahead UIOSI Report](#)
- Settlement Data Download (MS Excel) > [Intra-Day UIOSI Report](#)
- Settlement Data Download (MS Excel) > [Within-Day UIOSI Report](#)



Implicit Auction Screens

The screenshot displays the DAMAS Messages interface. At the top, logos for EIRGRID, EASTWEST INTERCONNECTOR, moyle, and Damas are visible. The user is logged in as 'SYS Administrator (IC Operators)'. A list of messages is shown, with the following details:

Category	Message Content	Time
LONG-TERM AUCTION	SYS Administrator(IC Operators)	07:55
DAILY AUCTION	SYS Administrator(IC Operators)	07:55
SEM IMPLICIT AUCTIONS	Implicit Auction Statistics	07:50
	Implicit Auction Results	
CAPACITY ENTITLEMENTS	SYS Administrator(IC Operators)	07:50
SECONDARY MARKET	SYS Administrator(IC Operators)	07:50



Note: All screenshots are from a test environment and may differ very slightly in layout from AMP Production

1. Implicit Auctions Statistics

- Shows the Intra-Day and Within-Day aggregate statistics for each IC direction.
- This SEMO data is not specific to individual auction participants.
- If a SEMO Market Run is cancelled, an IART file may still be received but is for information purposes only.

Time (GMT)		Offered Capacity [MW]	Total In-Meet Requested Capacity [MW]	Total Allocated Capacity [MW]	Congestion Indicator	Auction Clearing Price (€/MWh)	Auction Charge [€]
Date	Time						
05.03.2015	06:00 - 06:30	499.75	600	499.073	Yes	1.72	429.2
05.03.2015	06:30 - 07:00	574.764	600	551.189	Yes	1.72	474.02
05.03.2015	07:00 - 07:30	610.791	600	597.708	No	0.00	0
05.03.2015	07:30 - 08:00	580.788	600	514.12	Yes	1.85	475.56
05.03.2015	08:00 - 08:30	620.667	400	400	No	0.00	0
05.03.2015	08:30 - 09:00	656.598	400	400	No	0.00	0
05.03.2015	09:00 - 09:30	514	600	437.5	Yes	64	140
05.03.2015	09:30 - 10:00	630.109	400	400	No	0.00	0
05.03.2015	10:00 - 10:30	639	400	400	No	0.00	0
05.03.2015	10:30 - 11:00	629.333	400	400	No	0.00	0
05.03.2015	11:00 - 11:30	610.667	600	400	No	0.00	0
05.03.2015	11:30 - 12:00	619	600	405.518	No	0.00	0
05.03.2015	12:00 - 12:30	619	600	424.283	No	0.00	0
05.03.2015	12:30 - 13:00	619	600	437.526	No	0.00	0
05.03.2015	13:00 - 13:30	619	600	442.439	No	0.00	0
05.03.2015	13:30 - 14:00	619	600	400	No	0.00	0
05.03.2015	14:00 - 14:30	484.333	600	454.88	Yes	1.01	229.71
05.03.2015	14:30 - 15:00	484	600	484	Yes	99	239.58

IMPORTANT: The screenshot above shows dummy data



Trading Day		5.3.2015					
Interconnector Direction		GB-IE (EWIC)					
Auction Type		Intra-Day					
Cancelled		No					

Time (GMT)		Offered Capacity [MW]	Total In-Merit Requested Capacity [MW]	Total Allocated Capacity [MW]	Congestion Indicator	Auction Clearing Price [EUR/MWh]	Auction Charge [EUR]
Date	Time						
05.03.2015	06:00 - 06:30	499.75	600	499.073	Yes	1.72	429.2
05.03.2015	06:30 - 07:00	574.764	600	551.189	Yes	1.72	474.02
05.03.2015	07:00 - 07:30	610.791	600	597.708	No	.00	0
05.03.2015	07:30 - 08:00	580.788	600	514.12	Yes	1.85	475.56
05.03.2015	08:00 - 08:30	629.667	400	400	No	.00	0
05.03.2015	08:30 - 09:00	656.598	400	400	No	.00	0
05.03.2015	09:00 - 09:30	514	600	437.5	Yes	.64	140
05.03.2015	09:30 - 10:00	630.109	400	400	No	.00	0
05.03.2015	10:00 - 10:30	639	400	400	No	.00	0
05.03.2015	10:30 - 11:00	629.333	400	400	No	.00	0
05.03.2015	11:00 - 11:30	610.667	600	400	No	.00	0
05.03.2015	11:30 - 12:00	619	600	405.518	No	.00	0
05.03.2015	12:00 - 12:30	619	600	424.283	No	.00	0
05.03.2015	12:30 - 13:00	619	600	437.526	No	.00	0
05.03.2015	13:00 - 13:30	619	600	442.439	No	.00	0
05.03.2015	13:30 - 14:00	619	600	400	No	.00	0
05.03.2015	14:00 - 14:30	484.333	600	454.88	Yes	1.01	229.71
05.03.2015	14:30 - 15:00	484	600	484	Yes	.99	239.58

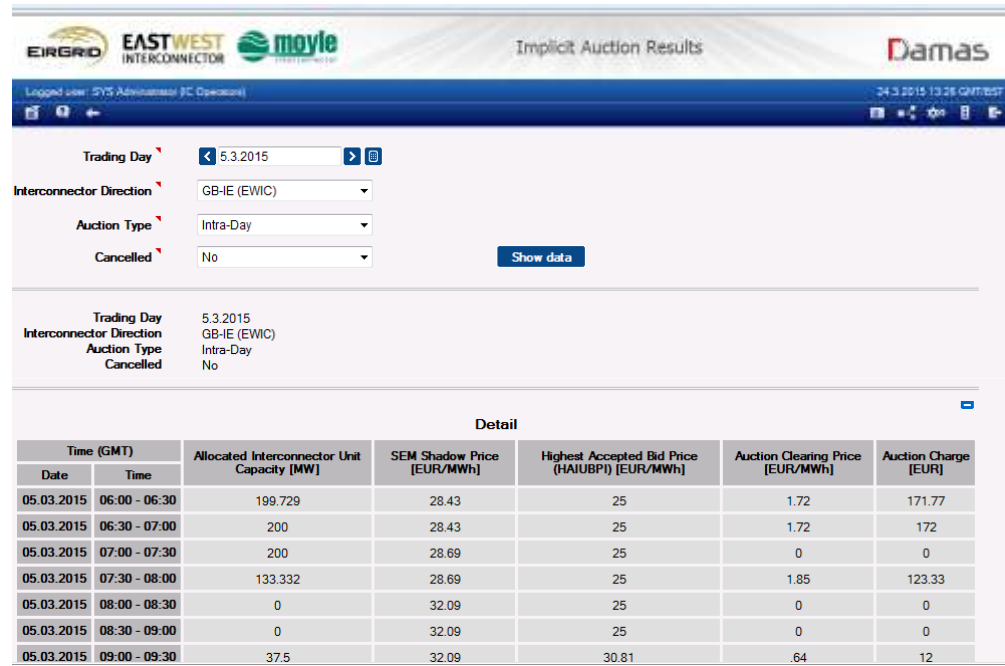
OICI / OICE field from IART file
 RICI / RICE field from IART file
 Agg. EA2 MIUNs from MIUN file
 CONFLAGI / CONFLAGE field from IART file
 Clearing Price calculated by AMP
 Auction Charge calculated by AMP

IMPORTANT: The screenshot above shows dummy data



2. Implicit Auction Results

- Shows the Intra-Day and Within-Day auction results for each IC direction.
- This SEMO data is specific to individual auction participants.
- If a SEMO Market Run is cancelled, an IART file may still be received but is for information only.



Trading Day: 5.3.2015
 Interconnector Direction: GB-IE (EWIC)
 Auction Type: Intra-Day
 Cancelled: No

Trading Day: 5.3.2015
 Interconnector Direction: GB-IE (EWIC)
 Auction Type: Intra-Day
 Cancelled: No

Detail

Time (GMT)		Allocated Interconnector Unit Capacity [MW]	SEM Shadow Price [EUR/MWh]	Highest Accepted Bid Price (HAIUBP) [EUR/MWh]	Auction Clearing Price [EUR/MWh]	Auction Charge [EUR]
Date	Time					
05.03.2015	06:00 - 06:30	199.729	28.43	25	1.72	171.77
05.03.2015	06:30 - 07:00	200	28.43	25	1.72	172
05.03.2015	07:00 - 07:30	200	28.69	25	0	0
05.03.2015	07:30 - 08:00	133.332	28.69	25	1.85	123.33
05.03.2015	08:00 - 08:30	0	32.09	25	0	0
05.03.2015	08:30 - 09:00	0	32.09	25	0	0
05.03.2015	09:00 - 09:30	37.5	32.09	30.81	64	12

IMPORTANT: The screenshot above shows dummy data



Participant MIUNs from MIUN file

Shadow Price / SMP from IART file

Highest / Lowest Accepted Bid from IART file

Clearing Price calculated by AMP

Participant Charge calculated by AMP

Time (GMT)		Detail				
Date	Time	Allocated Interconnector Unit Capacity [MW]	SEM Shadow Price [EUR/MWh]	Highest Accepted Bid Price [EUR/MWh]	Auction Clearing Price [EUR/MWh]	Auction Charge [EUR]
05.03.2015	06:00 - 06:30	199.729	28.43	25	1.72	171.77
05.03.2015	06:30 - 07:00	200	28.43	25	1.72	172
05.03.2015	07:00 - 07:30	200	28.69	25	0	0
05.03.2015	07:30 - 08:00	133.332	28.69	25	1.85	123.33
05.03.2015	08:00 - 08:30	0	32.09	25	0	0
05.03.2015	08:30 - 09:00	0	32.09	25	0	0
05.03.2015	09:00 - 09:30	37.5	32.09	30.81	.64	12

IMPORTANT: The screenshot above shows dummy data



3. UIOSI / UIOLI Overview

- This SEMO data is specific to individual auction participants
- Shows the LT Active Capacity Holdings (does not include the DA ACH)
- Shows what is available to sell and what has been sold in the DA, EA2 and WD1 Market runs

Time (GMT)		LT ACH (MW)	DA			EA2			WD1			Total Revenue (EUR)
Date	Time		UIOSI/UIOLI (MW)	Sold Capacity (MW)	Revenue (EUR)	UIOSI/UIOLI (MW)	Sold Capacity (MW)	Revenue (EUR)	UIOSI/UIOLI (MW)	Sold Capacity (MW)	Revenue (EUR)	
05.03.2015	06:00 - 06:30	5,000	0,000	0,000	0,00	0,750	0,749	0,64	0,001	0,000	0,00	-0,64
05.03.2015	06:30 - 07:00	5,000	0,000	0,000	0,00	5,000	4,795	4,12	0,205	0,000	0,00	4,12
05.03.2015	07:00 - 07:30	5,000	0,000	0,000	0,00	5,000	4,893	0,00	0,107	0,000	0,00	0,00
05.03.2015	07:30 - 08:00	5,000	0,000	0,000	0,00	5,000	4,426	4,05	0,574	0,000	0,00	4,05
05.03.2015	08:00 - 08:30	5,000	0,000	0,000	0,00	5,000	3,176	0,00	1,824	0,000	0,00	0,00
05.03.2015	08:30 - 09:00	5,000	0,000	0,000	0,00	5,000	3,048	0,00	1,954	0,000	0,00	0,00
05.03.2015	09:00 - 09:30	5,000	0,000	0,000	0,00	5,000	4,256	1,36	0,744	0,000	0,00	1,36
05.03.2015	09:30 - 10:00	5,000	0,000	0,000	0,00	5,000	3,174	0,00	1,826	0,000	0,00	0,00
05.03.2015	10:00 - 10:30	5,000	0,000	0,000	0,00	5,000	3,130	0,00	1,870	0,000	0,00	0,00
05.03.2015	10:30 - 11:00	5,000	0,000	0,000	0,00	5,000	3,178	0,00	1,822	0,000	0,00	0,00

IMPORTANT: The screenshot above shows dummy data



Long Term Holdings

Total ACH (LT + DA) – EA1 MIUN
UIOSI * % EA2 Capacity Sold
Sold Capacity * Clearing Price

Time (GMT)		DA				EA2			WD1			Total Revenue [EUR]
Date	Time	LT ACH [MW]	UIOSI/UIOLI [MW]	Sold Capacity [MW]	Revenue [EUR]	UIOSI/UIOLI [MW]	Sold Capacity [MW]	Revenue [EUR]	UIOSI/UIOLI [MW]	Sold Capacity [MW]	Revenue [EUR]	Total Revenue [EUR]
05.03.2015	06:00 - 06:30	5.000	0.000	0.000	0.00	0.750	0.749	0.64	0.001	0.000	0.00	0.64
05.03.2015	06:30 - 07:00	5.000	0.000	0.000	0.00	5.000	4.795	4.12	0.205	0.000	0.00	4.12
05.03.2015	07:00 - 07:30	5.000	0.000	0.000	0.00	5.000	4.893	0.00	0.107	0.000	0.00	0.00
05.03.2015	07:30 - 08:00	5.000	0.000	0.000	0.00	5.000	4.426	4.09	0.574	0.000	0.00	4.09
05.03.2015	08:00 - 08:30	5.000	0.000	0.000	0.00	5.000	3.176	0.00	1.824	0.000	0.00	0.00
05.03.2015	08:30 - 09:00	5.000	0.000	0.000	0.00	5.000	3.046	0.00	1.954	0.000	0.00	0.00
05.03.2015	09:00 - 09:30	5.000	0.000	0.000	0.00	5.000	4.256	1.36	0.744	0.000	0.00	1.36
05.03.2015	09:30 - 10:00	5.000	0.000	0.000	0.00	5.000	3.174	0.00	1.826	0.000	0.00	0.00
05.03.2015	10:00 - 10:30	5.000	0.000	0.000	0.00	5.000	3.130	0.00	1.870	0.000	0.00	0.00
05.03.2015	10:30 - 11:00	5.000	0.000	0.000	0.00	5.000	3.178	0.00	1.822	0.000	0.00	0.00

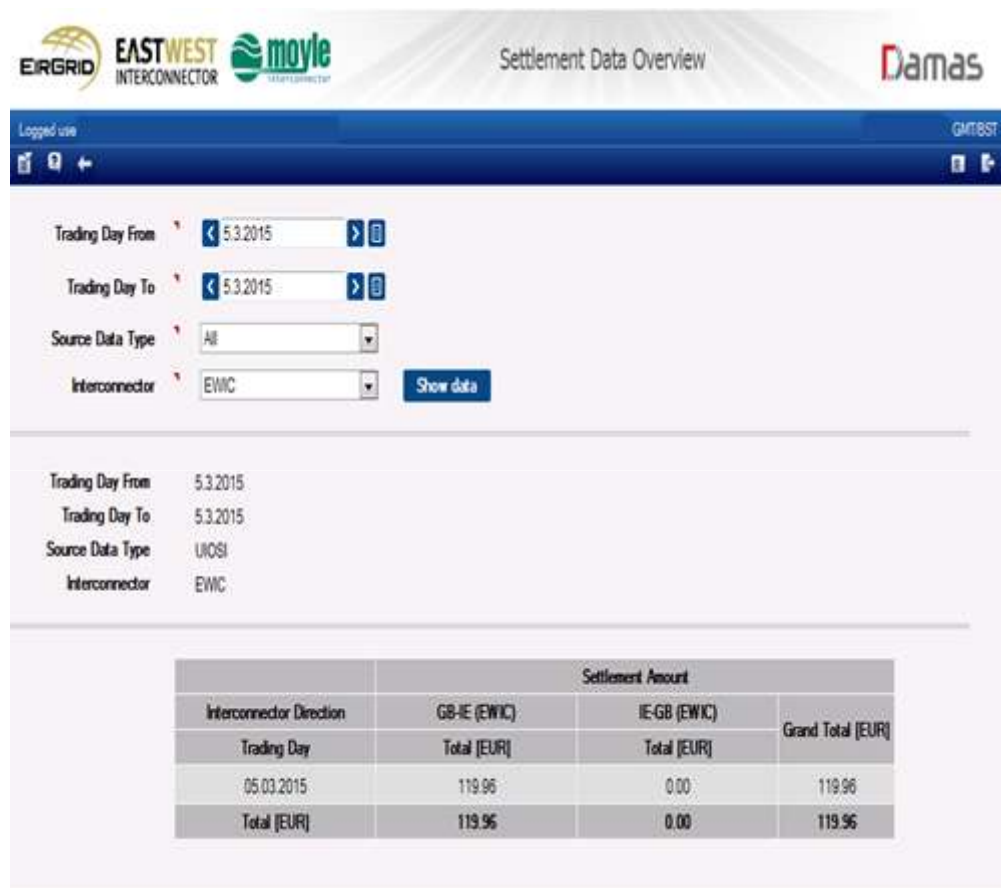
IMPORTANT: The screenshot above shows dummy data



4. Settlement Data Overview

This screen will now include Implicit Auction UIOSI data.

This provides IC Users with a UIOSI Settlement total, dependant on the date range and interconnector selected.



The screenshot displays the 'Settlement Data Overview' interface. At the top, logos for EIRGRID, EASTWEST INTERCONNECTOR, moyle, and Damas are visible. The interface includes a navigation bar with 'Logged user' and 'GMTBST'. Below this, there are filter controls for 'Trading Day From' (5.3.2015), 'Trading Day To' (5.3.2015), 'Source Data Type' (All), and 'Interconnector' (EWIC). A 'Show data' button is present. Below the filters, a summary section shows the selected parameters: Trading Day From: 5.3.2015, Trading Day To: 5.3.2015, Source Data Type: UIOSI, and Interconnector: EWIC. At the bottom, a table titled 'Settlement Amount' provides the following data:

Interconnector Direction	Settlement Amount		Grand Total [EUR]
	GB-IE (EWIC)	IE-GB (EWIC)	
Trading Day	Total [EUR]	Total [EUR]	
05.03.2015	119.96	0.00	119.96
Total [EUR]	119.96	0.00	119.96

IMPORTANT: The screenshot above shows dummy data



New Settlement Data Downloads

Settlement Data Download (MS Excel)

Logged user: GMT/BST

Trading Day From: 5.3.2015

Trading Day To: 5.3.2015

Interconnector: EWIC

Report Type: Explicit Auction

Capacity Type:

- Explicit Auction
- Implicit Auction
- Resale
- Day-Ahead UIOSI
- Intra-Day UIOSI
- Within-Day UIOSI
- Curtailment
- Transfers

Generate

Additional Reports:

- Settlement Data Download (MS Excel) > Day-Ahead UIOSI Report
- Settlement Data Download (MS Excel) > Intra-Day UIOSI Report
- Settlement Data Download (MS Excel) > Within-Day UIOSI Report



Next Steps

- An information pack will be circulated to participants via email
- AMP Outage this evening (6th May 2015) from 19:00 – 20:30
- Queries: Contact interconnectors on +44 (0) 28 9070 7450 or via email at interconnectors@soni.ltd.uk







**Overview of Mod_09_14
Amendment of Make Whole Payments for
Interconnector Units**



Content

- What are Make Whole Payments?
- Who will receive Make Whole Payments?
- Why Change Make Whole Payments for Interconnector Users?
- How will Make Whole Payments Change for Interconnector Users?

MWP – what are they?

4.139 *The purpose of Make Whole Payments is to make up any difference between the total Energy Payments to a Generator Unit in a Billing Period, and the Schedule Production Cost within that Billing Period (where the difference is arithmetically positive calculated over the Billing Period)...*

- This is to guarantee recovery of all submitted costs over a Billing Period;
- SEM is designed to recover costs through Energy Payments, due to Uplift;

MWP – who will receive them?

- In some cases Production Costs are not recovered through SMP;
- If energy charge for export bid ($\underline{\text{SMP}} \cdot \text{MSQ} \cdot \text{TPD}$) is greater than cost ($\underline{\text{MOP}} \cdot \text{MSQ} \cdot \text{TPD}$);
 - *i.e. Export bid is greater than Shadow Price ('merited') but less than SMP;*
- Interconnector Users are excluded from Uplift calculation due to no Start Up or No Load Cost;

MWP – who will receive them?

- In some cases Production Costs are not recovered through SMP;
- If energy charge for export bid (SMP*MSQ*TPD) is greater than cost (MOP*MSQ*TPD);
 - *i.e. Export bid is greater than Shadow Price ('merited') but less than SMP;*
- Interconnector Users are excluded from Uplift calculation due to no Start Up or No Load Cost;

Why Change MWPs for Interconnector Users?

- Practical implementation of Intraday Trading resulted in MWP contributions being isolated in each Gate Window
- MWPs paid based on gross position where net position was already 'whole';
- Any solution needed to;
 - *Be practicable and align with the Code Objectives in TSC*
 - *Determine MWPs without over-recovery for aggregate position*
 - *Determine MWPs without under-recovery against costs*

How Will MWP's Change for Interconnector Users?

- Four Modifications proposed to address the issue;
- Mod_09_14_V2 Amendment to Make Whole Payments for Interconnector Units - recommended for approval;
- Aggregate MWP's over all Gate Windows and apply $\text{Max}(\text{MOP}, \text{SP})$ to import
- Provisional implementation date 2nd October 2015

Algebraic Implementation



$$MWPib = \text{Max} \left\{ \sum_{u \in i} \sum_{h \in b} \left[\begin{array}{l} \text{If } MSQLFuh \geq 0 \\ \text{then } \left(\begin{array}{l} \text{Max}(MOPuh, SPh) - SMP_h \times MSQLFuh \\ + MSQCCLFuh \end{array} \right) \\ \text{else } \left(\begin{array}{l} MOPuh - SMP_h \times MSQLFuh \\ + MSQCCLFuh \end{array} \right) \end{array} \right] \times TPD, 0 \right\}$$

Apply max of bid or Shadow Price to import

Sum over Units u in Interconnector User i



Questions



Moyle & EWIC
Interconnector User Forum
Update on FCA Guideline
Mark Lane
6 May 2015 - Belfast



FCA Guideline - Current Status

- ENTSO-E resubmitted draft – Apr 2014
- EC Informal Service Level Draft – 15 Apr 2015
- ACER/ENTSO-E input - 30 Apr 2015
- Trilateral meeting – 4 May 2015



FCA Guideline - Main topics 1

- Update FCA based on CACM changes
- Splitting Methodology – “longest” horizon
- General provisions – NRA approvals
 - Local to Regional, Regional to Pan-EU
- Options for Cross Zonal Risk Hedging
- Secondary Trading
 - Change to Transfer of LTTRs
- Single Allocation Platform
 - Reduced timelines
- Transitional Arrangements - deleted



FCA Guideline - Main topics 2

- Harmonised Allocation Rules
 - Shortened timelines
 - HAR Annex too prescriptive
 - HAR Annex trumps HAR common text
- Firmness
 - Long Term Firmness deadline for PTRs/FTRs
 - “Concerned” TSO compensates
 - No Cap after Long Term Firmness deadline?
 - Cap based on total congestion income from all Bidding Zone borders of TSO?
 - EC wants “System Security” defined for firmness



FCA Guideline – Next Steps

- EC redraft based on 4 May Trilateral discussion
- Trilateral meeting – end May/early June
- 1st ECBC meeting – 25/26 June
- Trilateral meeting – end June/early July?
- 2nd ECBC meeting – 23/24 July
- Vote – September (TBC)?
- “Entry into force” date – June/July 2016?

- FCA/Connection Codes – independent timeline





Harmonised Allocation Rules

Paul McGuckin

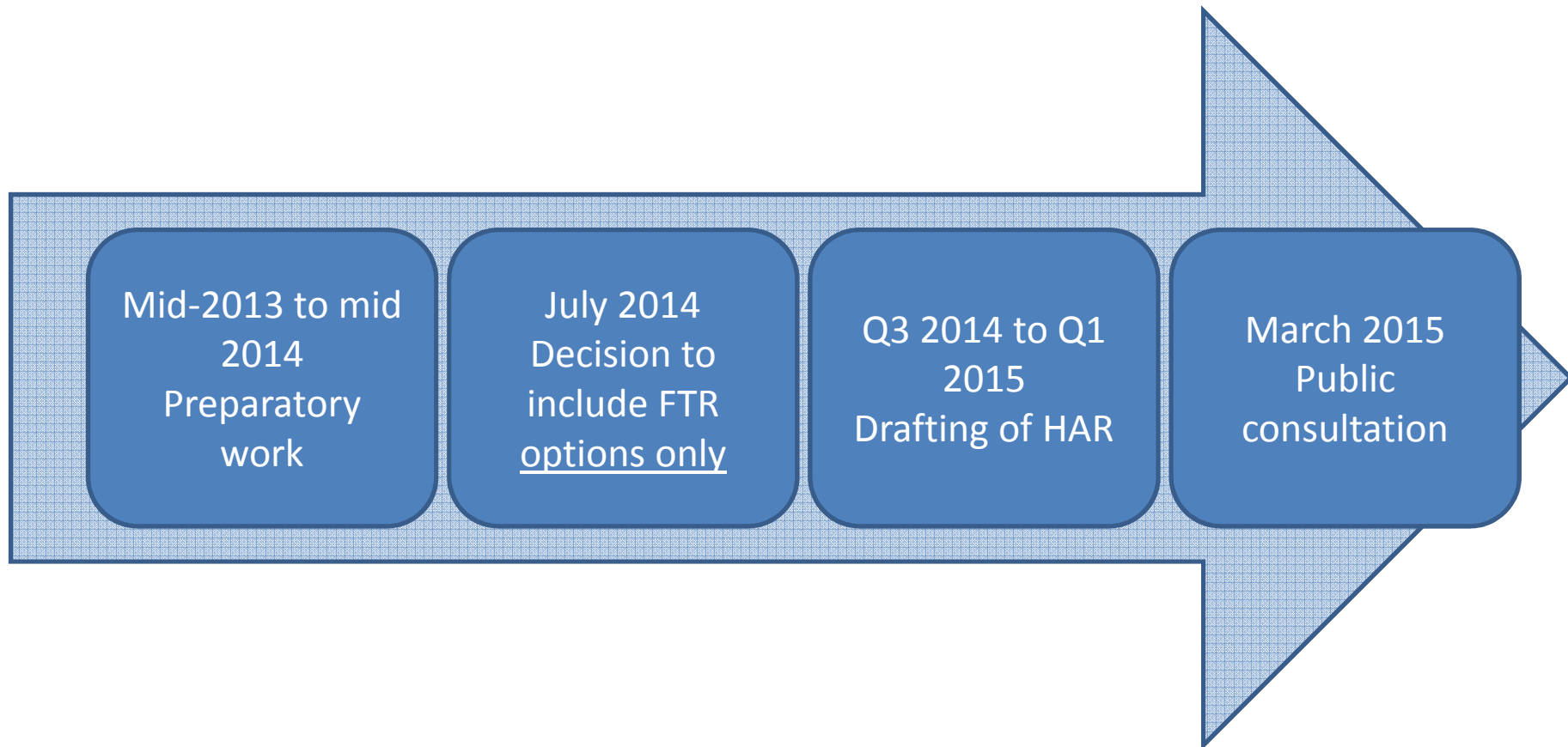
6th May 2015

Drivers and background to HAR

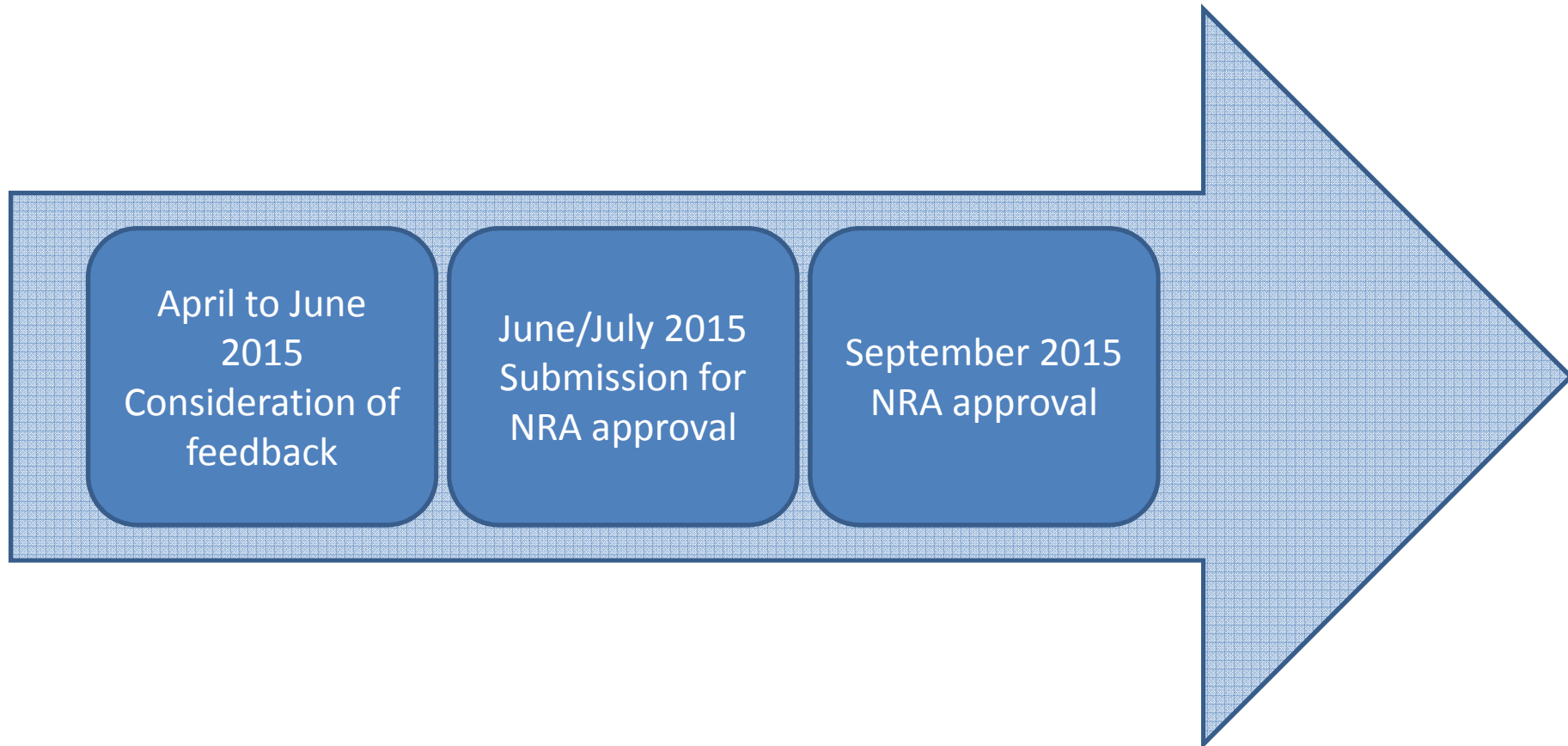
- FG Capacity Allocation and Congestion Management (ACER – 2011)
- Forward Capacity Allocation Network Code (ENTSOE – expected in force 2015)
- Harmonised Allocation Rules ('All TSOs' task – ongoing)

HAR are early implementation project

Process so far



Process so far



HAR for Moyle and EWIC

- Approved 2015 but will only apply for FTR options in I-SEM
- Current rules apply for products until I-SEM go-live (subject to NRA approval)
- These provisions set out in 'regional annex' to the HAR

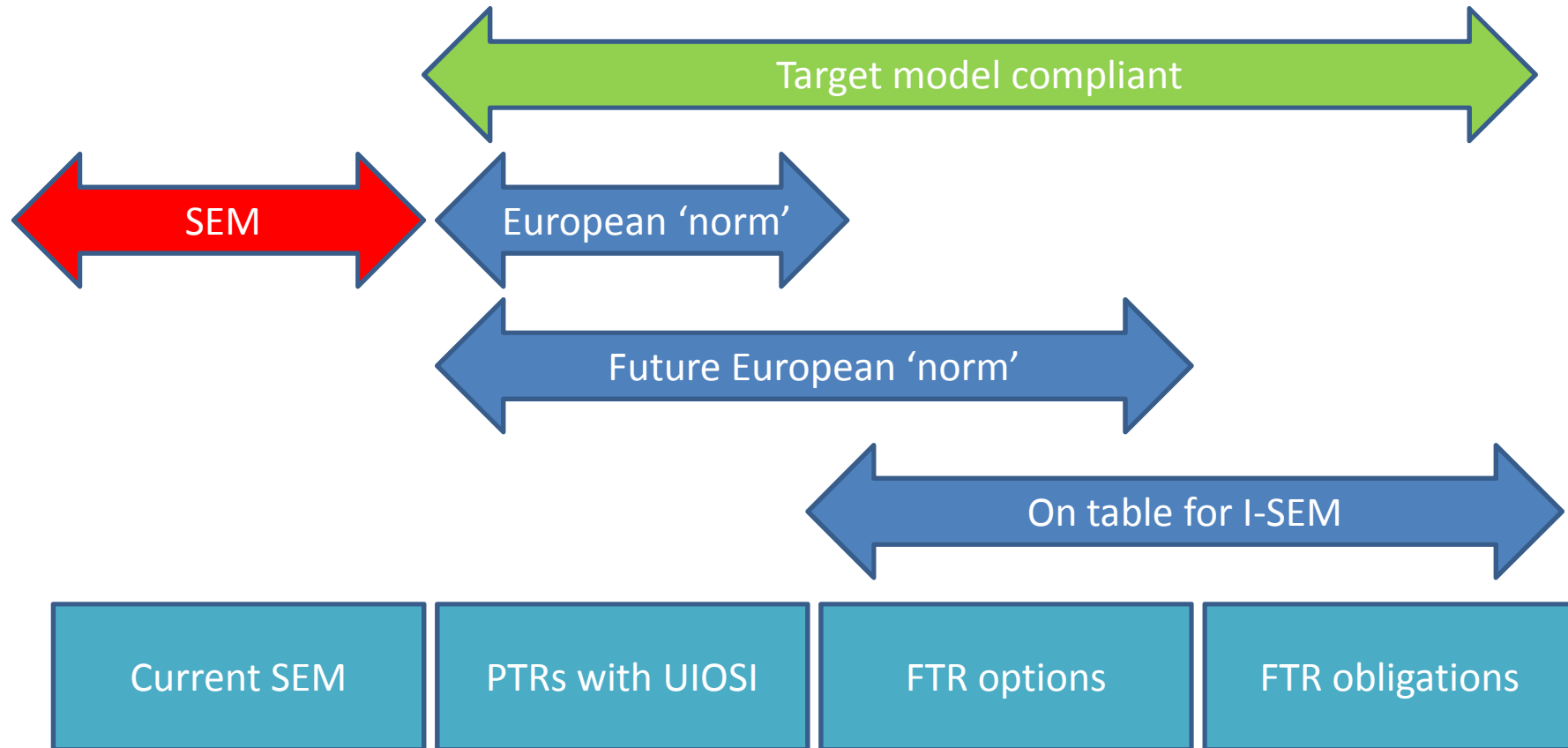
What is different in HAR?

- Participation agreement
- 'Allocation Platform' - 'single point of contact'
- Dedicated Business Account
- Credit cover requirements
- Curtailment
- Firmness

I-SEM regional annex content

- Only apply for I-SEM
- Ramping provisions
- ‘Capacity shortage’ for curtailment

What about FTR obligations?



What about FTR obligations?

- Not contemplated by current HAR
- FCA requires their inclusion in HAR
- Timing for inclusion unclear and unlikely to meet I-SEM requirements

Summary



- European Harmonised Allocation Rules effectively complete
- Will be in use for Moyle and EWIC in I-SEM
- Status of rules for FTR obligations unclear



Allocation Platform Options Update

6th May 2015



FCA NC and I-SEM Context

- FCA NC sets out the requirements for harmonised allocation rules (HAR) and the allocation platform
 - Tri-lateral discussions underway for FCA NC
 - Questions now regarding transitional solution via existing regional platform
 - Timelines for implementation of single allocation platform are challenging
- HAR was consulted on during March 2015
 - Currently covers PTRs and FTR Options, ***not FTR Obligations***
 - Consultation responses now under review
 - Working towards a final HAR for end June
- I-SEM design requires an FTR solution for long term auctions before I-SEM go-live



Harmonised Allocation Rules

- Registration
- Collateral
- Auctions
- Return of Long Term Transmission Rights
- Transfer of Long Term Transmission Rights
- Use and Remuneration of LTRs
- Fall-back Procedures
- Curtailment
- Invoicing and Payment



SEM-GB Border Specific Annex

- HAR and Border Specific Annex to apply from I-SEM Go-Live
- LTR remuneration adjusted to reflect ramping constraints
- Curtailment due to 'Capacity Shortage' calculated as per 'System Security' curtailment



Allocation Platform Functionality

Current

IFA Registration	BritNed Registration	Moyle Registration	EWIC Registration
Auctions	Auctions	Auctions	Auctions
Secondary Trading	Secondary Trading	Secondary Trading	Secondary Trading
Publications	Publications	Publications	Publications
Rights Tracking	Rights Tracking	Rights Tracking	Rights Tracking
IFA Credit	BritNed Credit	Moyle Credit	EWIC Credit
IFA Settlement	BritNed Settlement	Moyle Settlement	EWIC Settlement
IFA Invoicing	BritNed Invoicing	Moyle Invoicing	EWIC Invoicing

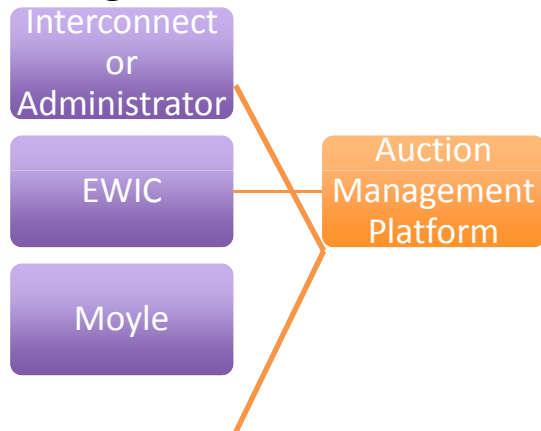
Single Allocation Platform

Registration
Auctions
Secondary Trading
Publications
Rights Tracking
Credit
Settlement
Invoicing

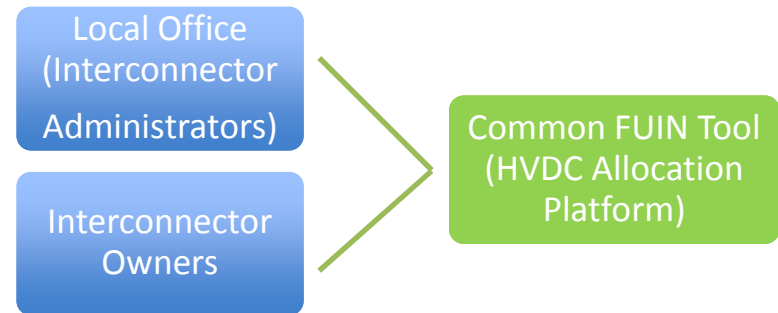
NC Compliance Improves
Implementation complexity increases

Allocation Platform – Options

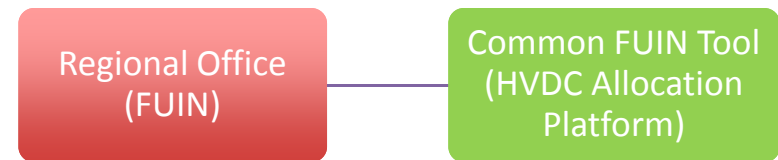
I-SEM Specific Auction Management Platform



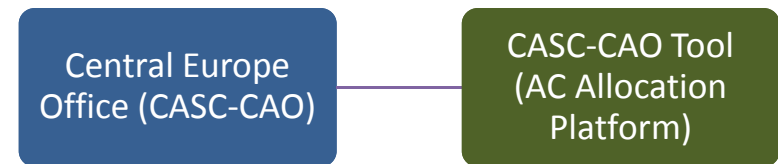
Regional IT Platform (all FUIN HVDC)



Regional Office (all FUIN HVDC)



CASC-CAO Office (I-SEM + CASC-CAO)



I-SEM Specific Option

- Details of costs and timelines to implement a local solution have been assessed
- Detailed ‘Use Cases’ have been developed for the FTR solution for I-SEM
 - These represent the business and systems functionality requirements
 - Useable for both the I-SEM specific and regional solutions
- More control over delivery timelines ...
... but fewer benefits to customers and competition in the market



Regional Platform Implementation

- Agree preferred solution
- Establish governance and cost sharing (MoU)
- Complete detailed functional design
 - Ensure HAR compliance
 - Implement FTR solution for I-SEM
 - Implement PTR solution for BritNed and IFA (for regional options)
 - Consider additional HVDC specific functionality
- Engage solution provider
- Commence staged delivery approach
 - Stage 1 – PTR delivery for Q2 2016
 - Stage 2 – FTR delivery for Q4 2016



Regional Platform Benefits

- Coordinated across FUIN
 - Strong FUIN voice within Europe with strategic focus
- Delivers efficiencies for customers and drives more efficient use of interconnectors
 - Single customer interface
 - Access to more interconnectors
- Delivers Target Model objectives
 - More effective in the market
- Improves underlying cost base



CASC/CAO initiative

- CASC & CAO merger
 - 19 TSOs in 16 countries
- Development of Single Allocation Platform
- Creating a Joint Auction Office
- FUIN has monitoring role via ENTSO-E
 - Limited input opportunities



Transitional Arrangements

- Auctions for FTR products are proposed to start with timescales coincident with I-SEM start
- PTR and FTR products to be offered as follows:
 - PTR products will be sold up until 30th September 2017 inclusive
 - FTR products will be sold for 1st October 2017 onwards
- There will be two auction management platforms in place for the timeframe of initial auction of FTRs to final invoice payments for PTRs
 - Current AMP where customers have contracts with the IA and los
 - Future platform where customers register directly with the IA



Next Steps

- Final assessment of all options
- Implement decision on FTR options/obligations once available in September
 - Working on the assumption that FTR Options will be utilised
- Progress work on regional platform option
- Continue to engage with ENTSO-E
 - Clarify timeframes for FTR Obligations rules development
 - Establish a realistic timeframe for the single allocation platform
- Regular discussions with RAs
- On-going stakeholder engagement





Moyle operational overview

Paul McGuckin

6th May 2015



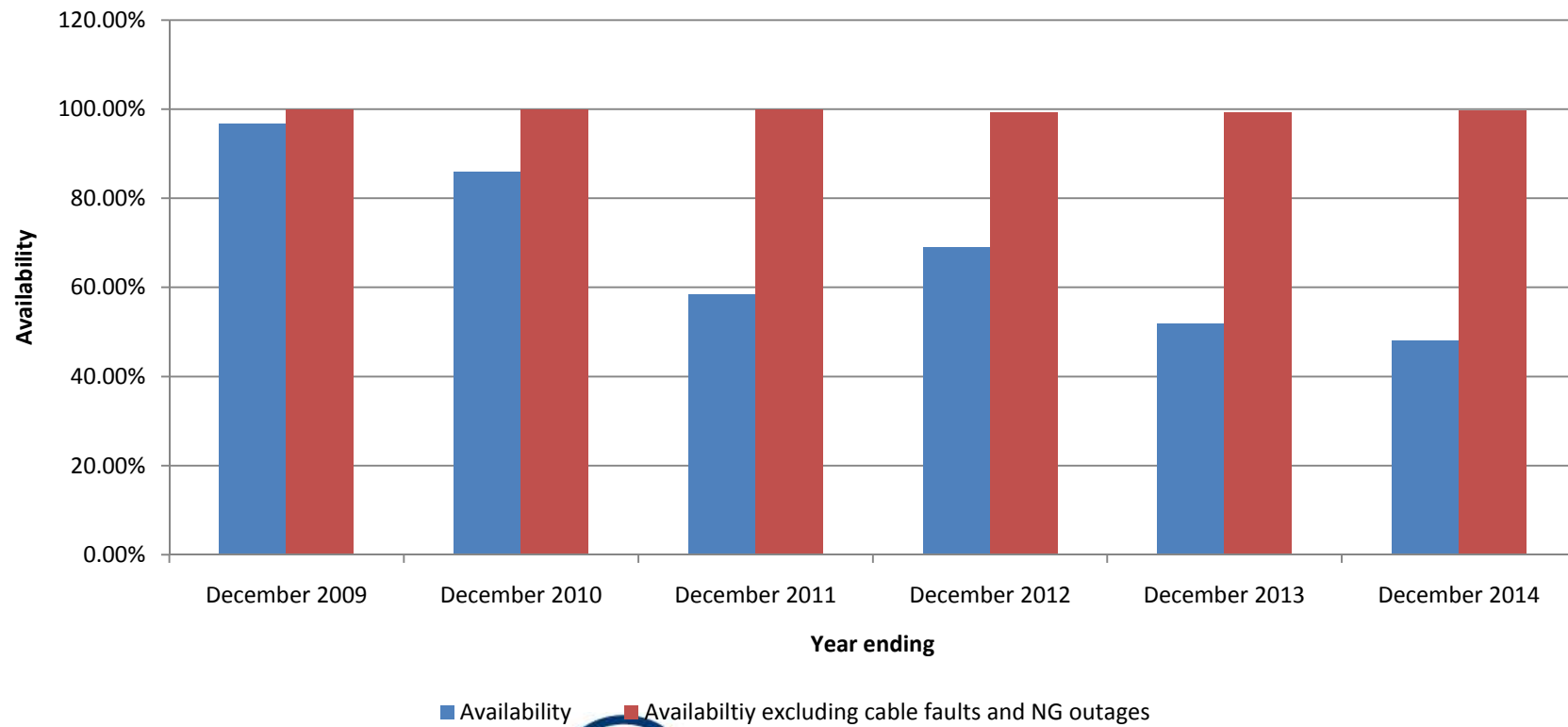


Moyle operational overview

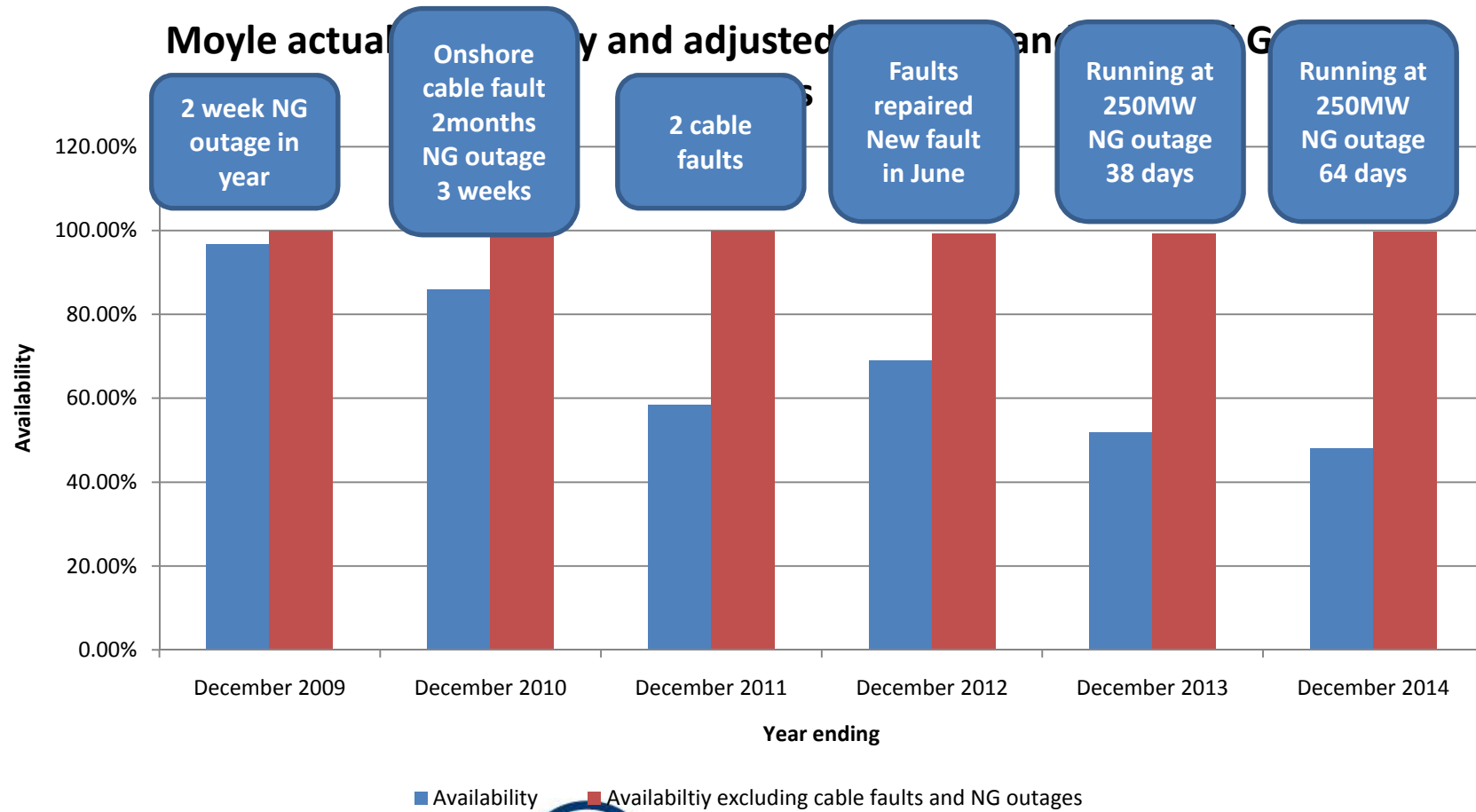
- Availability
- Physical and commercial use of the asset
- Auctions

Moyle availability

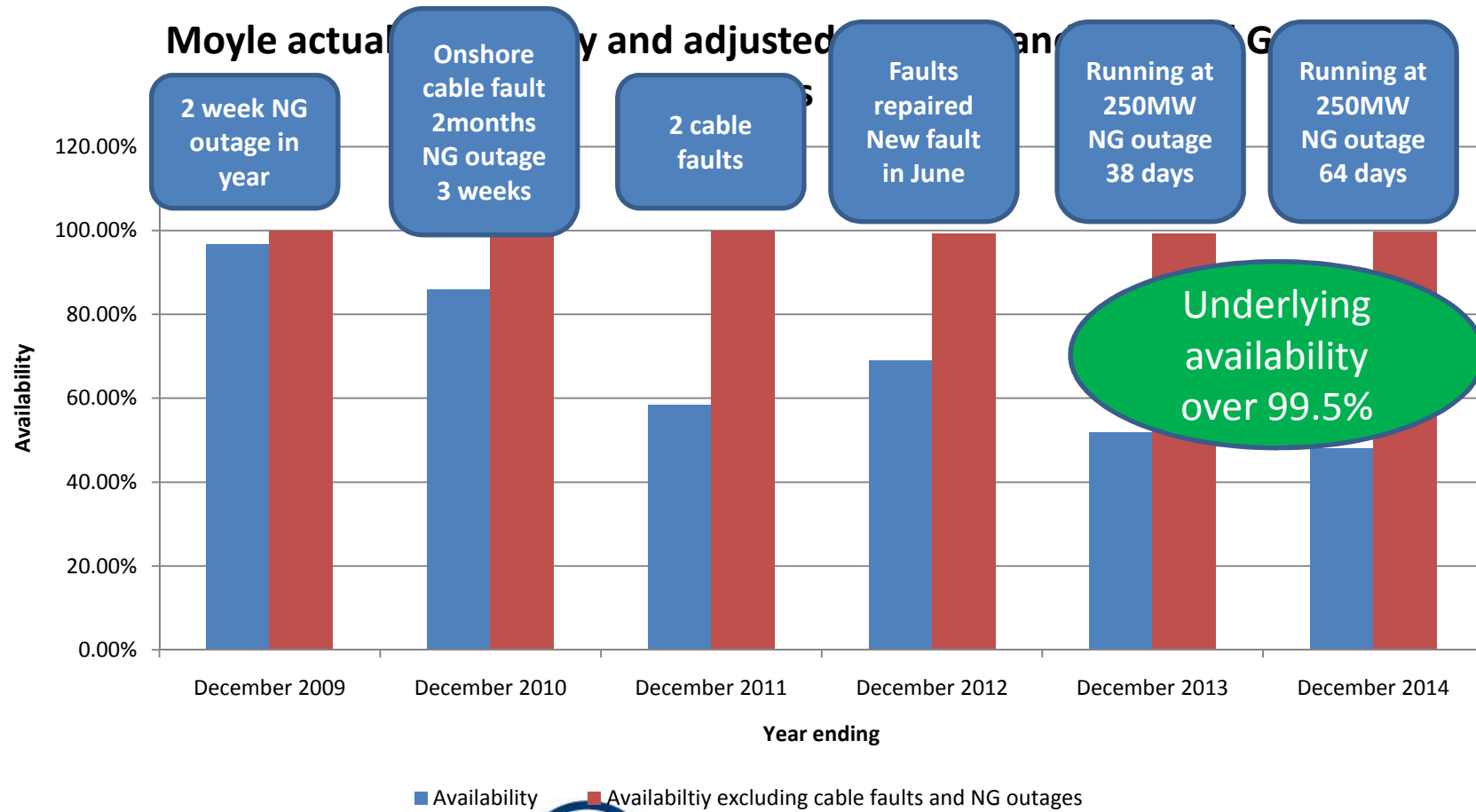
Moyle actual availability and adjusted for cable and National Grid outages



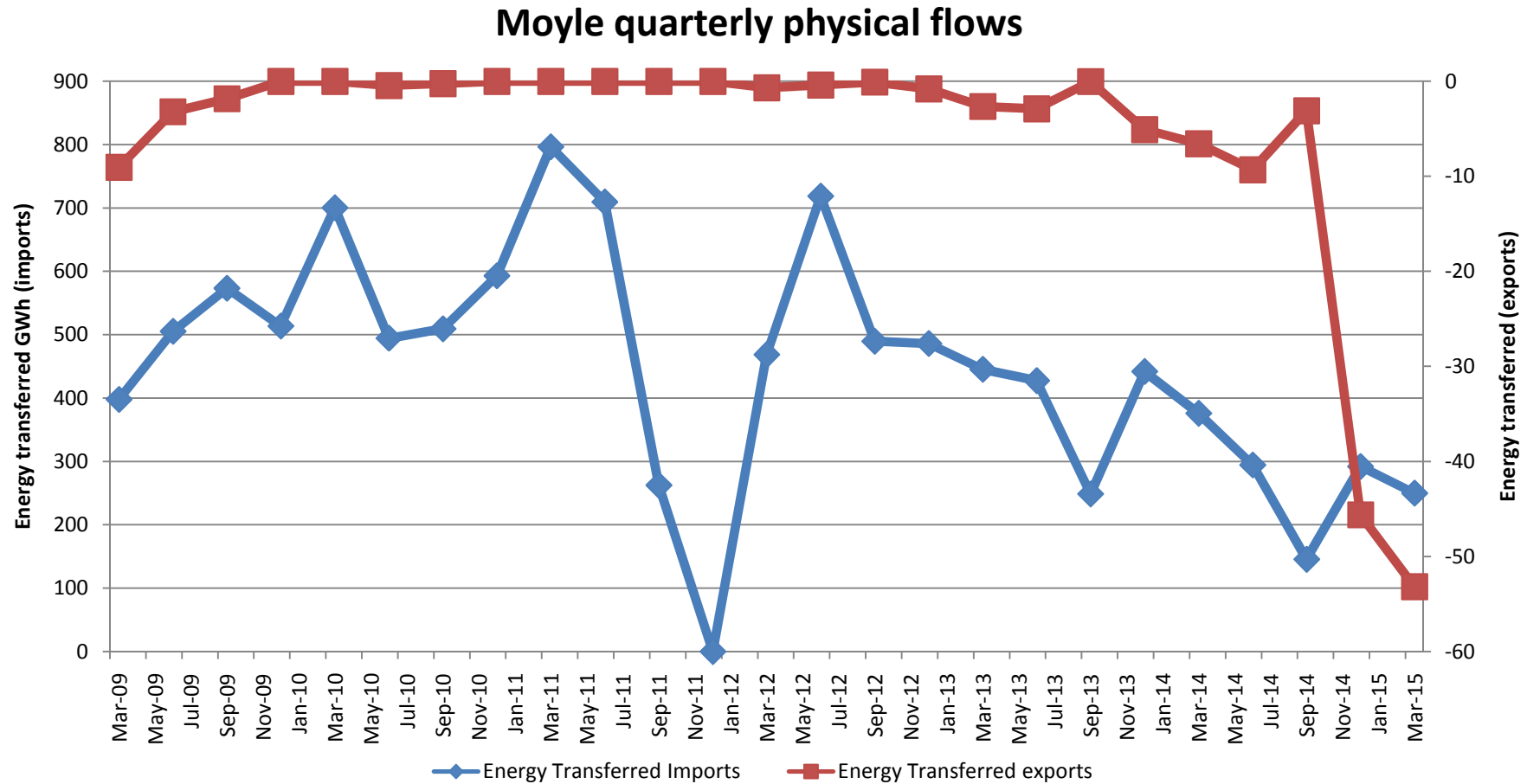
Moyle availability



Moyle availability

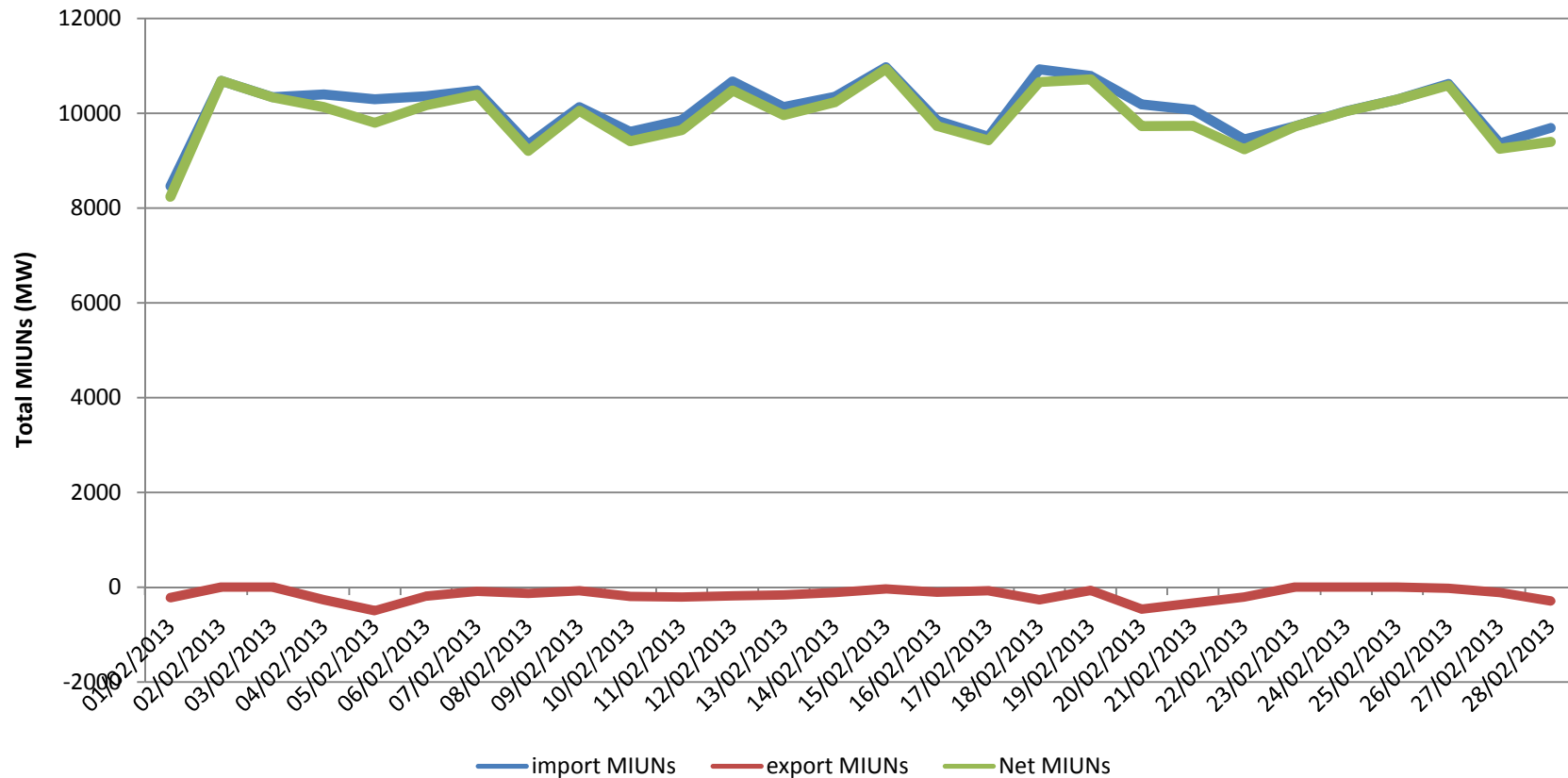


Moyle physical flows



Moyle commercial flows

Moyle MIUNs February 2013



Moyle commercial flows

Moyle MIUNs February 2015

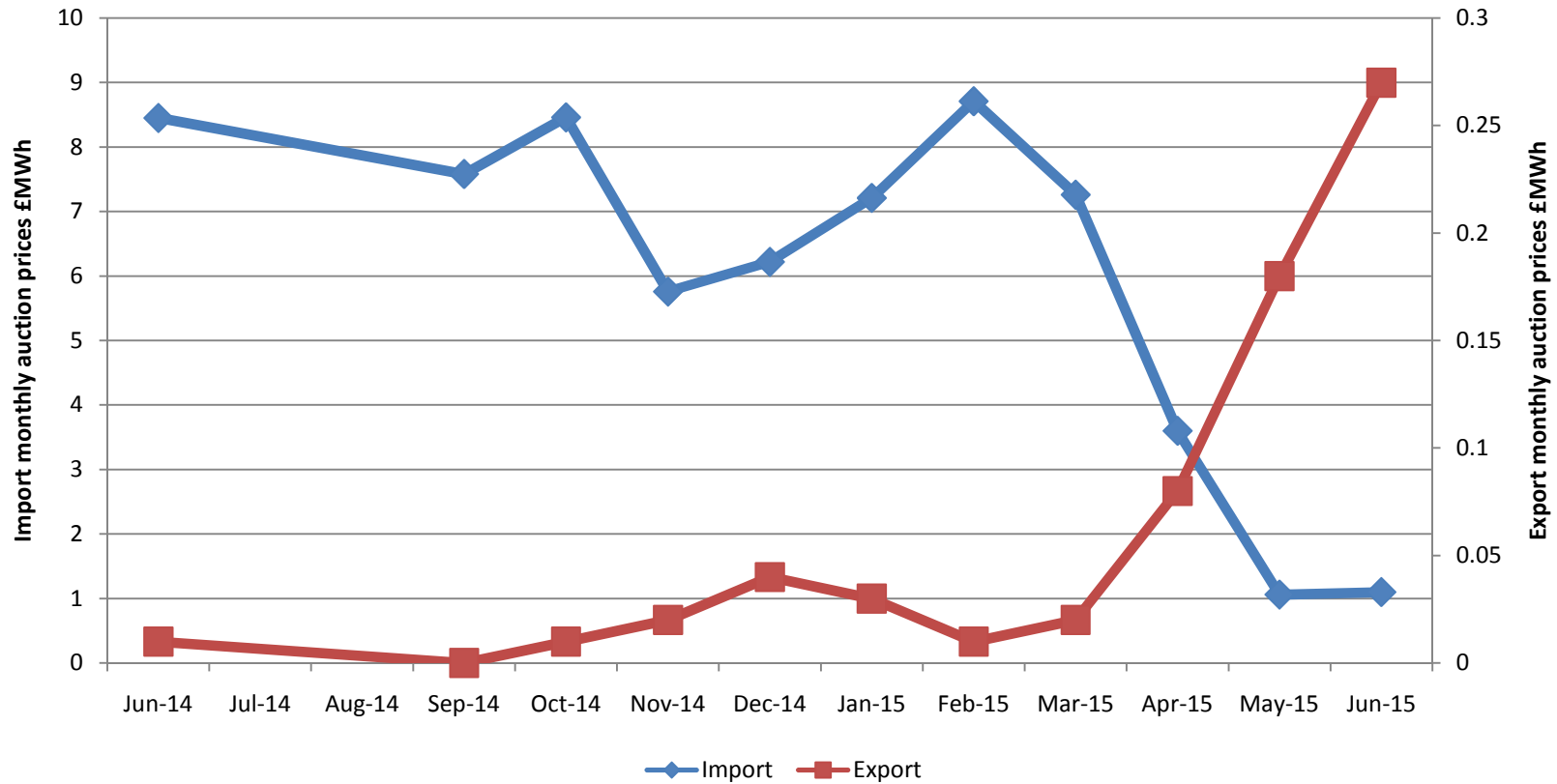


Moyle commercial flows

- Total MIUNs
 - Feb 2015 327,751MW
 - Feb 2013 286,917MW
- Physical flows reduced but trading activity up
- Imports reduced but exports substantially increased
- Import hedging, export arbitrage?

Moyle auction prices

Moyle monthly capacity auction prices



Summary



- Moyle asset performance has been strong (leaving cables aside)
- Physical flows trending down
- Commercial flows showing overall increased activity
- Auction prices showing volatility/sensitivity to market conditions



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Moyle Interconnector Technical Update

Interconnector Users Forum

5 May 2015, Belfast

Stephen Hemphill
Group Operations Manager



Presentation Outline

- **Recap : Moyle Cable Faults History & Recovery Plan**
- **Recovery Plan Progress**
 - **Emergency Fall Back 250MW**
 - **Interim Solutions 500MW**
 - **Bipole Operation**
 - **Seabed Repair**
 - **Enduring Solution Return Conductor Cable Replacement**
- **South West Scotland Context**
- **Summary – Impact on Capacity & Availability**



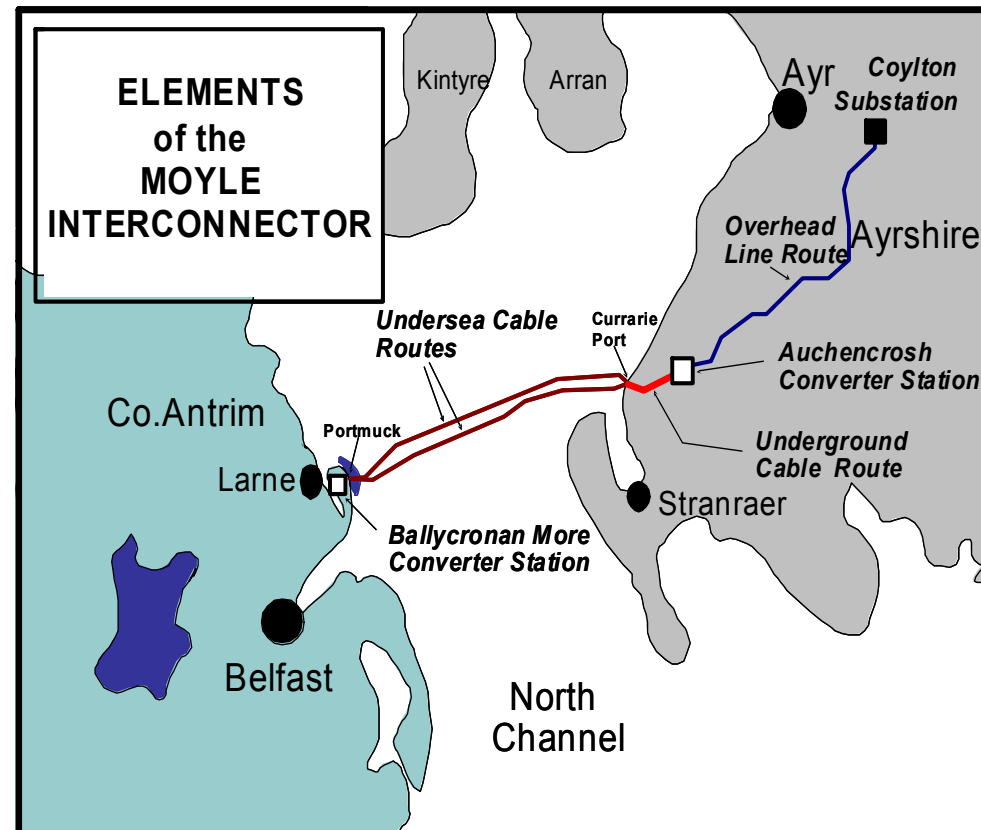
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Fault History & Reason for Projects

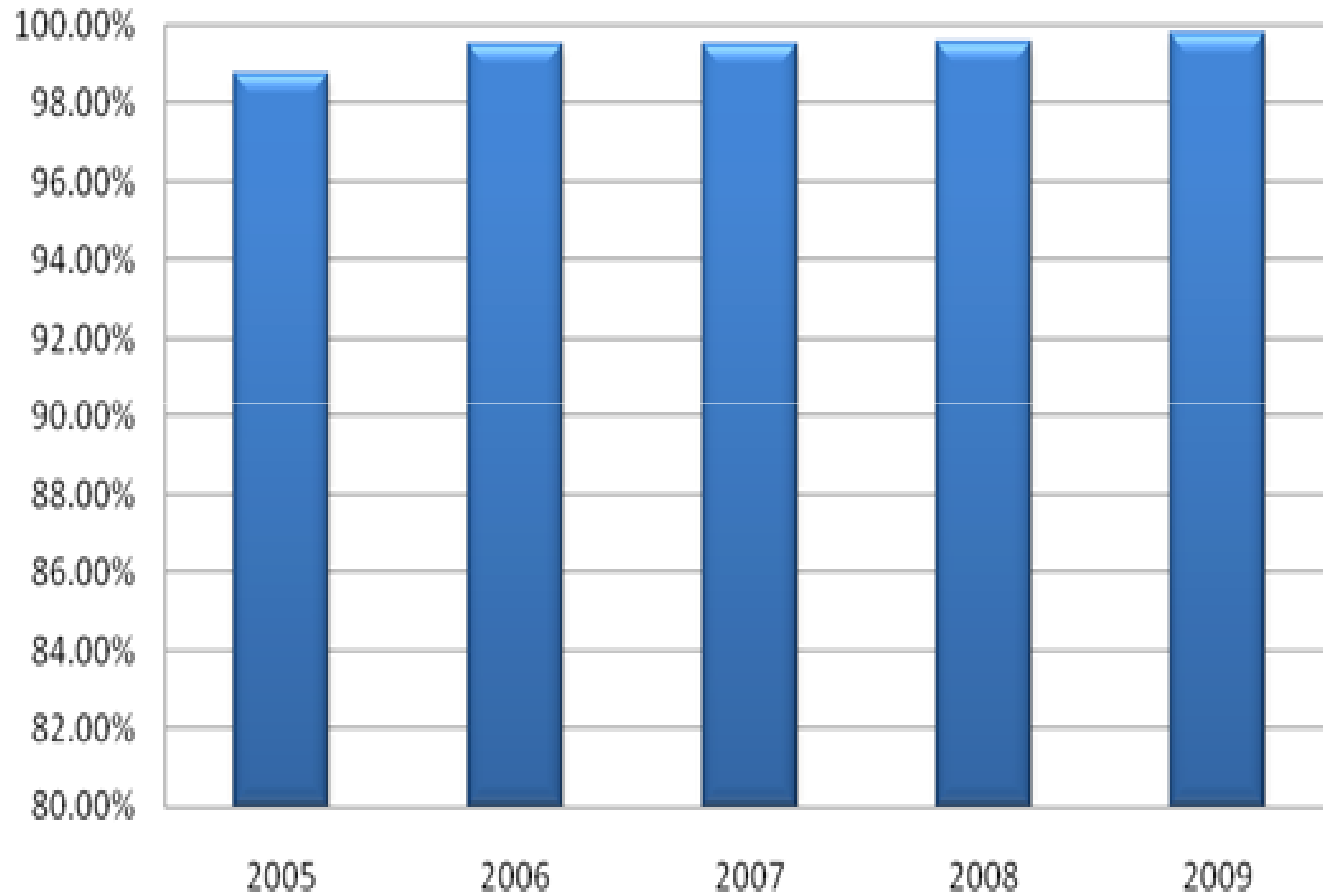


Moyle Interconnector (Electricity Business)

- Links the electricity grids of Northern Ireland and Scotland through two submarine cables
- Cables run between converter stations at Ballycronan More in Islandmagee, County Antrim and Auchencrosh in Ayrshire
- The link has a capacity of 500MW (approx 30 % of Northern Ireland's energy requirements)
- Submarine DC cable system consisting of two separate 250MW cables running the 62km route length
- In NI, underground cable system between Ballycronan More and Port Muck
- In Scotland, underground cable system between Currarie Point and Auchencrosh

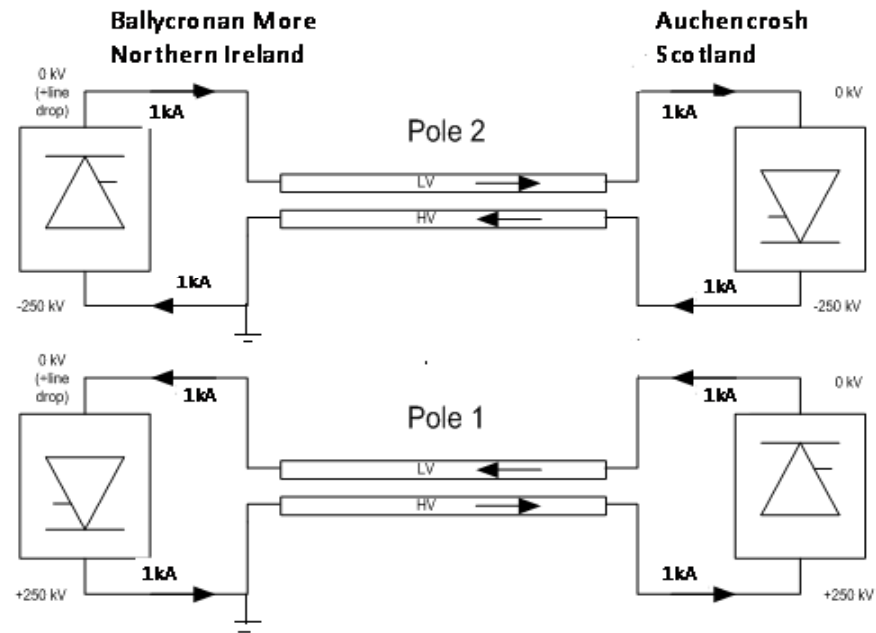
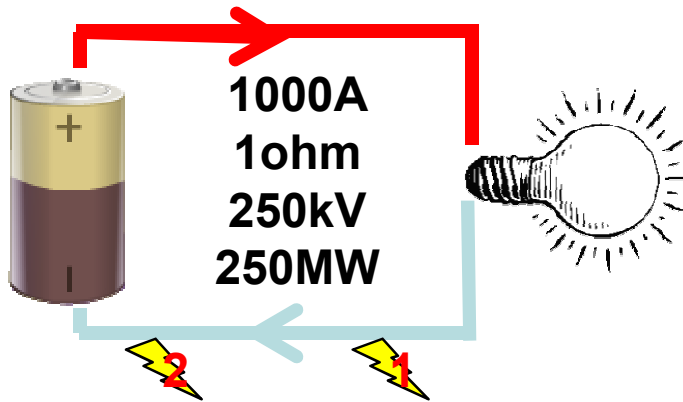
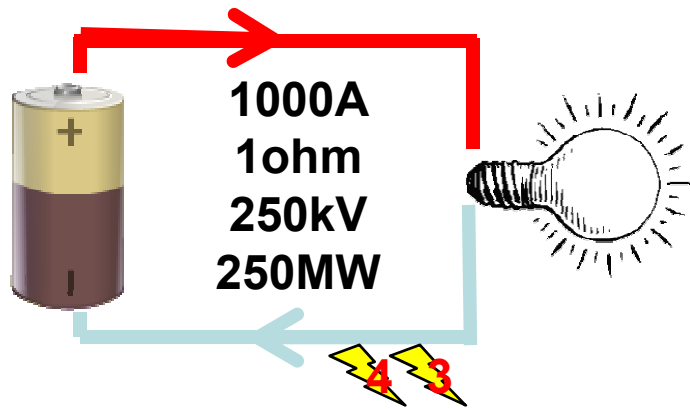


Moyle Interconnector Availability 2005-2009

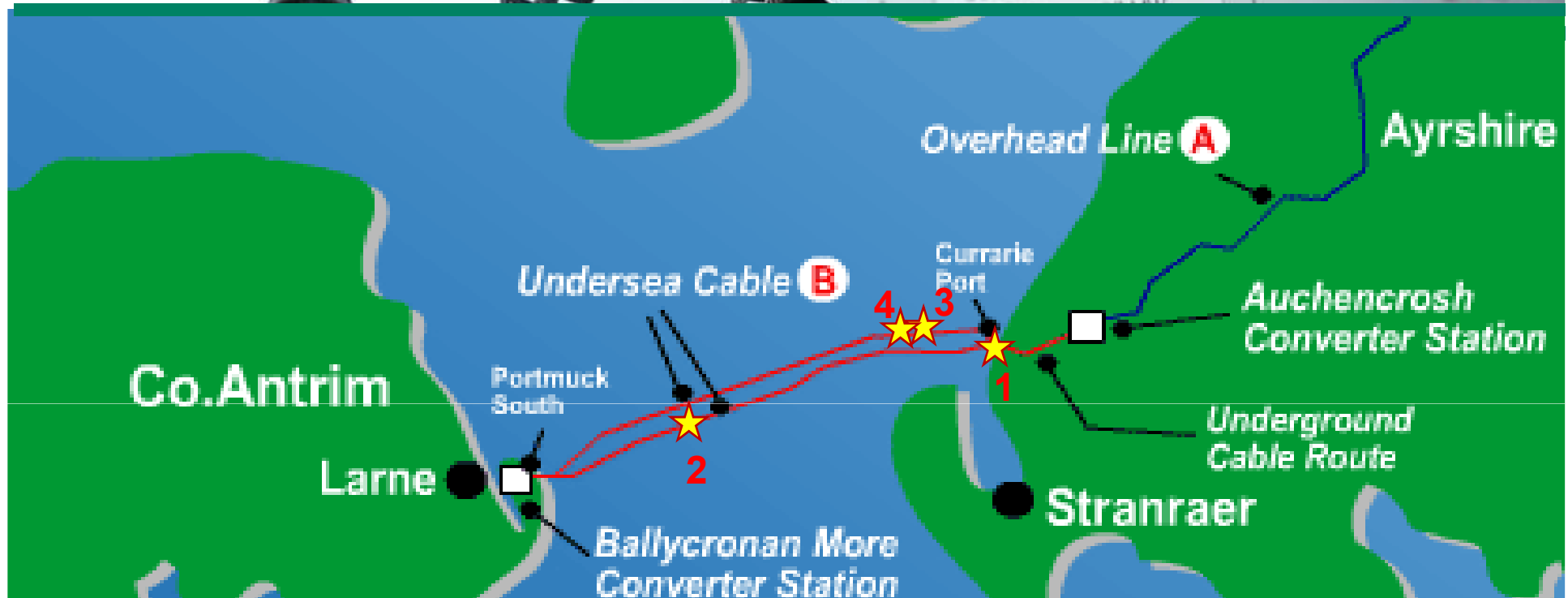




High Voltage Conductor & Low Voltage Return



Fault Overview



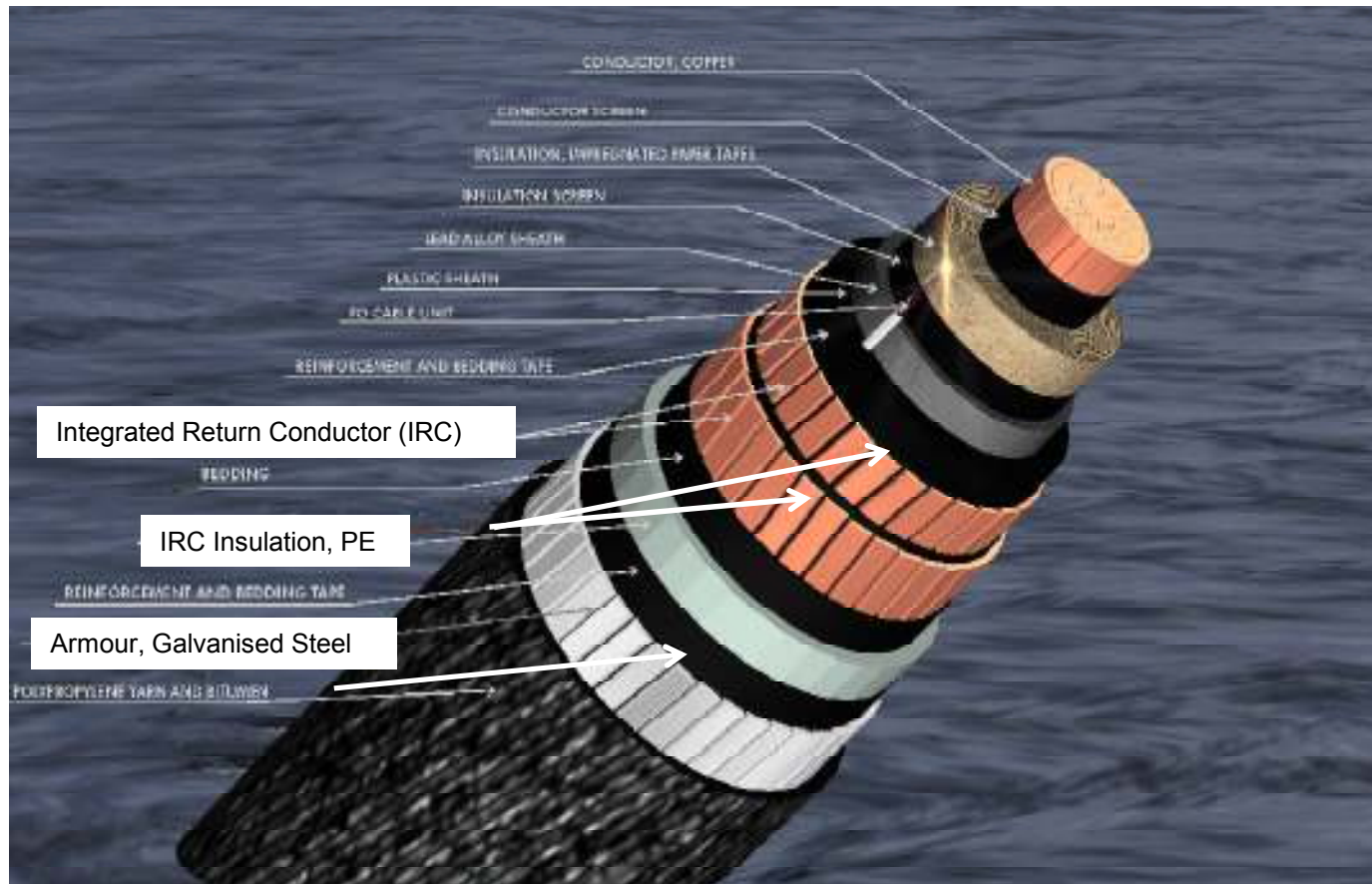
1. 09/09/10 Land based fault, south cable, pole 1, returned 18/11/10
2. 26/06/11 Subsea 150m depth buried/rock dumped, south cable, Pole 1, returned 18/01/12
3. 24/08/11 Subsea 20m depth buried in silt, North cable, Pole 2, returned 14/02/12
4. 23/06/12 Subsea 25m depth buried in silt, North cable, Pole 2, yet to be returned to service

A 500MW Single Circuit

B 2 x 250MW Dual Monopole



Nature of Faults – IRC Insulation





Nature of Recent Faults – IRC Insulation





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Recovery Plan



Recovery Plan : April 2013

- Engineer and prove an the ability to use two healthy HV conductors to reconfigure a single monopole capable of 250MW – with no reliance on fault prone integrated return conductor insulation – **Emergency Fall Back** in event of two concurrent faults in IRC on both poles
- Specify, procure & gain consent to replace the fault prone integrated return conductors with **new metallic return conductor (MRC) cables** (estimated possible 2018)
- Develop two possible “Interim Solutions” to temporarily return the technical capacity of Moyle back to 500MW
 - **Bipole Operation**
 - **Seabed Repair** – starting with pinpointing the fault !

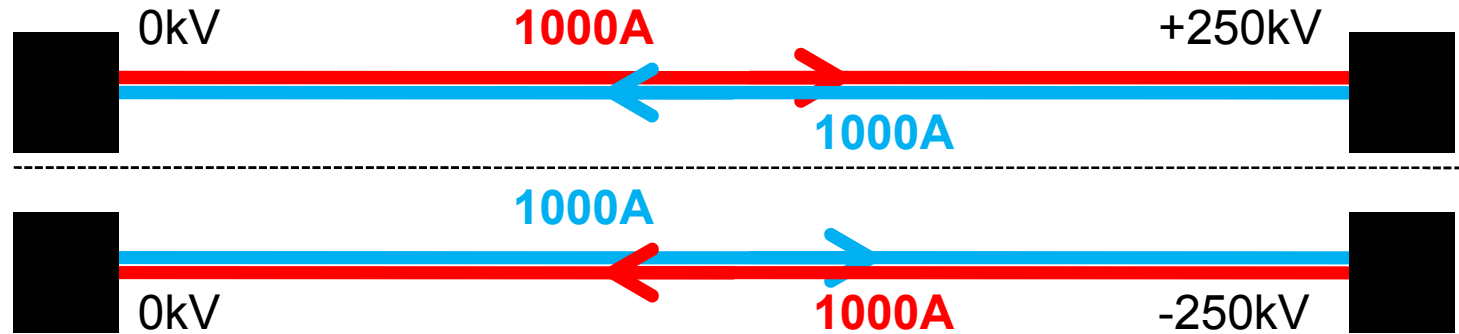


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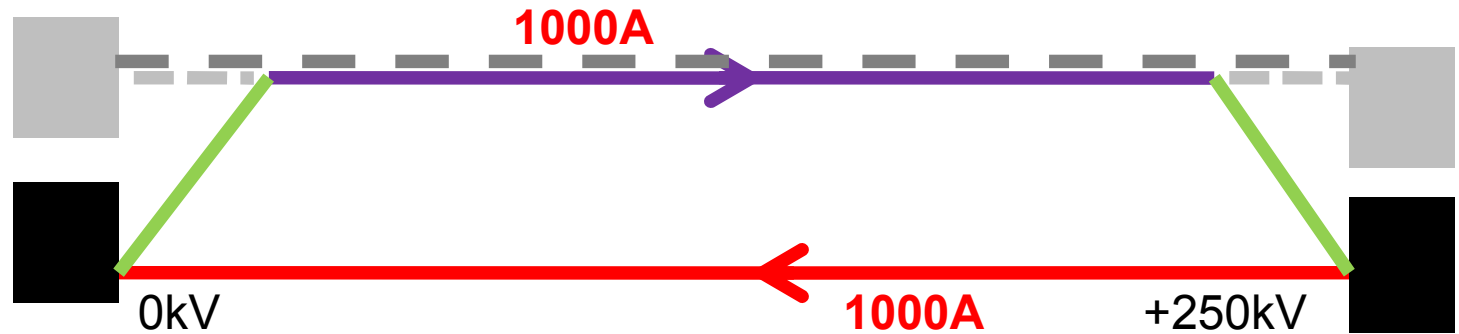
Emergency Fallback @ 250MW & Bipole Operation @ 500MW



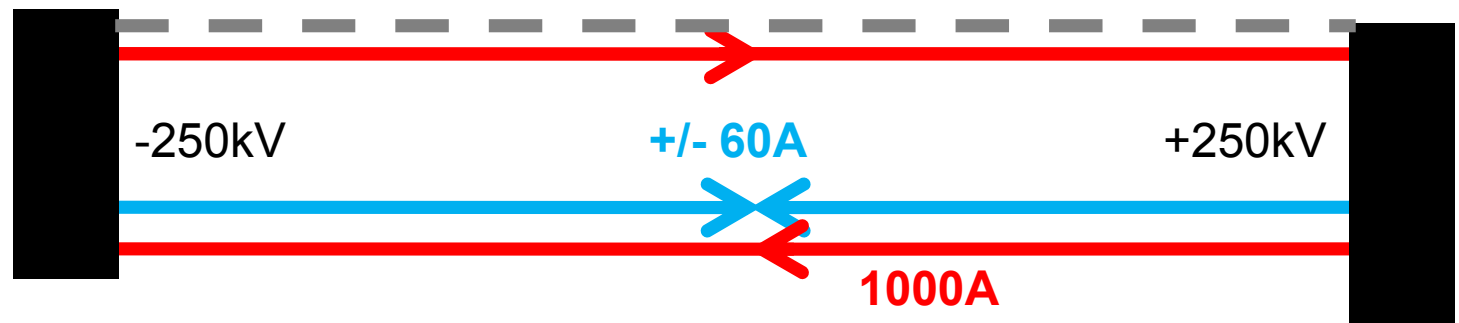
Dual Monopole
IRC cables
500MW



Emergency
Fallback
250MW

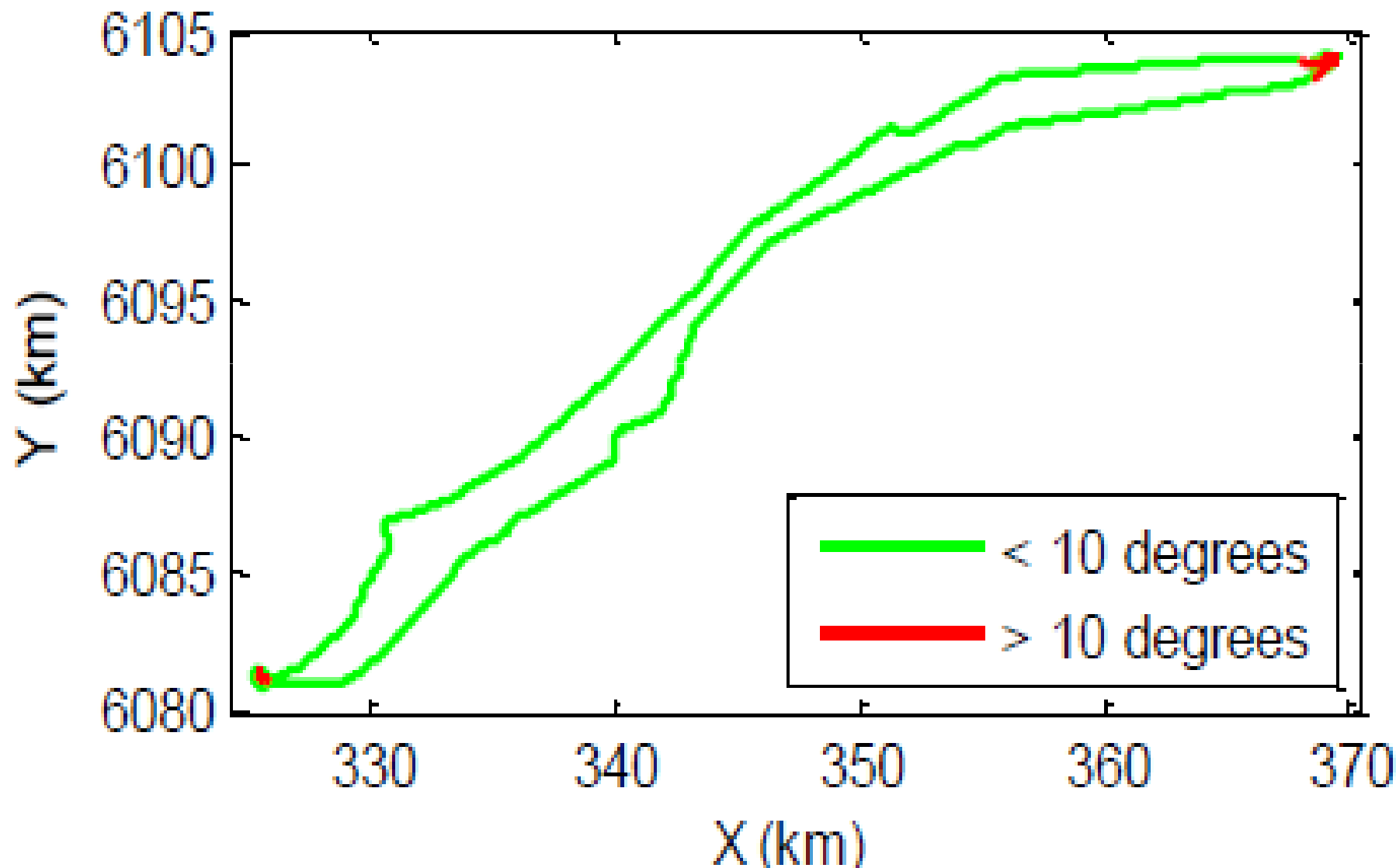


Bipole with
single MRC
500MW

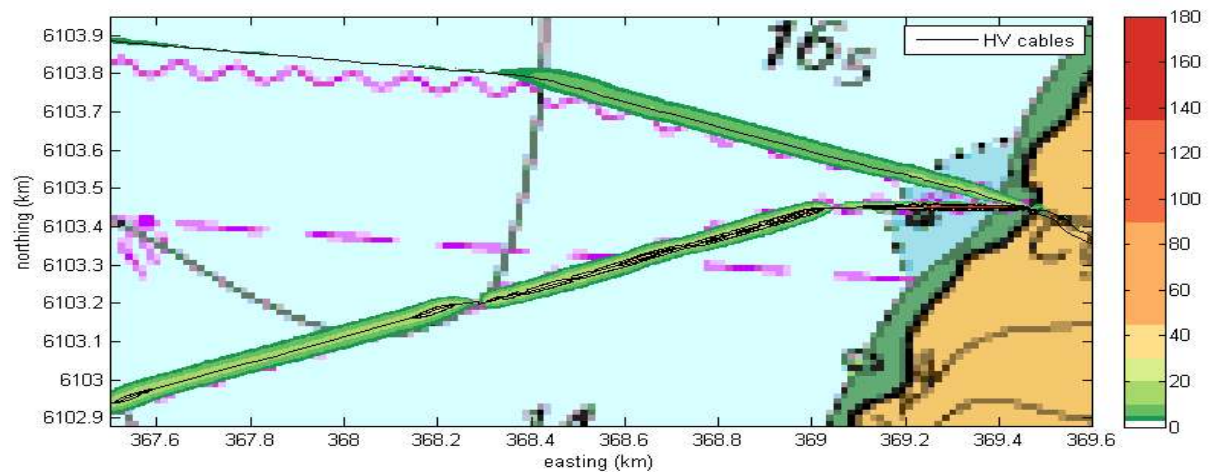
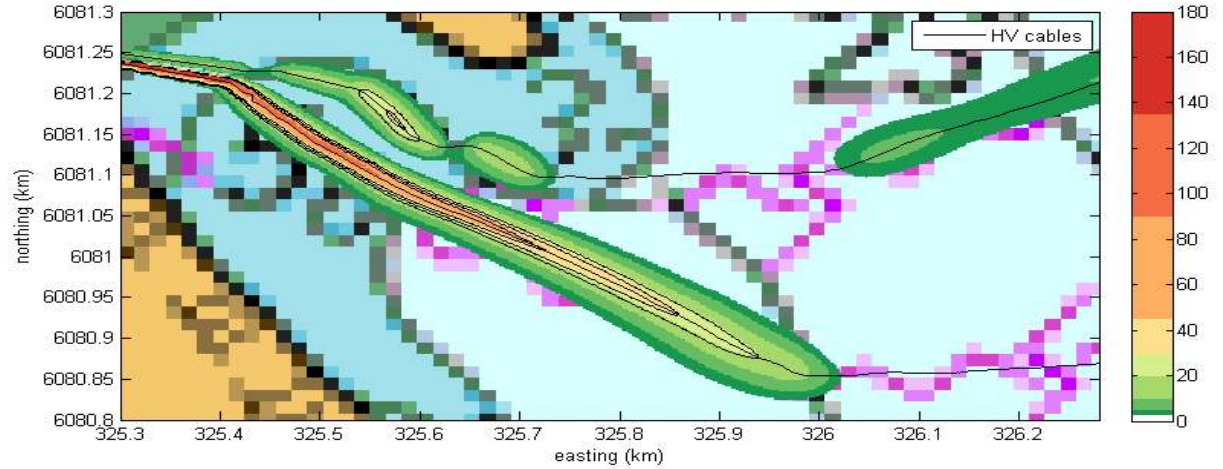
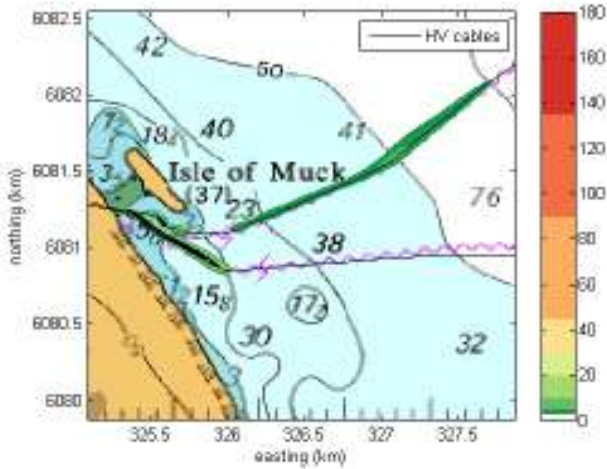


Replace LV Conductors Target Programme

Compass deviation, threshold of 10 degrees



Compass Deviation : Without Mitigation





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Seabed Repair

SEA

LAND

Western "Hairpin"
Repair Joint 2011

Eastern "Inline"
Repair Joint 2011

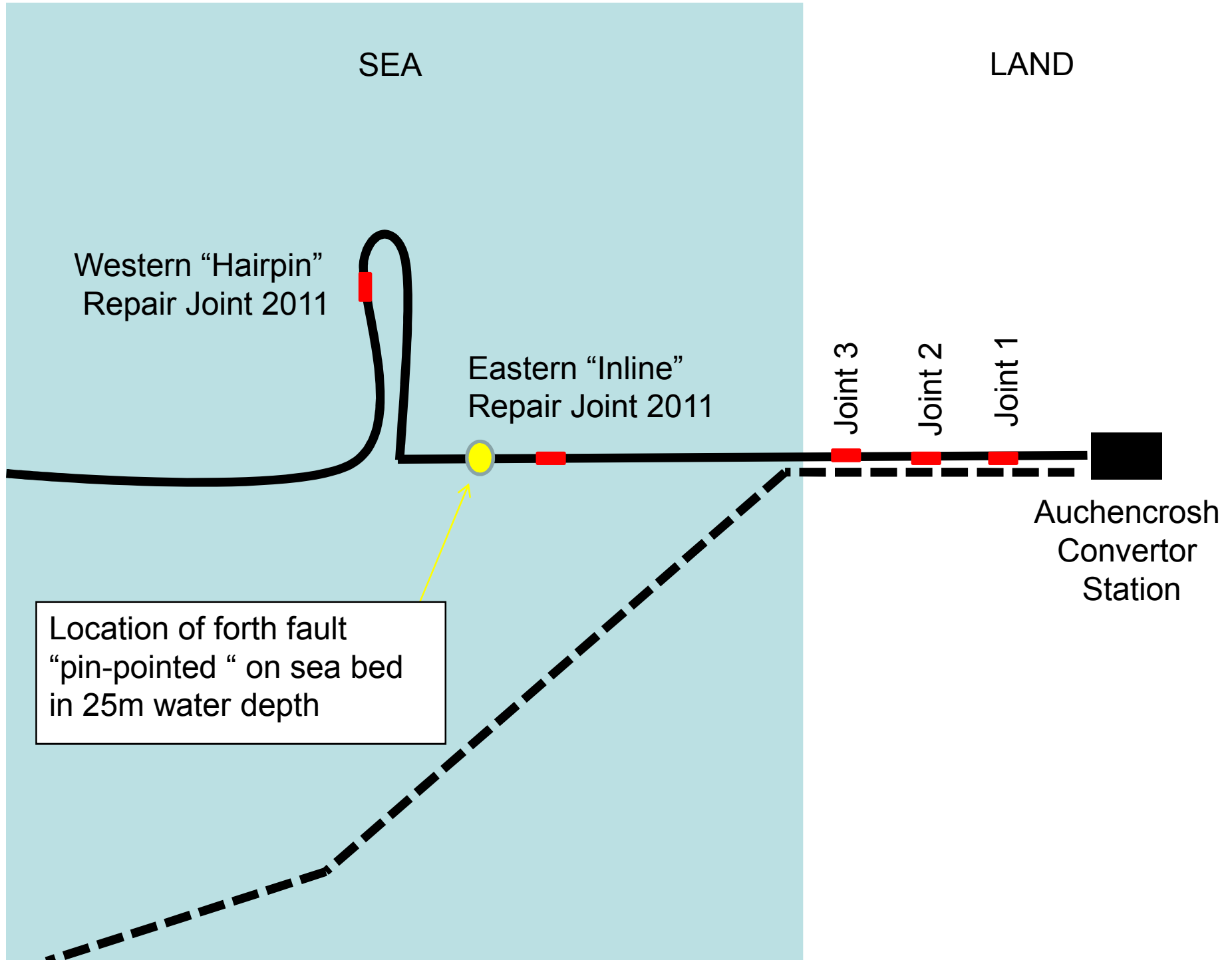
Joint 3

Joint 2

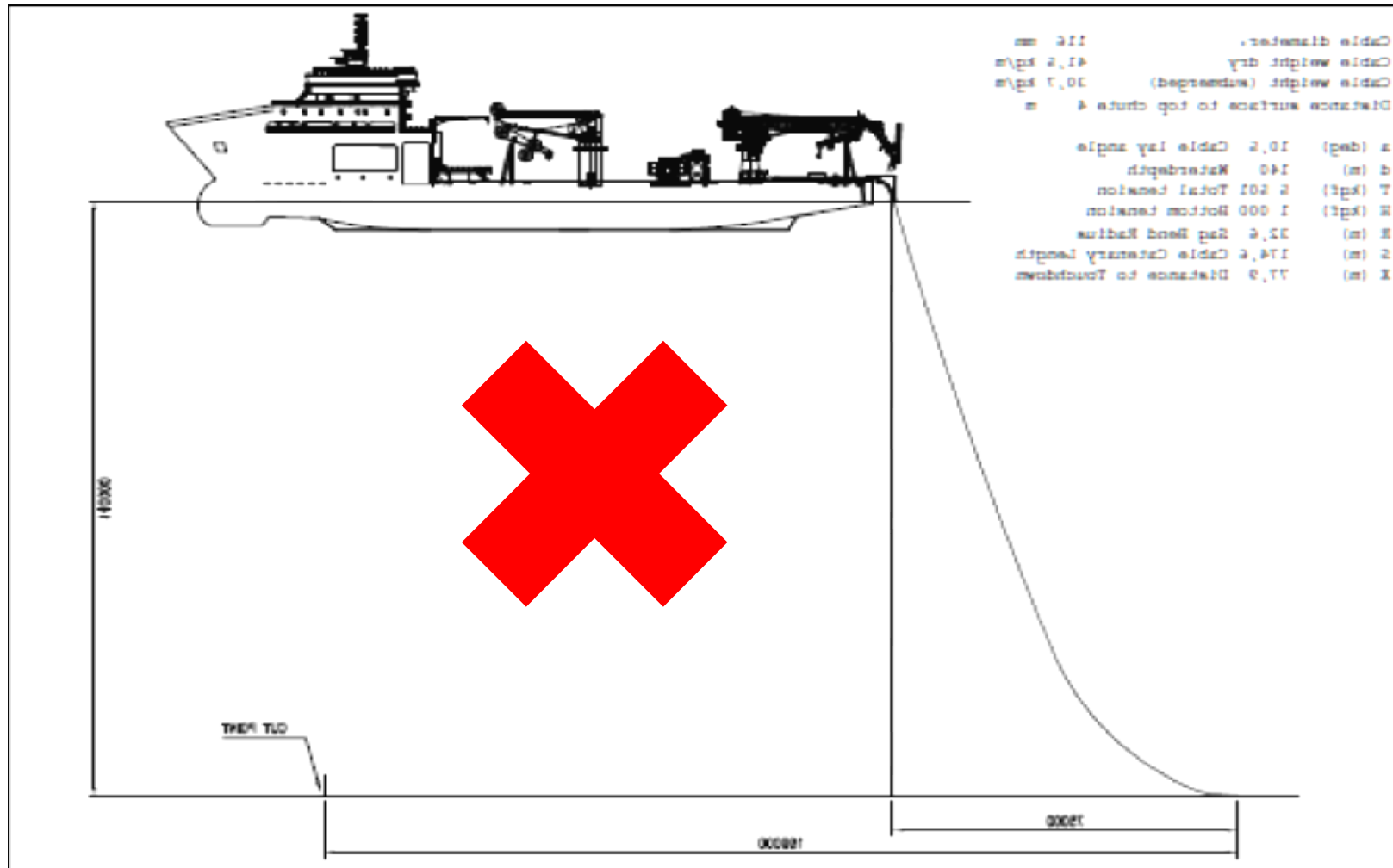
Joint 1

Auchencrosh
Convertor
Station

Location of forth fault
"pin-pointed" on sea bed
in 25m water depth



Conventional Repair

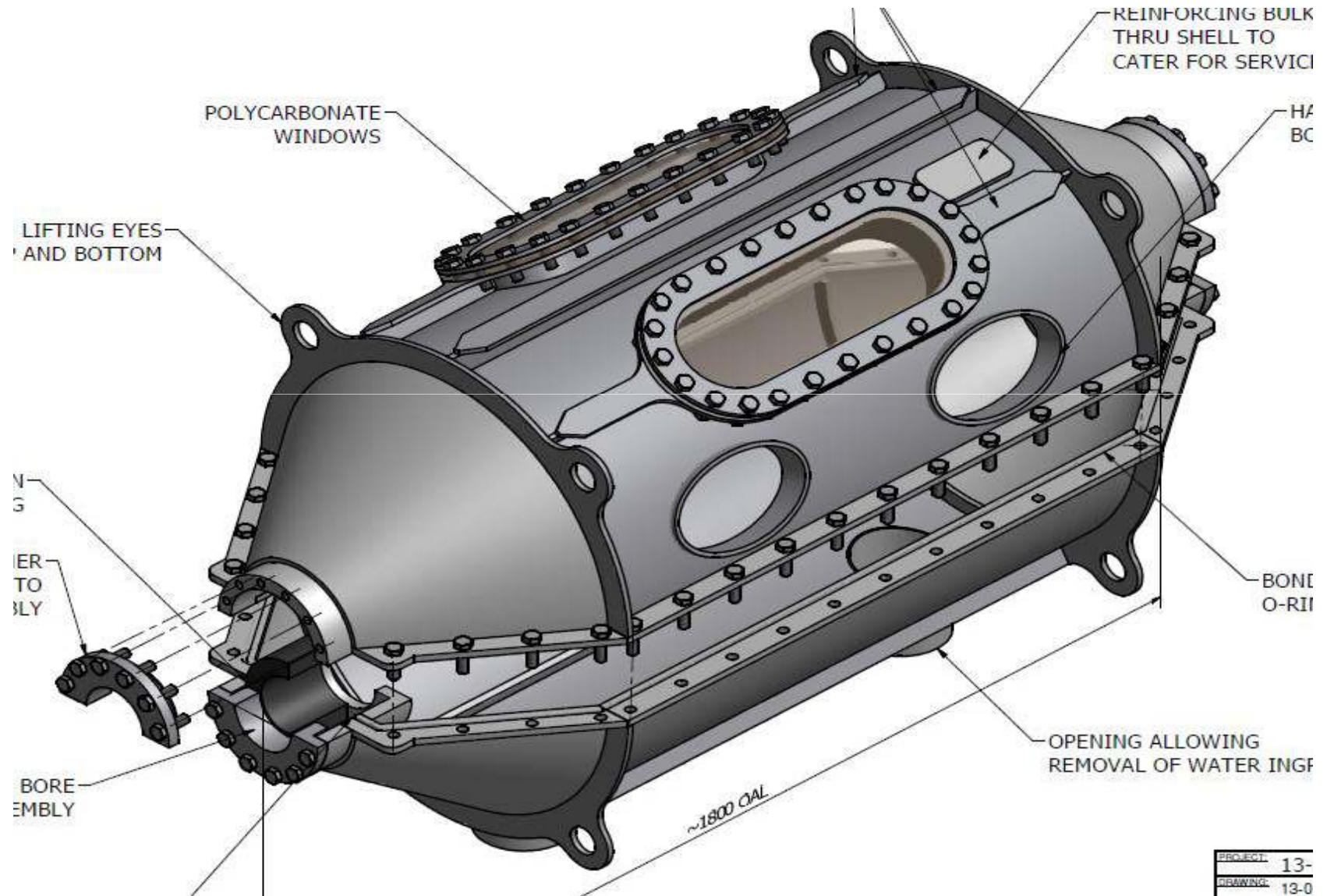


Seabed Repair : In Situ Joint Wrap





Seabed Repair : Habitat Concept



PROJECT: 13-
DRAWING: 13-0

Video

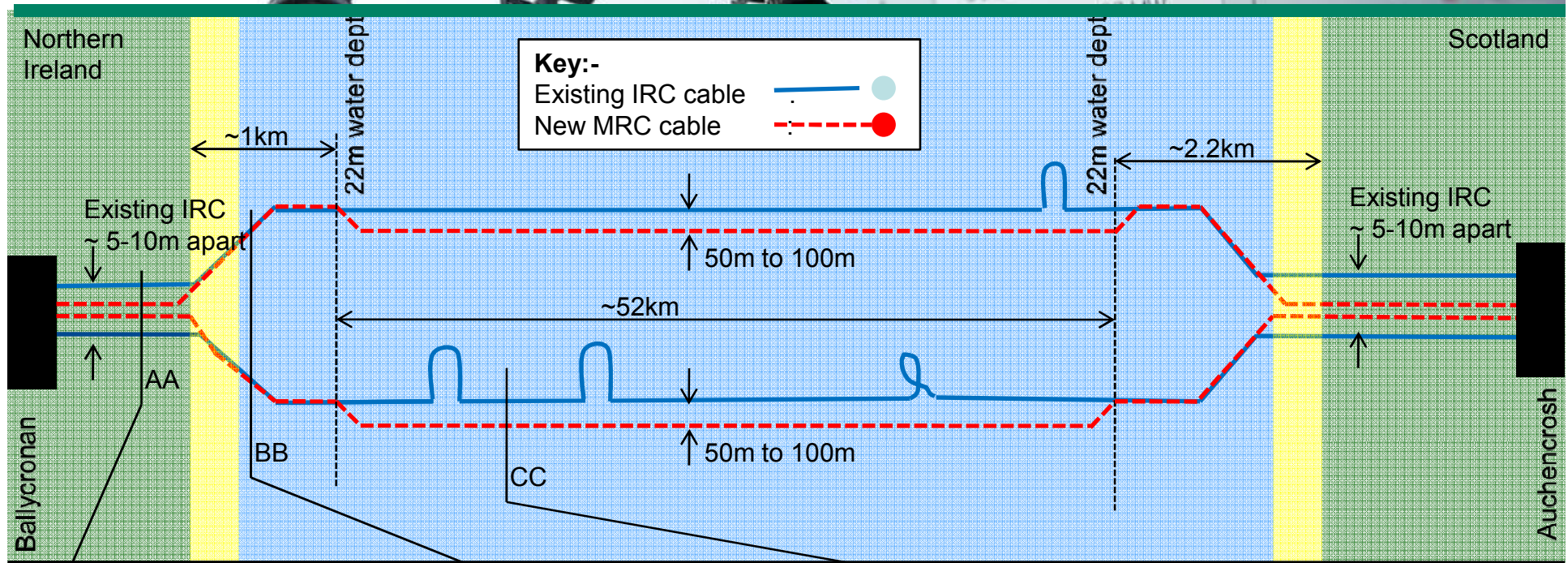


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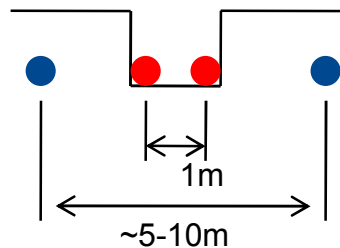
Enduring Solution

Replacement Return Conductors

Original Solution : "Station to Station"



Section AA : Onshore Section



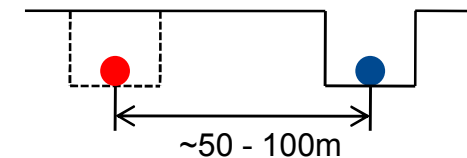
Section BB: Nearshore Section



Co-trenching

New MRC cables laid in the existing trench touching the existing IRC cables to minimise EMF effects in shallow water out to 22m depth

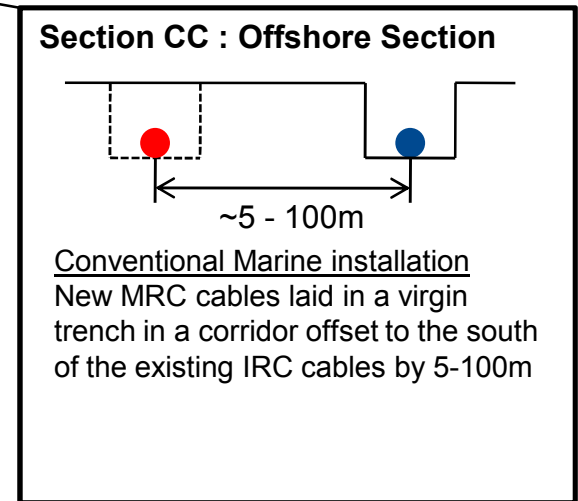
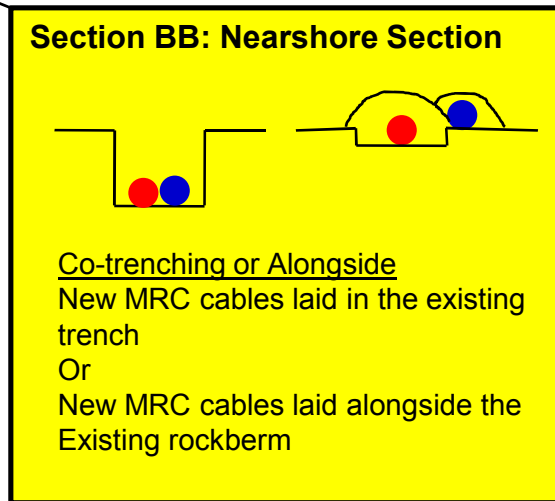
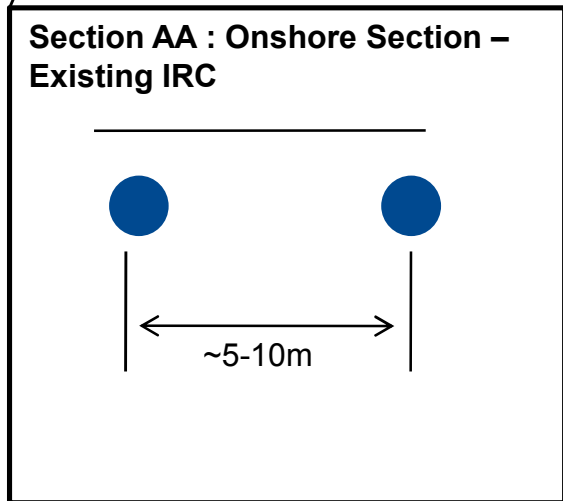
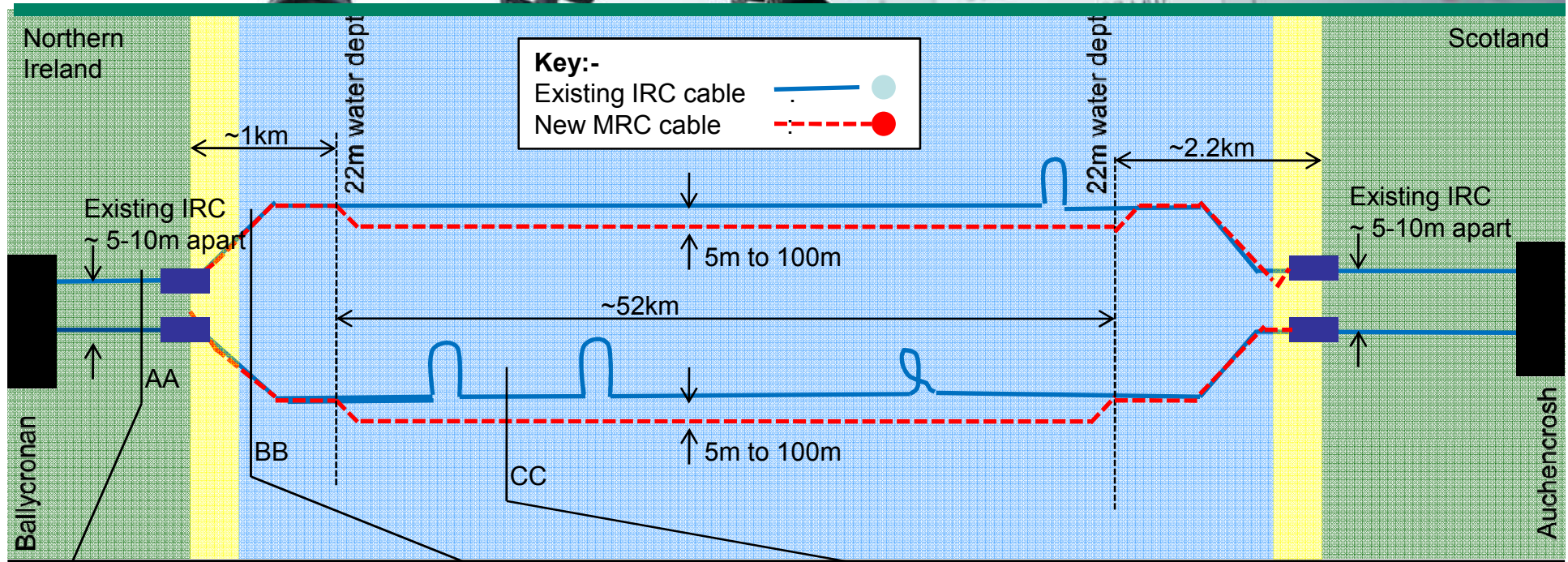
Section CC : Offshore Section



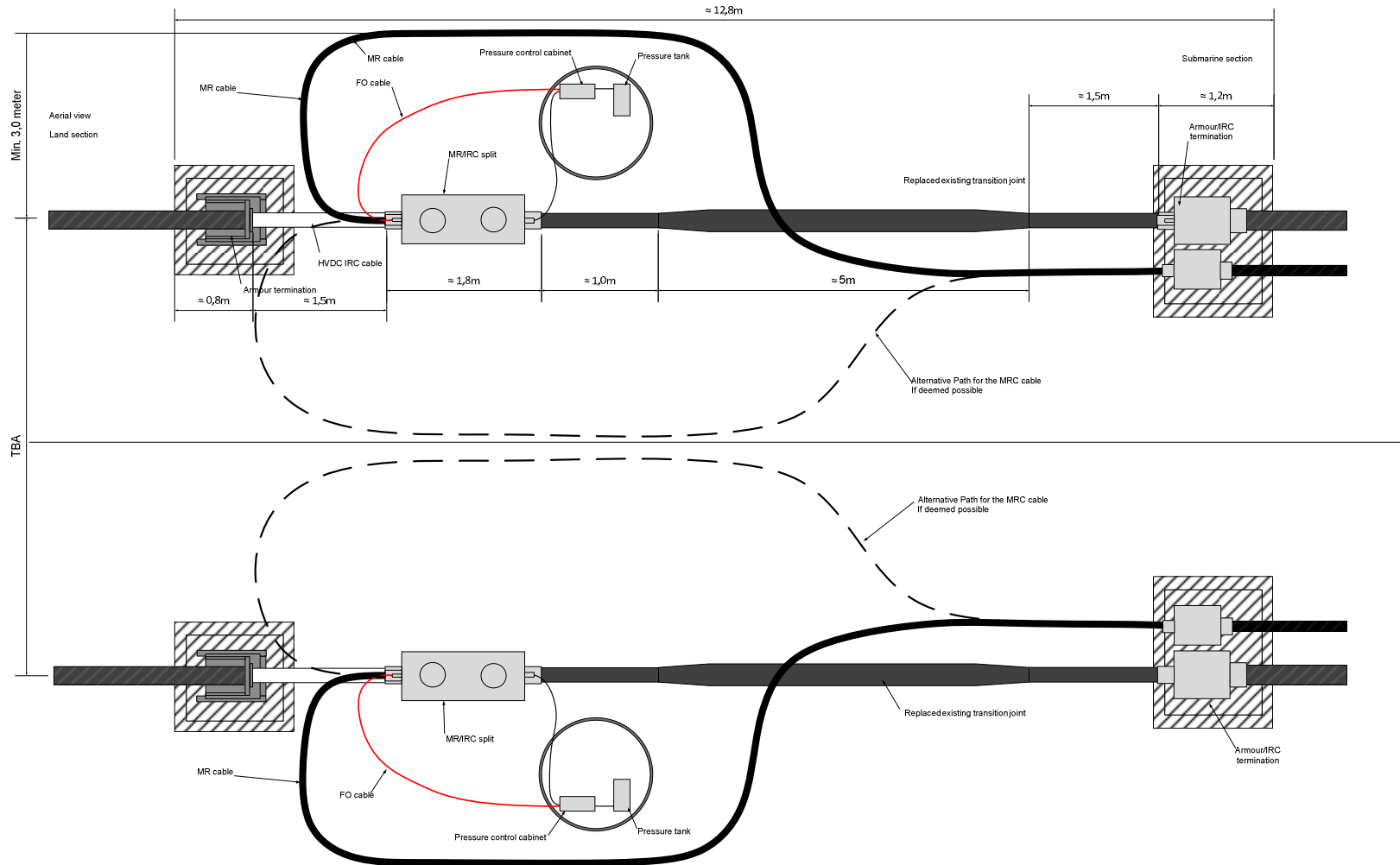
Conventional Marine installation

New MRC cables laid in a virgin trench in a corridor offset to the south of the existing IRC cables by 50-100m

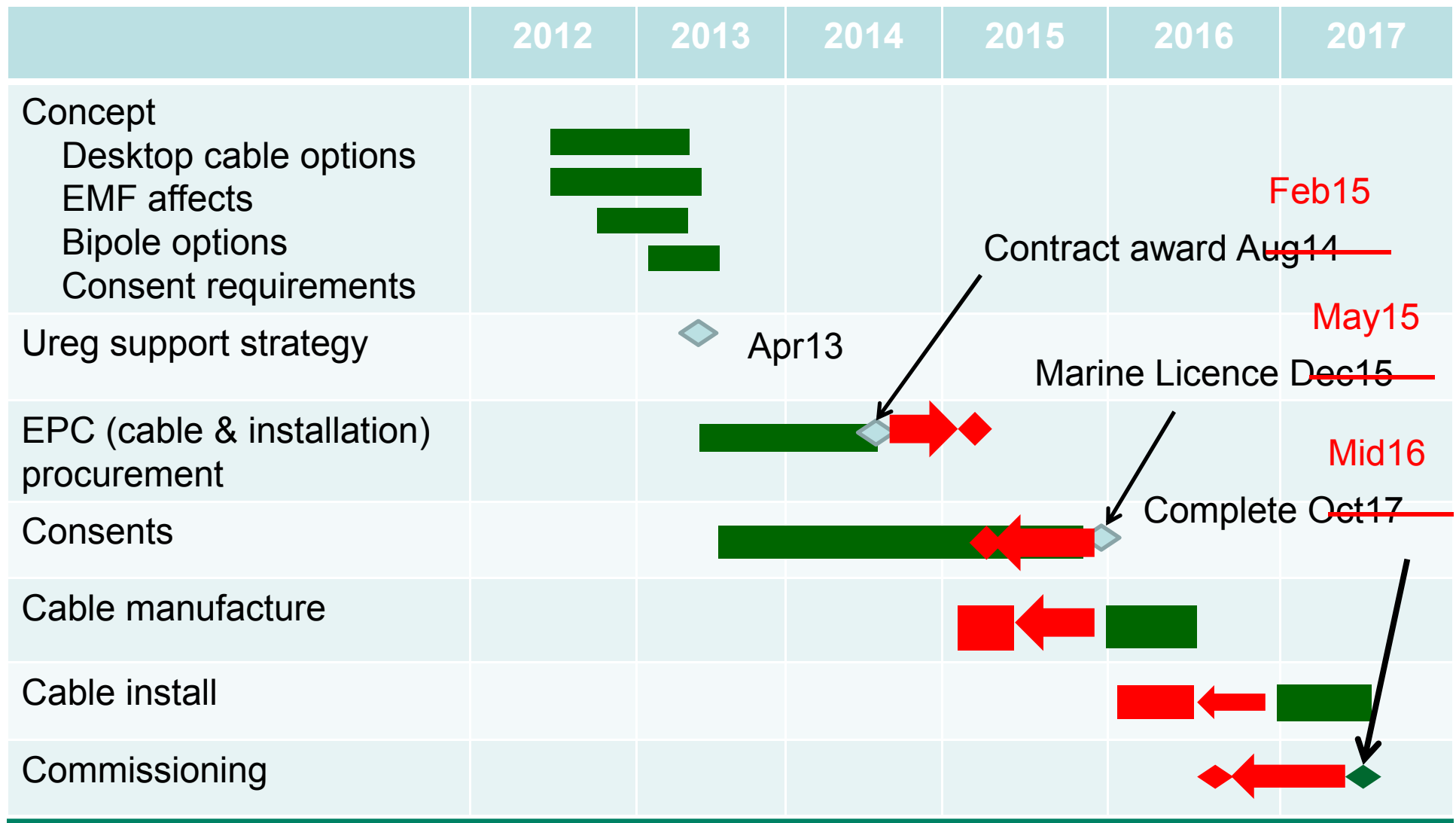
“Beach to Beach” Solution



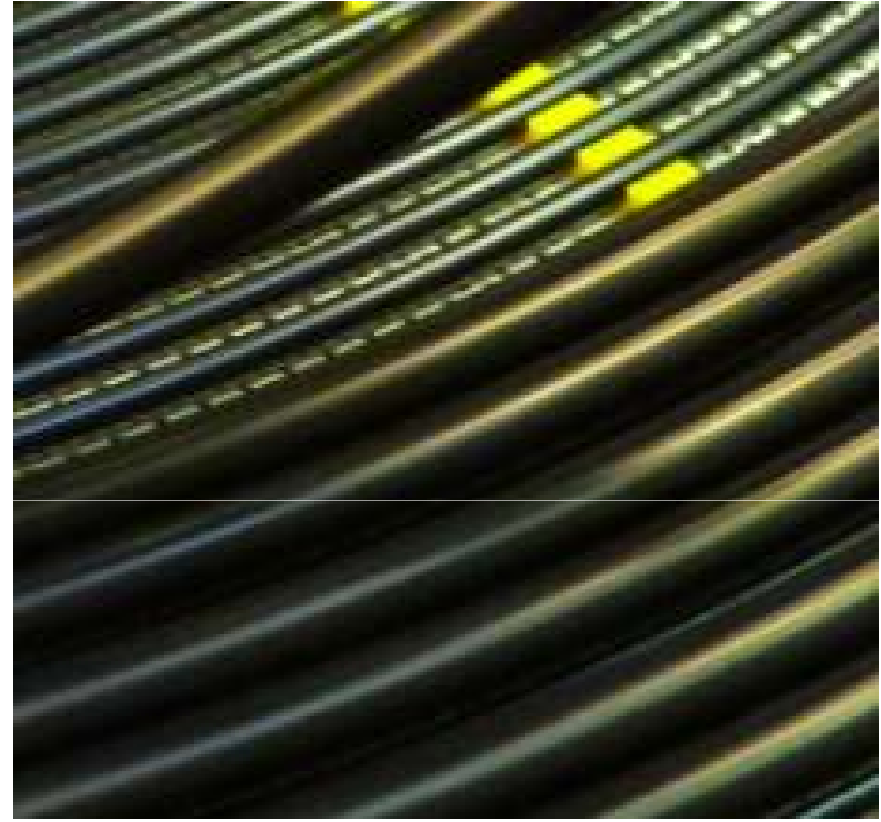
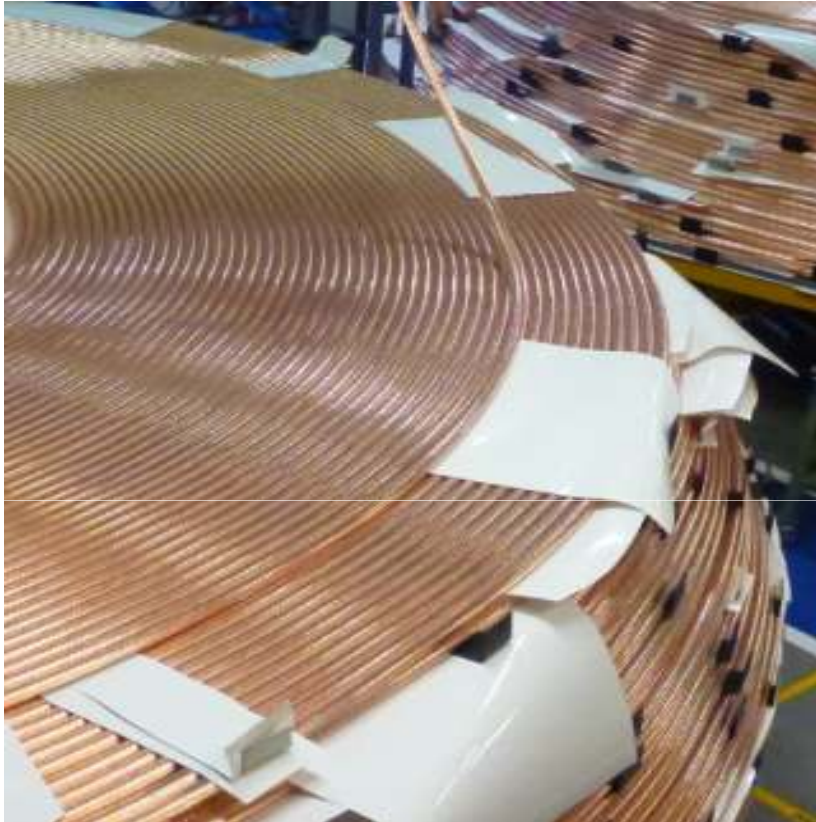
Transition Joint at Landfall



Replace LV Conductors Target Programme



Cable Manufacture



MRC conductor (left) and first part of extruded MRC (right)

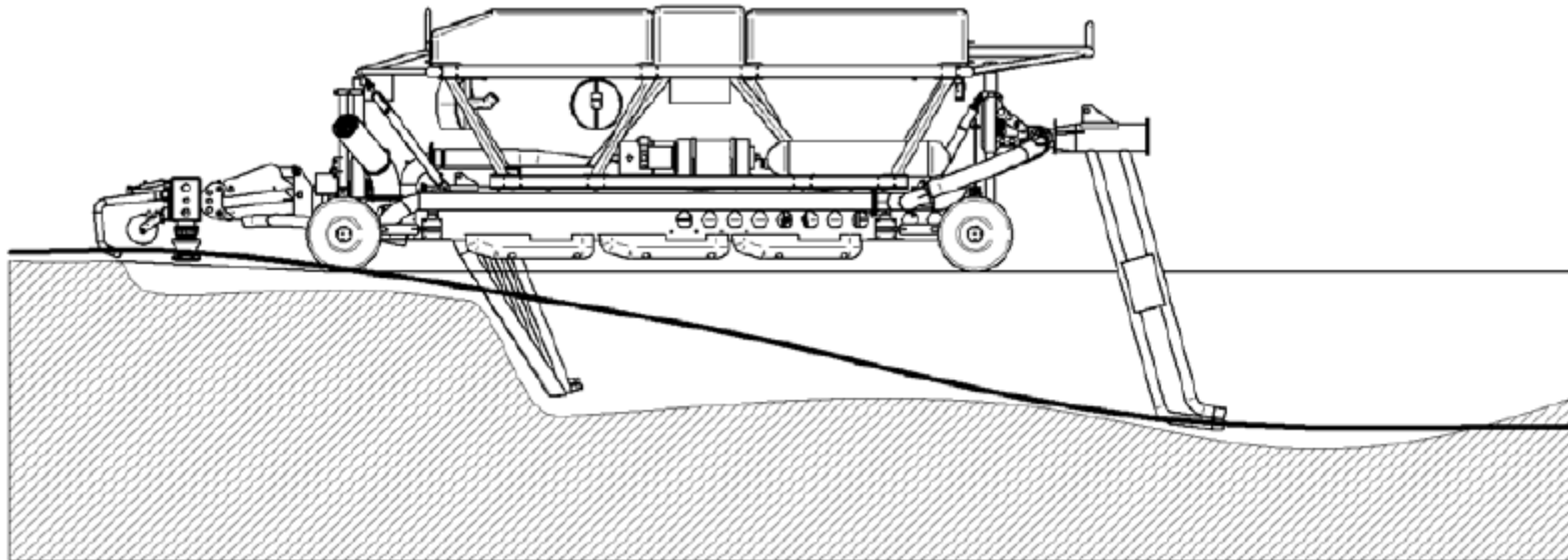
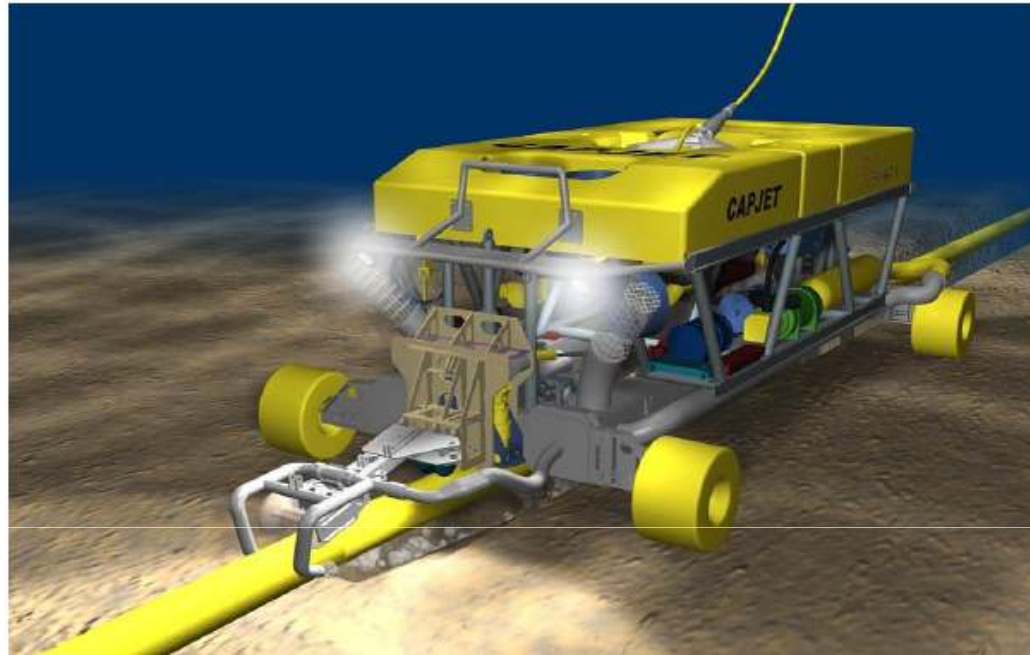
Cable Lay Vessel : Nexans Skagerrak



Protection by Burial on Seabed



Burial by Capjet



Landfall Preparation



Cable "Float-In"





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South West Scotland Context

Coylton – Marks Hill : 6 month outage 2016

Coylton

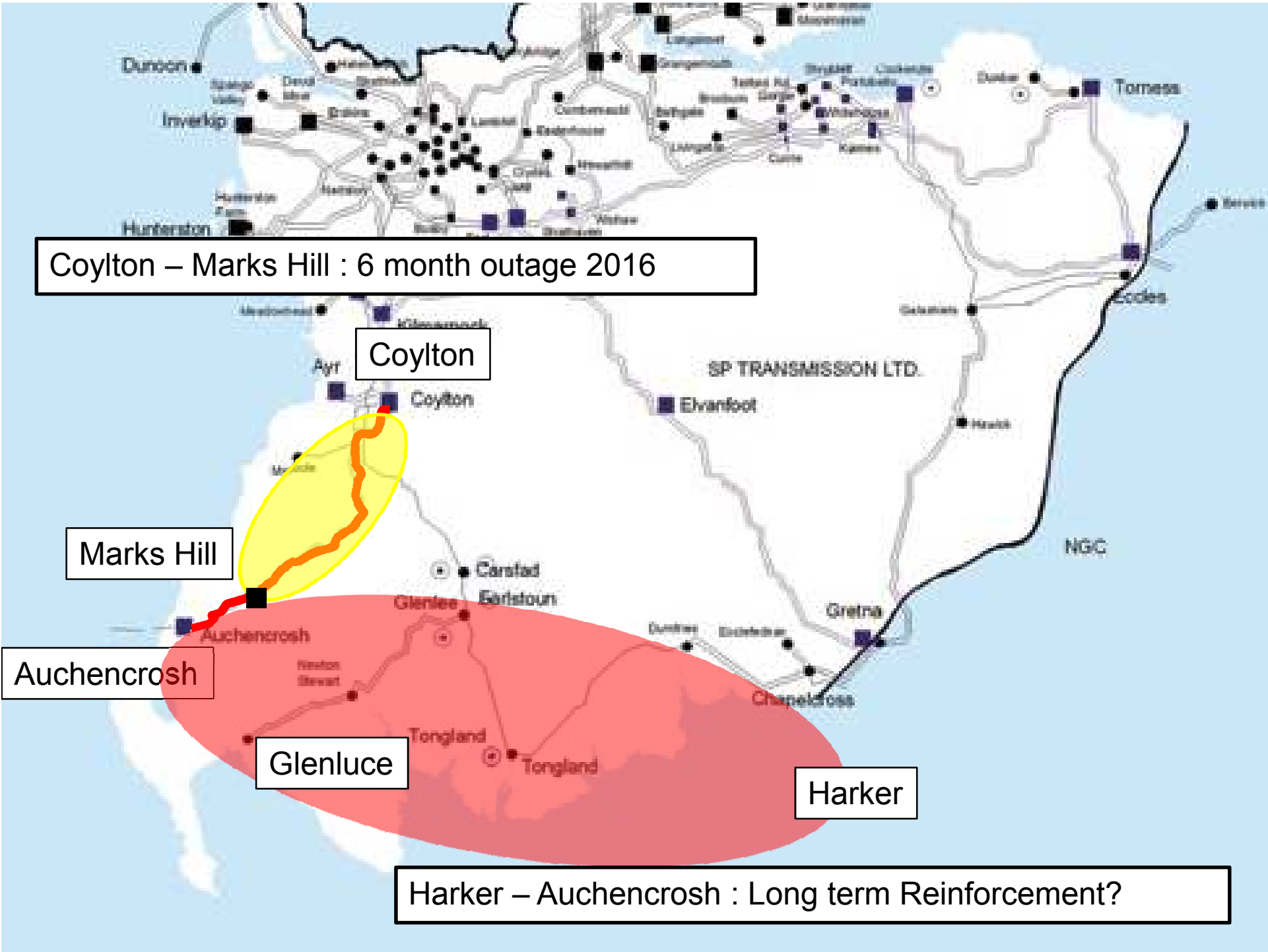
Marks Hill

Auchencrosh














Glenluce

Harker

Harker – Auchencrosh : Long term Reinforcement?



Replacement MRC Cables Target Programme

	Q1 2015	Q2 2015	Q3 2015	Q4 2015	Q1 2016	Q2 2016
Pre-Installation Survey						
Consents		 May15				
North Cable						
Manufacture						
Type Test			 Jul15			
Installation						
Testing & Commissioning						 Dec15
South Cable						
Manufacture						
Installation						
(AUC-COY Outage)						
Testing & Commissioning					Either Mar16 or Oct16	 



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Summary / Q&A

Summary



Solution	Latest	Next Steps	Delivery
Emergency Fallback	<ul style="list-style-type: none">• Successfully tested Nov 13	<ul style="list-style-type: none">• None	<ul style="list-style-type: none">• In emergency• Guard Vessels
Bipole	<ul style="list-style-type: none">• Concept proven	<ul style="list-style-type: none">• Detailed studies on hold	-
Seabed Repair	<ul style="list-style-type: none">• Successful technique proven but unsuccessful attempt on 4th fault Q4 2014	<ul style="list-style-type: none">• None	<ul style="list-style-type: none">• Discounted for our cable
New MRC Cables	<ul style="list-style-type: none">• Manufacture ongoing• Installation starts Q3 2015	<ul style="list-style-type: none">• Marine Licence• Type test cable	<ul style="list-style-type: none">• Mid 2016
NG Works	<ul style="list-style-type: none">• NG require long outages single circuit AUC-COY 2016	<ul style="list-style-type: none">• Coordinate programmes• SW reinforcement	<ul style="list-style-type: none">• 31st Mar 2016 – 30th Sep 2016• 2022?

EWIC/Moyle User Forum

EWIC Asset Management Update

06/05/2015



EWIC – Asset Management



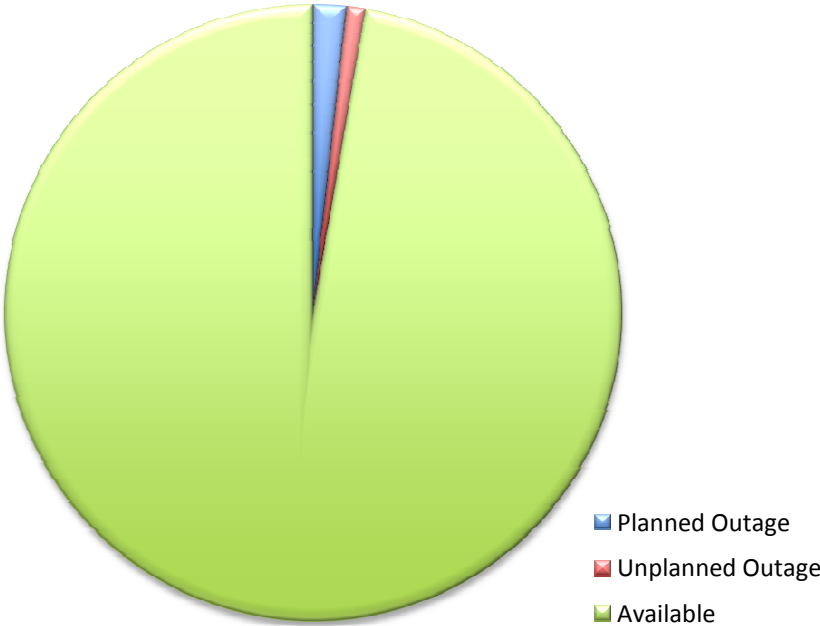
Contents

- Asset Performance 2014
- Asset Performance 2015
- Future Works



EWIC Performance 2014

EWIC Availability 2014



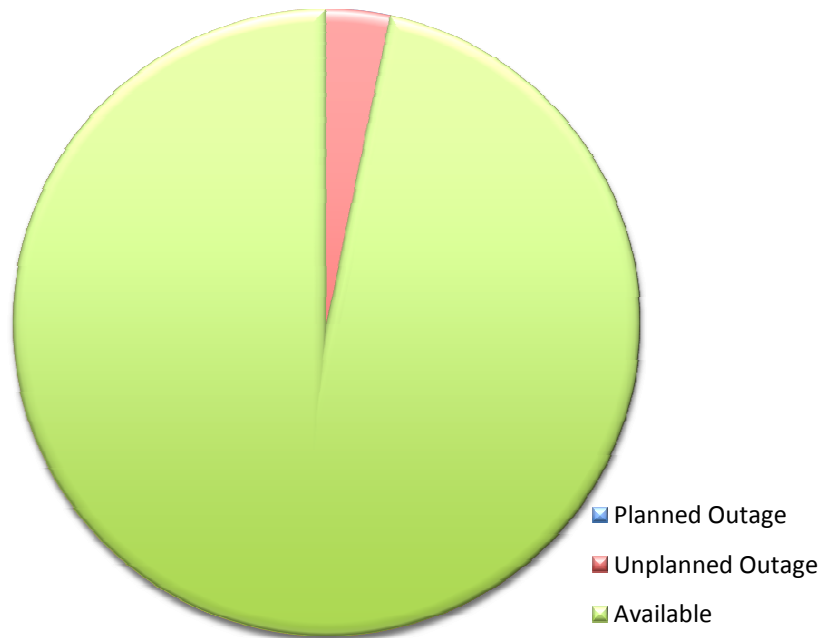
Statistics

- 97% Availability
- 4 planned outages
- 4 unplanned outages



EWIC Performance 2015 to date

EWIC Availability 2015



Statistics

- 98% Availability (Jan – Apr)
- 2 planned outages



Future Works – Marine Survey



Q3 - Marine Survey 186km

- Geophysical Survey Seabed
- Cable Depth of Burial
- Summer 2015
- Including Landfall

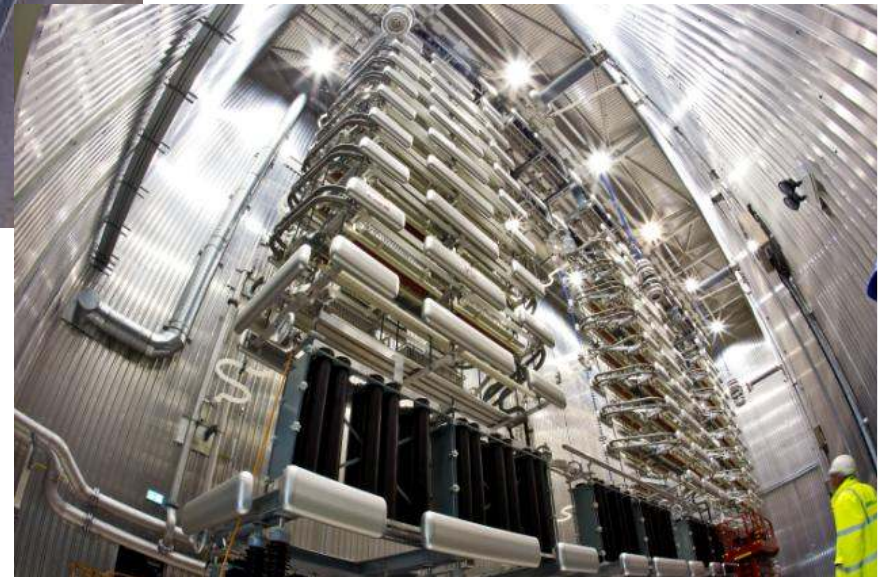


Future Works

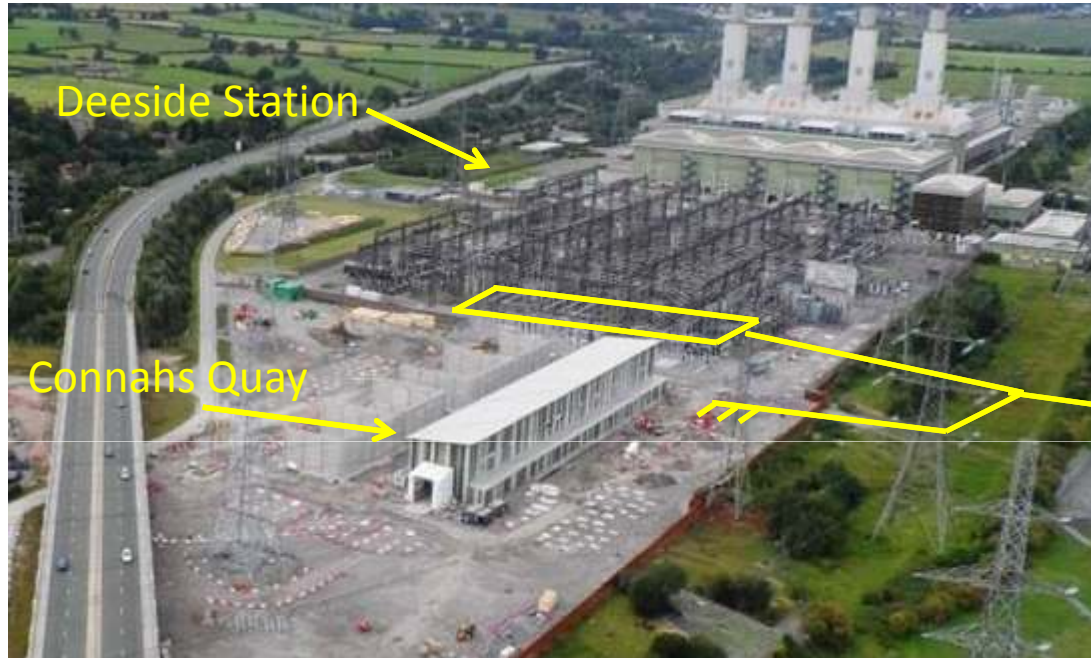


Annual Outage

➤ 08th-10th September 2015



Future Works



New Connection point in GB

- National Grid 400kV GIS
- Re-Route HV Cable
- Re-commission Control System
- H1 2017



EASTWEST INTERCONNECTOR



EWIC/Moyle User Forum

REMIT Update

06/05/2015



REMIT – Transportation Contracts

- 3.1(b) Wholesale energy products in relation to the transportation of electricity or natural gas in the Union:
 - (i) Contracts relating to the transportation of electricity or natural gas in the Union between two or more locations or bidding zones concluded as a result of a primary explicit capacity allocation by or on behalf of the TSO, specifying physical or financial capacity rights or obligations,
 - (ii) Contracts relating to the transportation of electricity or natural gas in the Union between two or more locations or bidding zones concluded between market participants on secondary markets, specifying physical or financial capacity rights or obligations, including resale and transfer of such contracts,
 - (iii) Options, futures, swaps and any other derivatives of contracts relating to the transportation of electricity or natural gas in the Union.



EirGrid Reporting

- 3.1(b)(i) EirGrid will report on all primary explicit capacity allocation contracts resulting from explicit auctions in the Auction Management Platform
- 3.1(b)(ii) EirGrid will report on all resale contracts resulting from explicit auctions in the Auction Management Platform
- 3.1(b)(ii) EirGrid will not report on transfer of contracts between market participants
- EirGrid will not accept any liability to market participants in respect of reporting under articles 3.1(b)(i) and 3.1(b)(ii) of the Regulations.

