East West Interconnector

Customer Conference
31st October 2013
Aidan Corcoran
Manager EWIC

Agenda

- Project Completion

- Asset Management

- Commercial Aspects of EWIC

East West Interconnector

FACT: *EWIC has the Capability to 'black start' both electrical transmission systems in the event of a major system-wide outage.*

500 MW of power output which is equivalent to a modern large generator

300,000 households can be supplied by the Interconnector

264 km in total length from the Irish to GB Electricity Grids

187 km of subsea cable installed below the Irish Sea bed

East West Interconnector

45 Months to complete the project from the placing of contracts to commercial operation

285 Contractors employed during the project life-cycle

2.2 Million hours worked to deliver the Project

3,700 People worked on the project during its lifecycle

FACT: Over 200 marine permit conditions were discharged on the project in 6 separate licences over 4 distinct licencing areas.
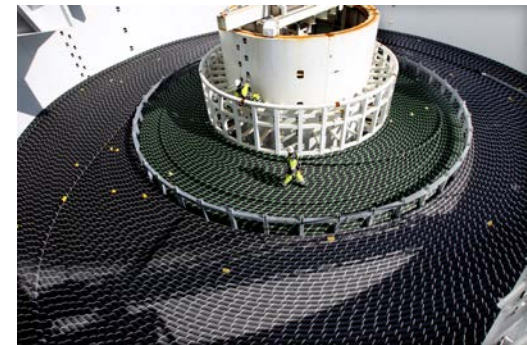
East West Interconnector

Above: The *"AMC Connector"* - Worlds Largest cable laying vessel

Marine Installation

- **186 km** of power cable and high speed fibre cable laid across the seabed

- **30 plus vessels** used during the Marine Installation and burial of the cable below the seabed for protection

- **1 Million man-hours** worked without a Lost Time Accident

East West Interconnector
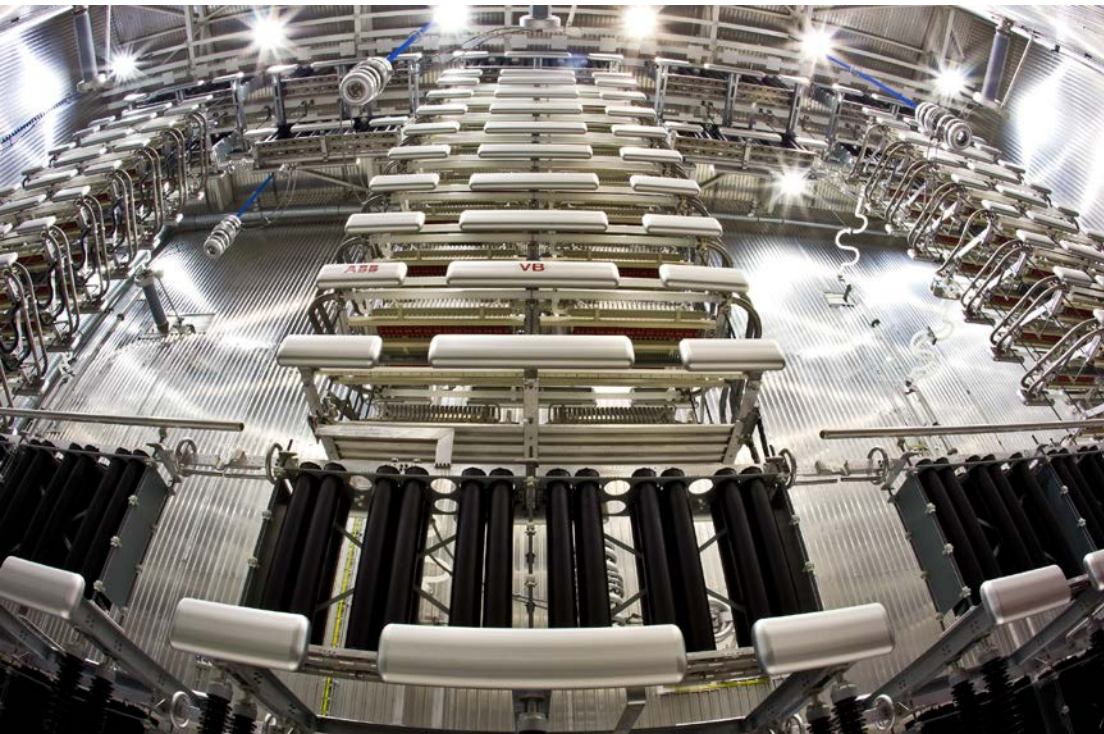
HVDC Conversion

Latest generation of HVDC technology implemented to provide the optimum economical and technical solution

Core technology is based on the use of high power transistors which, when switched in the correct sequence, achieve the conversion of AC power to DC power and vice versa

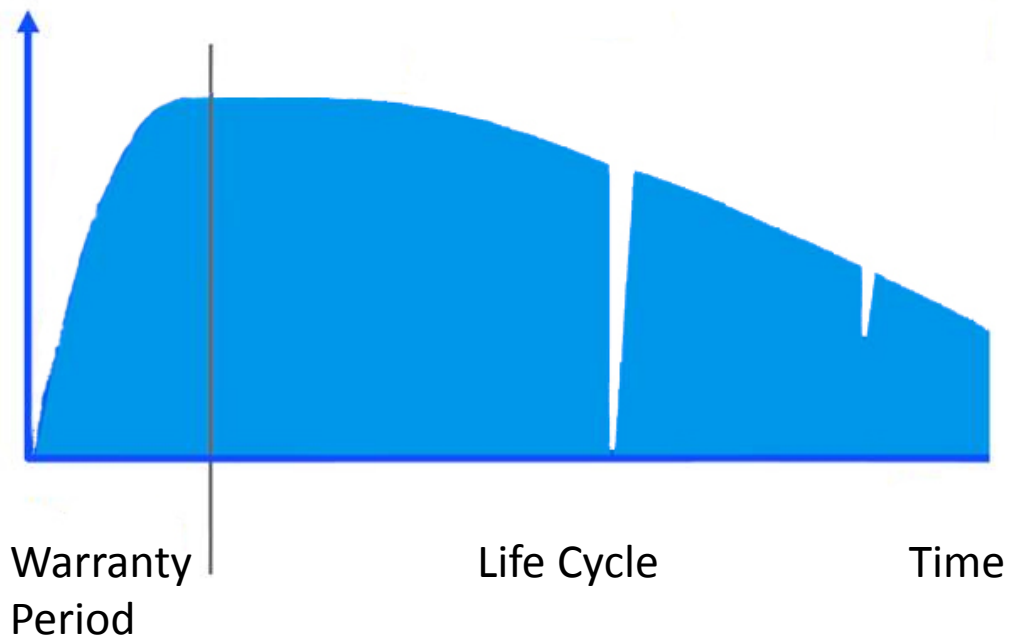*FACT: While converting AC electricity to DC (and vice versa) the **2,460 IGBT** valves (pictured above) switch **1,650 times** per second and are controlled via fibre optic cables.*

Asset Management

Facility Life Cycle Philosophy

Facility Availability

Insufficient or no maintenance

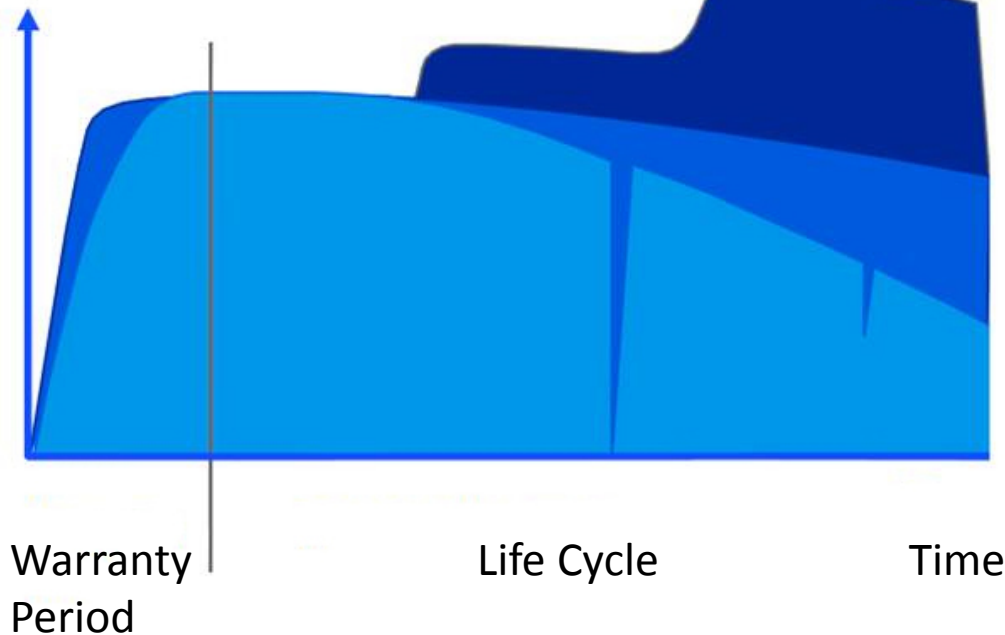Warranty Period   Life Cycle   Time

Facility Life Cycle Philosophy

EIRGRID

Facility
Availability
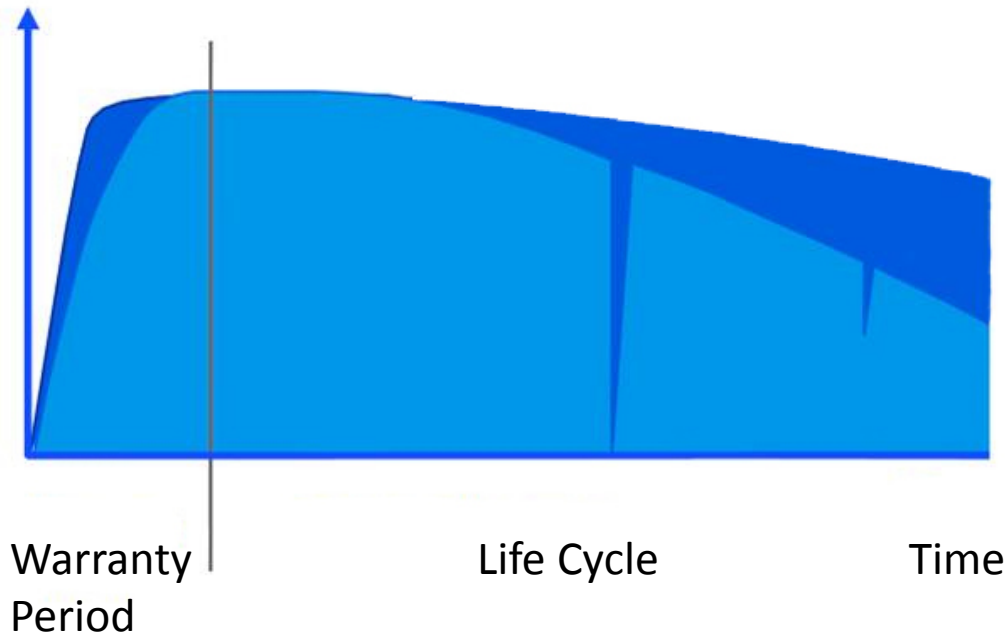
Maintenance and
support

Warranty
Period

Life Cycle

Time

Facility Life Cycle Philosophy

EIRGRID

Regular upgrades and developments

Facility Availability

Warranty Period

Life Cycle

Time

Asset Management

- Converters (Portan and Shotton)
- Cables Asset Management
- Liverpool Storage Facility

- Upwards of 30 separate contracts to be managed by EWIC Asset Management

Annual Outage (10th - 12th Sept)

- Planning started in May 2013
- 800 separate tasks identified
- 50 people working on site for duration of the outage
- All tasks successfully completed
- A number of follow up corrective maintenance tasks to be carried out
- Scheduled during outage starting 18th November

Forced Outages

- 13th Sept
- 24th Sept to 27th Sept
- 29th Sept to 2nd Oct
- **All technical issues resolved**

Significant Upcoming Events

- Post Annual Maintenance Outage corrective maintenance (Nov 2013)

- **Marine Survey – 2014**

  – Assess in situ status of cables

  – Budgeted €1m

  – Procurement of consultants and contractor

- Next Annual Outage – September 2014

Commercial Operation

Commercial Overview

- EWIC has been commercially operational with unrestricted power flows since 1st May 2013

- Power is predominantly flowing as imports (GB to IE)

- Active SO countertrading to facilitate priority dispatch

Operation of the Interconnector

Glasgow

Moyle Interconnector

Belfast

500 MW

Woodland

East West Interconnector

Dublin

Irish Sea

Holyhead

Liverpool

Deeside

530 MW

EWIC Ownership & Operation Boundary

BETTA / SEM Market Boundary

Capacity Auctions

- GB→IE
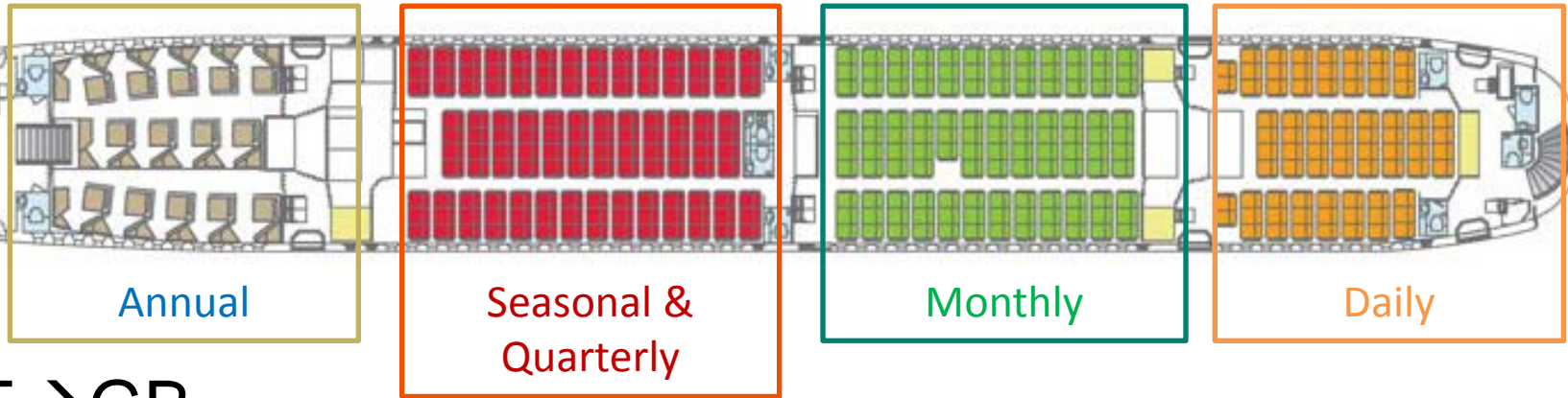
- IE→GB
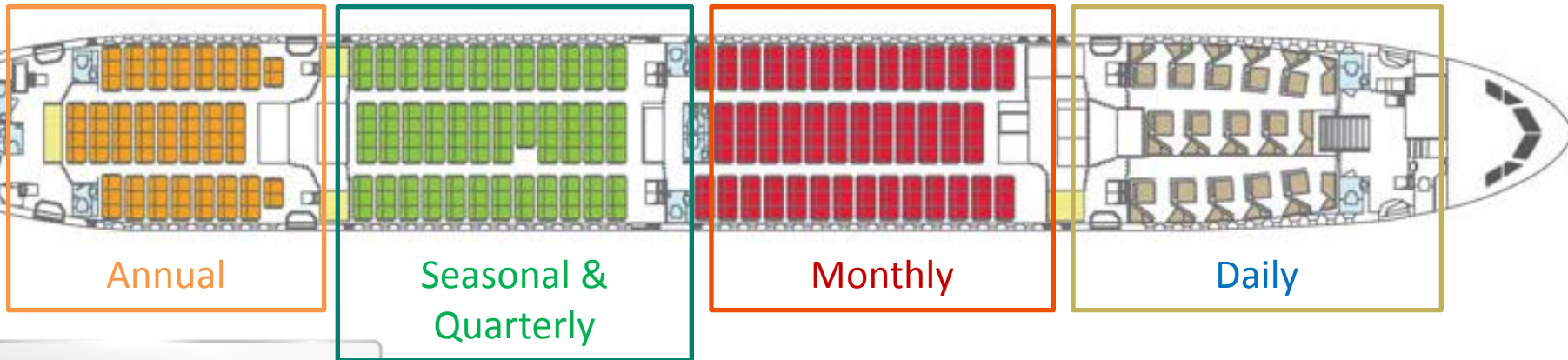
Our Customers

Currently Registering

Currently Registering

New customer group…..buying capacity products

Allocated Import (GB-IE) Capacity (MW)
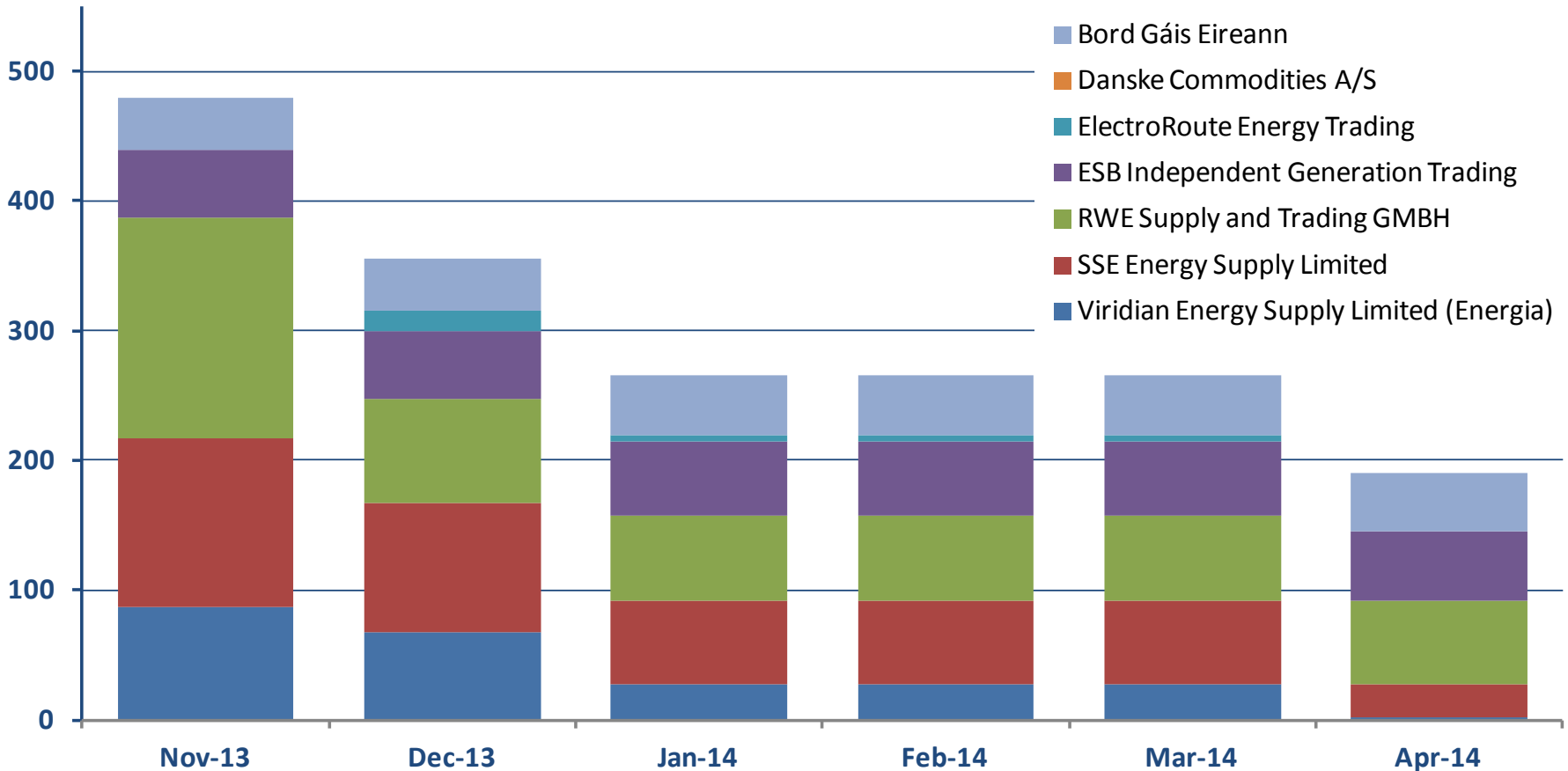
Allocated Export (IE-GB) Capacity (MW)
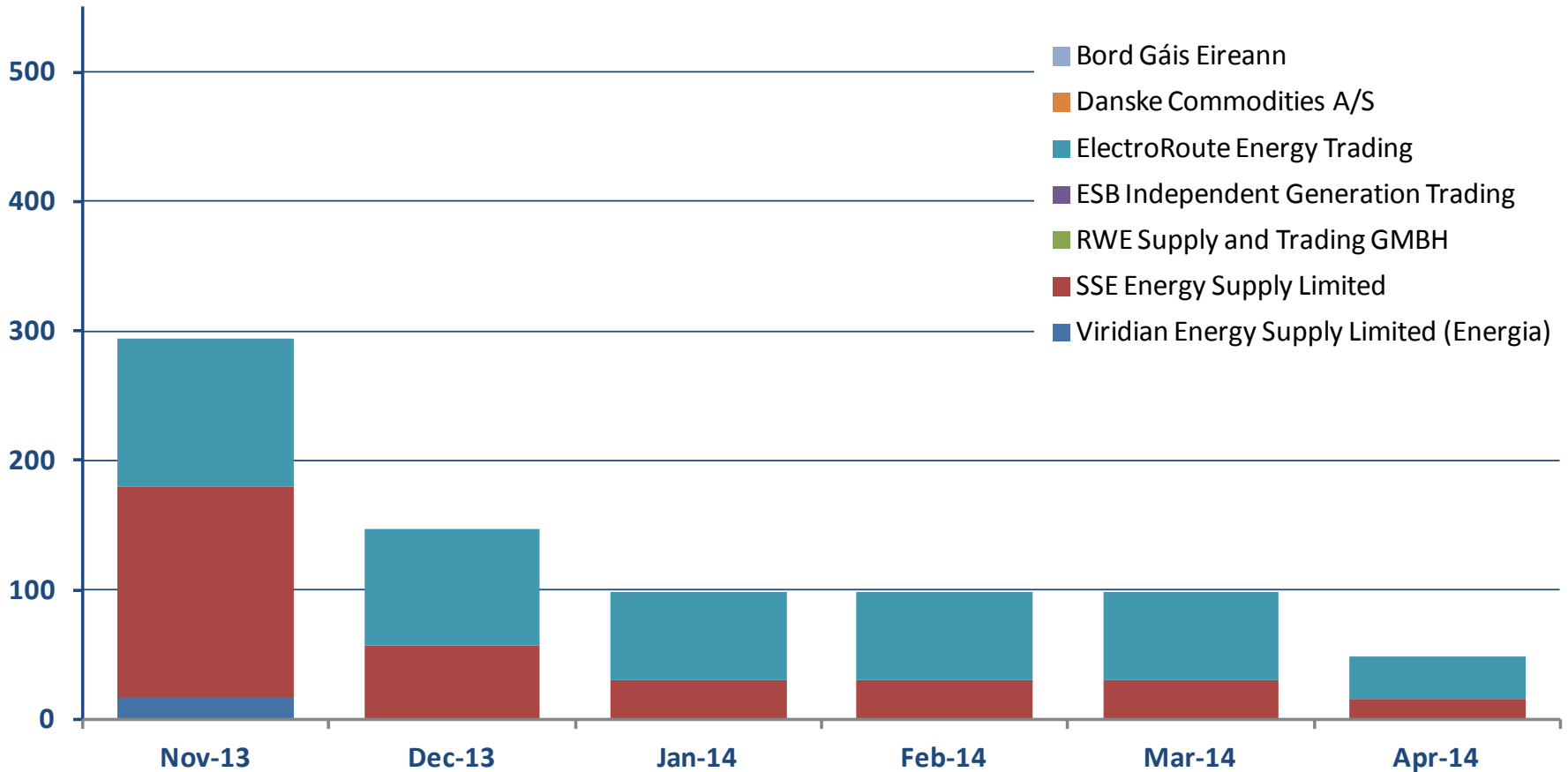
Prices per LT Capacity Product Type by Auction Date
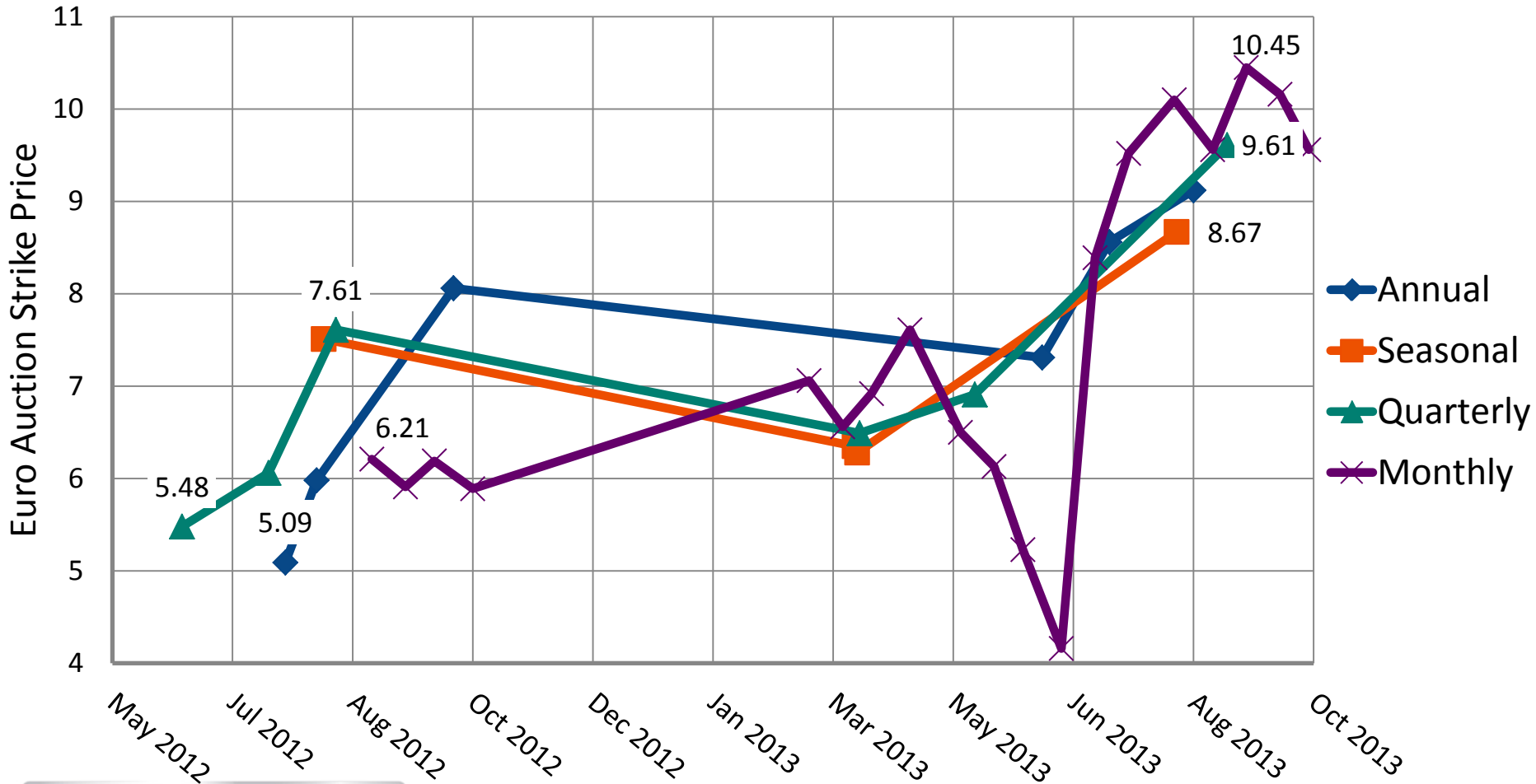
Daily Auction Price Spread

Daily Auction Price Variations
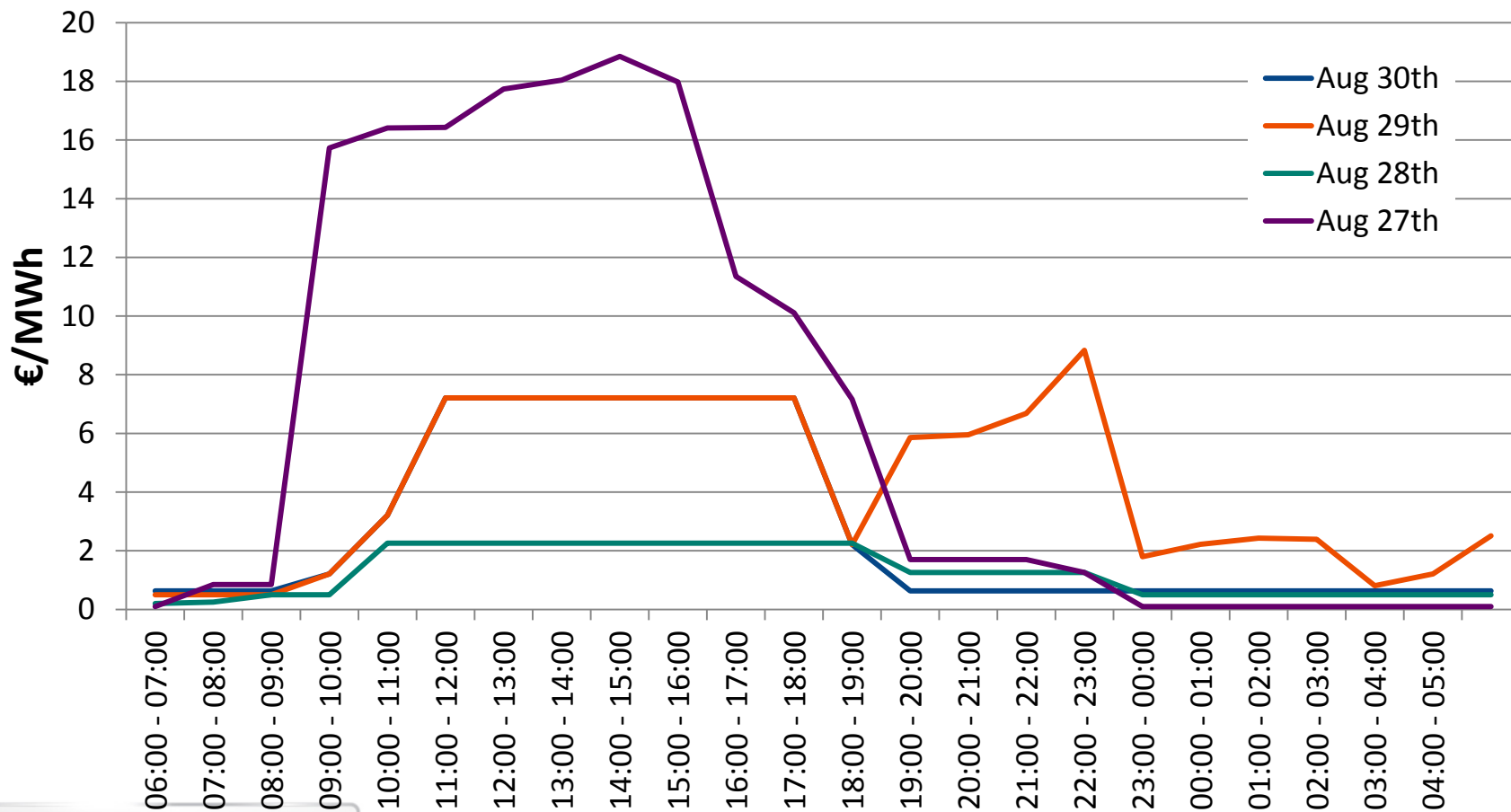
Customer engagement

Updated web page

- Forced outages
- Protocol on communicating during a FO
- Upcoming planned outages

Ancillary Services

EirGrid

- Static Reserve (Frequency Response)
- Reactive Power
- Black Start

National Grid

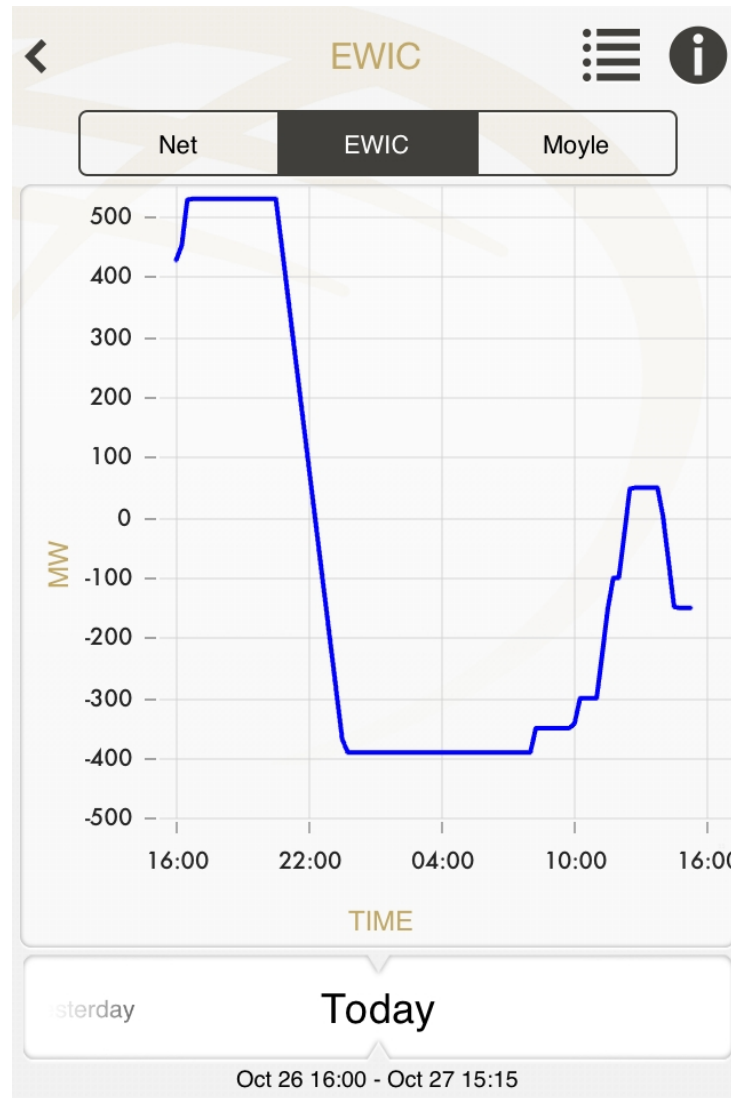- Static Reserve (Frequency Response)
- Reactive Power

Summary

- EWIC is operating successfully
  - Technically and commercially
- Significant Asset Management tasks underway
- Sales are buoyant and the market players are importing heavily – early indications are downward pressure on SEM prices.
- Enhanced procedure developed for communication during EWIC outage – now published on web.

- EWIC Nominated as Project of the Year
- Public Vote
- Closes 7th November
- www.engineersireland.ie

End

Countertrading