



# The East West Interconnector

Delivering Electricity Trading between  
Ireland and Great Britain





# 01

# About the East West Interconnector

The East West Interconnector (EWIC) is a high-voltage direct current submarine and underground power cable which links the electricity transmission grids of Ireland and Great Britain. It has a power rating of 500 MW and is one of the largest High Voltage Direct Current schemes in the world to use Voltage Source Converter technology. The EWIC is a fully regulated interconnector which was developed and is owned by EirGrid Interconnector Limited (EIL) which is part of the EirGrid Group.

The EWIC has been in commercial operation since December 2012 and allows the trading of electricity between the island of Ireland and British wholesale electricity markets. The full import and export capacity is broken up into capacity products to facilitate market participants' efficient management of their energy portfolio on a short and long term basis.

EIL holds licences from both the Commission for Energy Regulation (CER) and the Office of Gas and Electricity Markets (Ofgem) as regulatory authorities in the Irish and British jurisdictions respectively.

The EWIC is capable of transmitting electricity in either direction thus allowing market participants to trade electricity in both directions between the SEM and BETTA market.

## Benefits

- Supports the integration of European energy markets through interconnection
- Provides greater security of supply in Ireland and Great Britain
- Opens cross border access to all market participants, increasing competitiveness and providing commercial opportunities
- Offers diverse product portfolio including capacity via implicit and explicit auctions for market participants
- Allows provision of ancillary services such as frequency response, reactive power and black start capability
- Facilitates growth in renewable energy

# 02

# Technology Overview

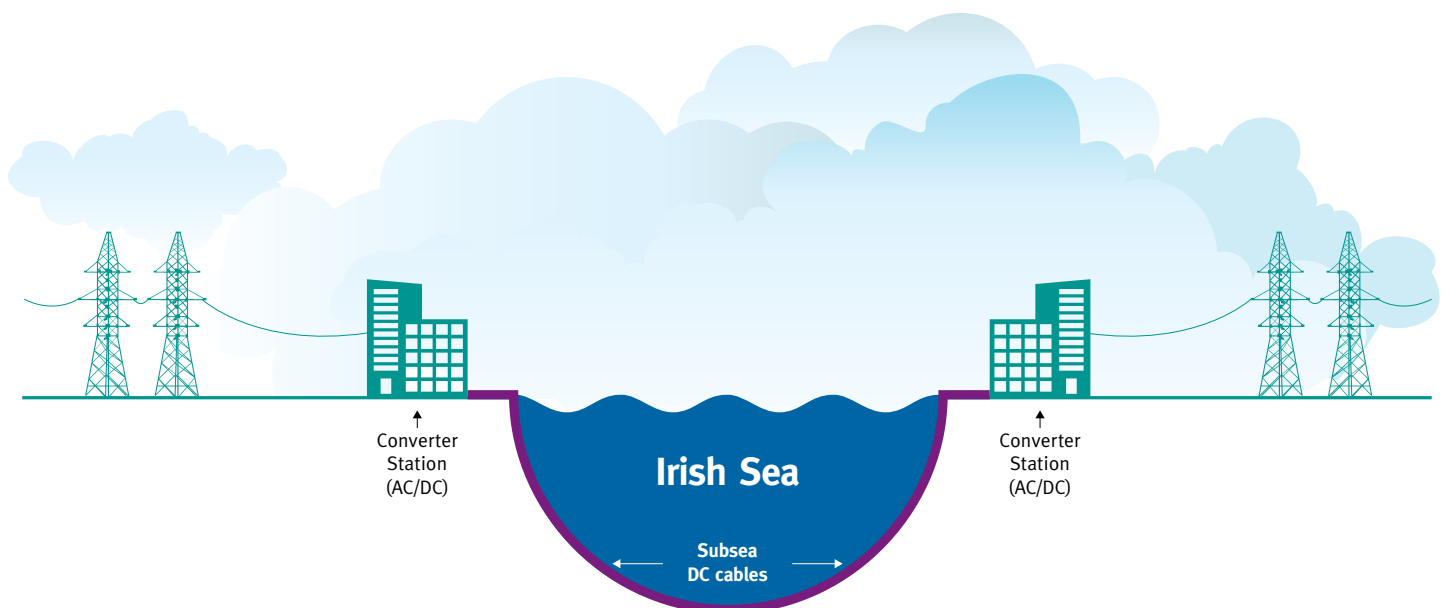
At 262km in length, 186km of which is beneath the Irish Sea, the East West Interconnector links the electricity transmission grids of Ireland and Great Britain, from converter stations at Portan in Ireland to Shotton in Wales.

Using the latest generation of HVDC technology, HVDC Light®, ABB was contracted to design, supply and install the converter stations and cables.

The 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. The scheme uses the most advanced digital control system available to optimise performance during normal operation, including minimising operating power losses.

Requiring only minimal maintenance, the advanced power electronic equipment, together with its digital control and protection system, will provide a highly reliable interconnection over a lifetime of 40 years.

The subsea cable is buried for most of its length to avoid damage from anchors or trawling activity. EIL holds spare cable in a purpose-built facility which allows for immediate response and quicker recovery times in the unlikely event of a fault.



<b>Commissioned</b>	2012
<b>Power Rating</b>	500 MW
<b>AC Voltage</b>	400 kV
<b>DC Voltage</b>	±200 kV
<b>Length of DC underground cable</b>	76 km
<b>Length of DC submarine cable</b>	186 km



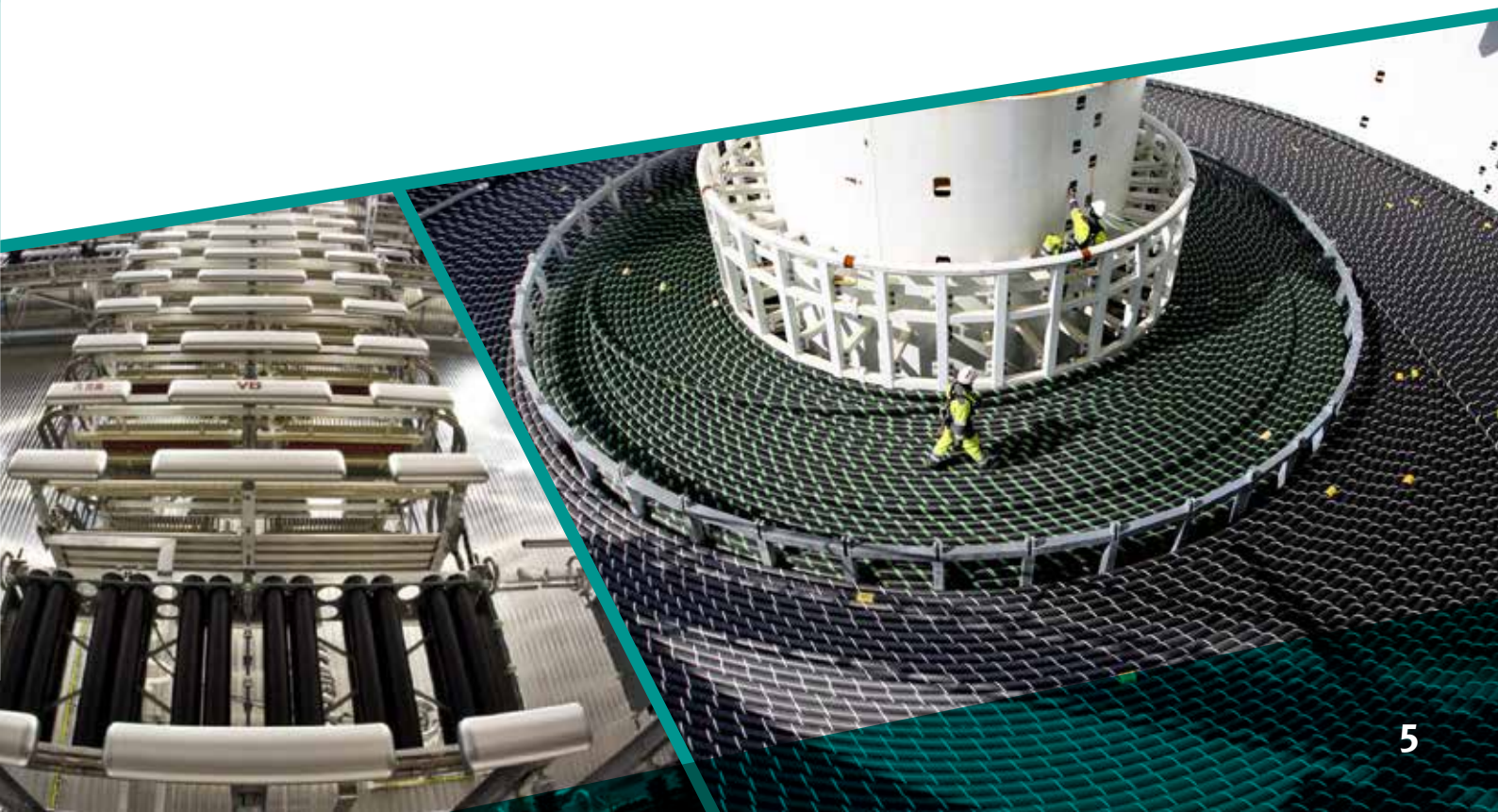
#### Featured land cable

- Extruded polymer insulated cable
- Conductor 2210 mm<sup>2</sup> aluminum
- Diameter 107 mm
- Weight 12 kg/m



#### Featured submarine cable

- Extruded polymer insulated cable
- Conductor 1650 mm<sup>2</sup> copper
- Steel armoring
- Diameter 117 mm
- Weight 39 kg/m



# 03

# Trading

We offer market participants access to the interconnector capacity through a combination of explicit and implicit auctions. Our approach gives market participants a choice about how they bid for capacity. Power flows will be decided by companies that trade on the East West Interconnector and will be driven by their decisions on factors such as supply, demand, prices in each market and their own energy portfolio positions.

## **SEM**

The Single Electricity Market (SEM) is the wholesale electricity market operating on the island of Ireland. It operates as a gross mandatory pool market, into which all electricity generated on or imported onto the island of Ireland must be sold, and from which all wholesale electricity for consumption on or export from the island of Ireland must be purchased.

## **BETTA**

The British Electricity Trading and Transmission Arrangements (BETTA) is the wholesale electricity market operating in Great Britain. It operates as a bilateral trading market between generators, suppliers and energy traders. There are also power exchanges available in Great Britain which facilitate further trade in the BETTA market.





## Explicit Auctions

Explicit auctions allow market participants to purchase the right to utilise capacity on the interconnector from one day up to one year ahead of the delivery day. To provide fair and open access to all participants, EirGrid hold these auctions throughout the year at predetermined dates which are published on the EirGrid website ([www.eirgrid.com](http://www.eirgrid.com)). The tranches of capacity auctioned on these dates differ for each trading product and direction.

### How does it work?

We have developed an Auction Management Platform (AMP) which facilitates trading across the interconnector and acts as an interface between the SEM and BETTA market.

Market participants submit bids including price and volume of capacity requested. The marginal pricing methodology is applied and all successful applicants pay the auction clearing price for capacity.

### Benefits of explicit auctions

- Provides hedging opportunity for existing portfolio positions in the SEM and the BETTA market
- Allows flexibility to adapt to changing market conditions as capacity is available in both directions
- Offers full transparency with clearly defined Access Rules and Charging Methodology
- Easy to use auction platform

## Implicit Auctions

Implicit auctions allow market participants to purchase capacity and the associated energy on the EWIC in one transaction for individual 30 minute interval periods of the trade day. These auctions are run by the all-island Single Electricity Market Operator on a daily basis.

### How does it work?

Any remaining capacity on the EWIC after the first SEM run (Ex-Ante 1) is made available to market participants in the intraday market runs (SEM Ex-Ante 2 and Within-Day 1). Market participants submit price-quantity pairs to reflect the quantity requested and the corresponding bid price directly into the SEM systems.

There is no requirement to hold explicit or long term capacity in order to participate in the implicit auctions.

### Benefits of implicit auctions

- Purchase of electricity and capacity in a single transaction
- Allows market participants to balance their positions in the BETTA market
- Allows market participants to trade out of existing positions from earlier SEM runs
- Provides access to remaining EWIC capacity
- Presents greater certainty regarding arbitrage value between markets closer to real-time

# 04

# Trading Products



## Explicit Auctions (via the Auction Management Platform)

### Annual

We offer two types of annual products based on the calendar year and the SEM year (October-September) which are auctioned several times throughout the year.

### Seasonal

Seasonal products offer capacity for six month blocks and are auctioned twice annually. This product is divided into a winter (October-March) and summer (April-September) block.

### Quarterly

Quarterly products offer capacity for three month blocks and are auctioned two months in advance of the first delivery month.

### Monthly

Monthly products offer capacity for one month and can be purchased in a number of auctions in the month prior to delivery.

### Daily

Daily capacity is offered in 24 x 1 hour individual blocks for the SEM trade day (06:00 – 06:00). The daily auction takes place at 07:30 on the day prior to delivery.





## Implicit Auctions

(via the Single Electricity Market Systems)

### SEM Ex-Ante 1

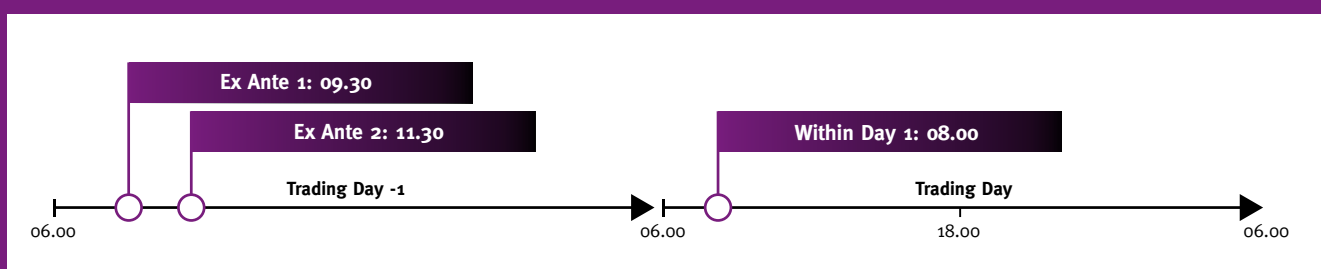
The SEM Ex-Ante 1 run is not an auction for interconnector capacity. Market participants must, however, submit bid prices per trade interval to secure the energy corresponding to their explicit EWIC capacity holdings. Bids into the SEM Ex-Ante 1 run take the form of energy volumes and associated prices per 30 minute trade interval for the SEM trade day (06:00 – 06:00). The bidding window for the SEM Ex-Ante 1 run closes at 09:30 on the day prior to delivery.

### SEM Ex-Ante 2

Any residual capacity on the EWIC after the SEM Ex-Ante 1 run is made available to market participants in the subsequent Ex-Ante 2 intraday auction. This auction covers the full SEM trade day (06:00 – 06:00). Market participants submit price-quantity pairs to reflect the energy requested and the corresponding bid price. The bidding window for the SEM Ex-Ante 2 run closes at 11:30 on the day prior to delivery and capacity is allocated on a 30 minute trade interval basis.

### SEM Within-Day 1

Any residual capacity on the EWIC after the SEM Ex-Ante 2 run is made available to market participants in the subsequent Within-Day 1 intraday auction. This auction covers a twelve hour period within the SEM trade day from (18:00 – 06:00). Market participants submit price-quantity pairs to reflect the energy requested and the corresponding bid price. The bidding window for the Within-Day 1 run closes at 08:00 on the day of delivery and capacity is allocated on a 30 minute trade interval basis.



# 05

# Customer Support & Registration

## Customer Service

A key aspect of our vision is to be a great company to do business with; this is underpinned by providing excellent customer service. To ensure we deliver this service the EWIC has a dedicated commercial team to provide existing and future customers with comprehensive support covering all aspects of the business from registration through to operations and settlement.

## Meeting with customers

We welcome the opportunity to meet with prospective and existing customers to promote trading across the EWIC.

We will ensure any customer queries are fully and promptly answered with a focus on providing all information necessary to allow customers to trade successfully on the EWIC.

## User Forum

The EWIC team hold a User Forum on an annual basis for existing and prospective customers, and general stakeholders. This forum covers a broad range of topics including the auction product suite, scheduled outage dates, and SEM and/or BETTA market changes impacting on interconnection.

## Interconnector Administrator

SONI Ltd, in the role of Interconnector Administrator, is responsible for performing all necessary interconnector related tasks required by the SEM and BETTA markets. A dedicated team is available from 07:00 to 15:00, 365 days a year to assist participants with all aspects of registration and the Auction Management Platform.

## Contact Details

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Website: [www.soni.ltd.uk/Customers/tradeic/](http://www.soni.ltd.uk/Customers/tradeic/)



## Registration process

### Step 1

Complete EirGrid East West Interconnector User Agreement Form and Interconnector Administrator Deed (available at [www.eirgrid.com/eastwest](http://www.eirgrid.com/eastwest))

### Step 2

Register to trade in SEM and BETTA market

### Step 3

Complete Interconnector Administrator User Pack

### Step 4

Post Credit Cover

### Step 5

You can now trade on the East West Interconnector

EirGrid is the independent electricity Transmission System Operator in the Republic of Ireland. SONI is the electricity Transmission System Operator in Northern Ireland and a wholly owned subsidiary of the EirGrid Group. EirGrid owns and operates the East West Interconnector (EWIC), a high-voltage HVDC electricity link between Ireland and Great Britain. EirGrid is also the Market Operator (MO) for the wholesale trading system in Ireland. The Single Electricity Market Operator (SEMO) is part of the EirGrid Group, and operates the Single Electricity Market on the island of Ireland.



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