

Integrated Single Electricity Market (I-SEM) – Ireland

Overview

1. This note provides a broad overview of the Electricity market arrangements across the Island of Ireland.
2. The Republic of Ireland (ROI) and Northern Ireland (NI) established the Single Electricity Market (SEM) in November 2007. This is a mandatory pool market meaning any generator with capacity greater than 10MW must participate in the market. This has been further updated by the Integrated Single Electricity Market (I-SEM) which aims to update the market rules in accordance with the latest EU regulations.
3. The I-SEM is a cross-border wholesale market that operates on a marginal price structure across the whole system. This is where the system price is set at the cost of the final unit of generation needed to meet demand, which is the same structure across GB and Europe.
4. In the case of the I-SEM however, the 'System' includes both NI and the ROI.
5. The below sections give more information on how the Electricity markets of NI and ROI operate.

Regulatory Body

6. The main **Regulatory authorities** are below
 - o The Commission for regulation of Utilities (CRE)¹ in the ROI
 - o The Utility Regulator (UR) in NI².
 - o These bodies are responsible for administering market codes, licensing, and monitoring and operation of the I-SEM and the conduct of its participants.
7. UR and CRE regulate the SEM through the SEM Committee³.
8. The SEM Committee is the **governing body** of the I-SEM. They oversee the design and implementation of the I-SEM with the aim of protecting the interests of consumers of electricity via effective competition in the electricity market.

EU Regulation

9. The I-SEM is based on the EU Target model
 - o A common price coupling algorithm for scheduling all ex ante markets and determining flows between geographic regions
 - o Energy trading within regions and across borders up to close to real time
 - o Forward trading of physical or financial trading rights for cross-border capacity
 - o Integrated balancing arrangements that enable neighbouring system operators to trade between regions for balancing

¹ [Regulating energy and water for a changing climate | CRU.ie](#)

² [SEM | Utility Regulator \(uregni.gov.uk\)](#)

³ [SEM Committee](#)

10. Governance and administration of the I-SEM and inter-market network codes falls under the EU agency for cooperation of energy regulators (ACER)⁴ and the European Network of Transmission System Operators for Electricity (ENTSOE)⁵.
11. Broader organisations like ENTSOE and ACER help coordinate large cross-border infrastructure projects, coordinate regulation and encourage collaboration amongst members.

Climate Targets

12. Both regions have separate climate targets. The ROI aims for their economy to be Net Zero no later than 2050, with NI aiming for Net Zero within the same timeframe
13. The ROI in their 2021 Climate Action Plan⁶ aim to reduce electricity emissions by 62-81% by 2030.
14. The ROI also aims to have around 80% of electricity being generated using renewable energy with a target mix of 5 GW Offshore wind, 8 GW Onshore wind and 1.5-2.5 GW of Solar PV.
15. In NI The Climate Change Act (Northern Ireland) 2022⁷ sets targets for emissions reductions by sector. They have a target of 80% of electricity consumption to be from renewable sources by 2030.

Low Carbon Support

16. As across all EU countries the Single Electricity Market Operator (SEMO) operate a Guarantee of origin (GoO) scheme. This is where electronic certificates are given to renewable generators that can be traded as proof of source for electricity. The registry of GoOs is managed across both regions by SEMO. However, NI has the Northern Ireland Renewable Obligation (NIRO) scheme which uses guarantees of origin to set a minimum level of renewable power suppliers must purchase.
17. The NIRO closed for new applicants in 2017. The NIRO also had some feed in tariff like support for small scale generation and export to the grid.
18. Currently the UK Government Contracts for Difference (CfD) does not operate in NI.
19. In ROI there was a feed in tariff scheme called the Renewable Energy Feed-in tariff (REFIT)⁸. This closed to new applicants in 2015.
20. The main renewable support in ROI is provided by the Renewable Electricity Support Scheme (RESS). This operates like the CfD by providing a guaranteed price for generation.
21. Consumers both domestic and non-domestic in ROI must pay the Public Service Obligation (PSO) levy which is a levy on bills that pays for the REFIT and other smaller schemes.

⁴ [Home | www.acer.europa.eu](http://www.acer.europa.eu)

⁵ [Home \(entsoe.eu\)](http://entsoe.eu)

⁶ [gov.ie - Climate Action Plan 2021 - Securing Our Future \(www.gov.ie\)](https://www.gov.ie)

⁷ [The Climate Change Act \(Northern Ireland\) 2022 - Key elements | Department of Agriculture, Environment and Rural Affairs \(daera-ni.gov.uk\)](https://www.daera-ni.gov.uk)

⁸ [gov.ie - Renewable Energy Feed-in Tariff \(REFIT\) Scheme \(www.gov.ie\)](https://www.gov.ie)

Commented [REDACTED]: Are these aligned at all, at a high level? Are they aiming for Net Zero at any point?

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Network Cost Recovery and Build

22. **Transmission System Operators (TSOs)** are responsible for the transmission grid.

- EirGrid in Ireland
- SONI in Northern Ireland
- Responsibilities for market operations, settlement and credit risk management are split between these TSOs, the (European) Joint Allocation Office (JAO) and SEMO (a joint venture EirGrid and SONI)
- Northern Ireland Electricity Network (NIE)⁹ are the owners of the Transmission network and also own and operate the distribution network in Northern Ireland.

23. **Distribution System Operators (DSOs)** manage the lower voltage distribution network that delivers power to households and businesses.

- In the ROI ESB Networks manage the Distribution Network
- In NI NIE operate the distribution network.

24. There is harmonised transmission investment between grid operators.

25. This is part of the Delivery of a Secure, Sustainable Electricity System (DS3) project¹⁰. This is a plan of upgrades across the SEM designed to help meet European renewable electricity targets.

26. In the ROI, similar to network operators in the UK, operators revenues are managed by price controls which are set for 5 year periods. These are recovered through end user bills via network charges¹¹.

27. Transmission Use of System (TUoS) charges are applied on an all-Island basis allowing cost socialisation. This applies to generators in both NI and ROI, Suppliers in NI, auto-producers in ROI and large scale users of power in ROI. Distribution charges are also administered at an all-island level.

28. Distribution Network charges are applied using a consistent method across the Island. Also allowing a degree of cost socialisation.

Security of Supply

29. There are two interconnectors operational in the Island of Ireland

- The 500 MW Moyle Interconnector (Northern Ireland to Scotland)
- The 500 MW East-West Interconnector (ROI to Wales)

30. These are the only way the Island of Ireland can connect to Europe currently but there are several projects in planning that could change that such as the Celtic Interconnector between France and Ireland¹².

31. Despite the SEM there is only very limited interconnection between NI and ROI.¹³

- Tandragee – Louth 275 kV double line
- Enniskillen – Corraclassy 110 kV line
- Strabane – Letterkenny 110 kV line
- The two single lines have no capacity for carrying surplus power due to meeting local demand. Therefore there is only one connection that can be used for cross-border transfers.

⁹ [About Us | Northern Ireland Electricity Networks \(nienetworks.co.uk\)](http://www.nienetworks.co.uk)

¹⁰ [DS3 Programme \(soni.ltd.uk\)](http://www.soni.ltd.uk)

¹¹ [Revenue and Tariffs | CRU.ie](http://www.cru.ie)

¹² [The Project \(eirgridgroup.com\)](http://www.eirgridgroup.com)

¹³ [SONI North South Interconnector - Answering Your Questions by DesignTactics - Issuu](#)

- As such there are investment plans for a large scale North South Interconnector.

Wholesale Markets

32. The I-SEM integrates the all-island Ireland and European electricity markets to allow free trade across borders.
33. Each coupled market implements its own rules based on the EU Target Model.
34. All electricity across the island is bought and sold through a single pool, which has increased competition, efficiency and security of supply. The operation of this single wholesale market requires the physical connection of the Northern Ireland grid to that in the Republic.
35. The I-SEM is managed by the Single Electricity market Operator (SEMO). The market comprises of two ex-ante Energy markets, a balancing Market, two financial instrument markets and a capacity market. Each market operates independently.
36. There is a single market price most of the time but there is the ability to decouple if price signals need to be sent so generation meets demand.
37. Essentially, generators bid into this market pool for each half hour of the following day and based on these costs the SEMO will determine an SMP (System Marginal Price) for each half-hour trading. The efficient generators are run to meet the demand whilst those who are more expensive are deemed "out of merit" and are not run or paid SMP, thus leading to lower costs for customers. All generators who contribute to demand are paid SMP. Suppliers can also sell electricity directly to the consumer and can purchase electricity from this pool at this SMP.

Retail Markets

38. The NI regulator caps profits at 2% for gas suppliers and 2.2% for electricity suppliers
39. Both NI and ROI have several different gas and electricity providers to choose from.
40. Northern Ireland does not have a price cap as Ofgem provides for GB, however they have been covered by the Energy Price Guarantee (EPG).
41. Both retail markets are liberalised and allow competition.

Annex 1: Key Operators

Section of the Market	Republic of Ireland	Northern Ireland	United Kingdom
Pricing	Marginal Pricing	Marginal Pricing	Marginal Pricing
NEMOs and Market exchanges	SEMO	SEMO	NordPool/European Power Exchange (EPEX)
Regulators	The Commission for regulation of Utilities (CRE)	Utility Regulator (UR)	Ofgem
Transmission Grid Operator	EirGrid	SONI	National Grid ESO
Distribution Network Operators (DNOs)	ESB Networks	NIE	Six DNOs
Retail Market	Liberalised market with many suppliers.	Liberalised market with many suppliers.	Liberalised market with many suppliers.