

All-Island Resource Adequacy Assessment

2026-2035 Inputs & Assumptions for
Ireland

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1. Introduction

EirGrid and SONI, as the Transmission System Operators (TSO) for Ireland and Northern Ireland respectively, have a responsibility to operate the electricity transmission system every minute of every day, whilst also planning the future of the transmission grids in their relevant jurisdictions.

EirGrid, the TSO in Ireland, is required to publish forecast information about the power system, as set out in Section 38 of the Electricity Regulation Act 1999¹ and Part 10 of S.I. No. 60 of 2005 European Communities (Internal Market in Electricity) Regulations². The forecast statement is a requirement of Condition 7 of EirGrid's Transmission System Operator licence, which also states that the methodologies on which the forecast statement is based shall be subject to the approval of the Commission for Regulation of Utilities in Ireland.

SONI, the TSO in Northern Ireland, is required to produce an annual Generation Capacity Statement (GCS), in accordance with Condition 35 of the Licence³ to participate in the Transmission of Electricity granted to SONI by the Department for the Economy (DfE). Condition 35 also states that the statement shall be based on methodologies approved by the Utility Regulator for Northern Ireland.

The 'Clean Energy for all Europeans' package adopted in 2019 sets out a new framework for the transition away from fossil fuels to cleaner sources of energy which included the Regulation on the internal market for electricity (EU/2019/943) herein referred to as 'the Regulation'. Chapter IV (Articles 20-27) of the Regulation are focussed on resource adequacy.

Article 23 of the Regulation mandates the European Network for Transmission System Operators for Electricity (ENTSO-E) to conduct annual resource adequacy assessments based on projected supply and demand for electricity across the EU to identify resource adequacy concerns for Member States. ENTSO-E's obligations under Article 23 of the Regulation are fulfilled through the European Resource Adequacy Assessment⁴ (ERAA), the methodology of which was approved by the European Union Agency for Cooperation of Energy Regulators (ACER) on 2nd October 2020. ACER also has responsibility for approving the annual implementation of the ERAA methodology conducted by ENTSO-E and issuing opinions where national assessments indicate adequacy concerns which are not identified in the ERAA assessment.

Article 20(1) of the Regulation states that Member States may also carry out national resource adequacy assessments where necessary. Article 24 of the Regulation states that the national adequacy assessment should be based on the ERAA methodology, and capture market specific characteristics or risks that the European assessment may not capture in detail. Effectively, the national adequacy assessment provides the scope to run studies that are relevant on a national level but may not be relevant at a pan-EU level.

The All-Island Resource Adequacy Assessment publication replaces the existing Generation Capacity Statement (GCS) methodology for adequacy modelling for Ireland and Northern Ireland, aligning with EU Regulation 2019/943⁵ Article 24. The All-Island Resource Adequacy Assessment publication will support signalling future system outlook and requirements to the energy market as well as to policy makers, regulators, industry, TSOs, Distribution System Operators (DSOs), electricity consumers, and the general public.

This document prescribes the inputs and assumptions for Ireland to be used in the All-Island Resource Adequacy Assessment process for 2025.

¹ <https://www.irishstatutebook.ie/eli/1999/act/23/section/38/enacted/en/html>

² <https://www.irishstatutebook.ie/eli/2005/si/60/made/en/print#partx-article28>

³ <https://www.uregni.gov.uk/files/uregni/media-files/SONI%20TSO%20Consolidated%20Feb%202019.pdf>

⁴ https://www.acer.europa.eu/Individual%20Decisions_annex/ACER%20Decision%2024-2020%20on%20ERAA%20-%20Annex%20I_1.pdf

⁵ <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019R0943&from=EN>

1.1. Changes from previous cycle

The All-Island Resource Adequacy Assessment (AIRAA) Inputs & Assumptions for Ireland have been revised to include updated climate assumptions using the Pan-European Climate Database version 4.1, relevant policy changes enacted since the prior data freeze date and inputs and assumptions for an economic viability assessment.

A summary of changes is provided in the table below.

| Section | Summary of Change |
|----------------------------------|--|
| Global | Replace 'Climate Year' with 'Weather Scenario' to reflect change from PECD3.1 historic climatic years to PECD4.1 forecast weather scenarios |
| 1. Introduction | Remove text to make section more concise |
| 2.1 Electric Vehicles | Revise electric vehicle input assumptions to reflect shift from Climate Action Plan targets to Sustainability Energy Authority of Ireland National Energy Projections Report 2024 With Existing Measures (WEM) scenario. |
| 2.2 Heat Pumps | Revise heat pump input assumptions to reflect shift from Climate Action Plan targets to Sustainability Energy Authority of Ireland National Energy Projections Report 2024 With Existing Measures (WEM) scenario. |
| 2.4 Conventional Demand | Revise assumptions related to historic end user demand, historic economic performance and smart meter effects. |
| 2.5 Network Losses | Revise averaging period and update losses estimate. |
| 2.6 Flexibility | Revise assumptions to align with Ireland's National Energy Demand Strategy. |
| 3.1 Conventional Generation | Revise new plant capacity & deliverability language to reflect conclusion of the enhanced monitoring programme, update plant performance period and wording as needed. |
| 3.2 Interconnection | Update data source references to latest revision. |
| 3.3 Variable Generation | Text altered to clarify data sources and also to update and explain onshore/offshore wind scaling factors. |
| 3.4 Battery Storage | Add text to denote battery storage aggregations and revise battery storage performance to reflect historic availability. |
| 4. Modelling | Adjust wording for added cohesion across documentation and update reserve requirement LSI periods. |
| 4. Modelling | Add text to describe regions outside the SEM operating at Reliability Standard |
| 5. Economic Viability Assessment | Add section on Economic Viability Assessment. |
| 6. Scenarios | Update information to reflect scenarios modelled in AIRAA 2026-2035. Add new section on Additional Security Analysis sensitivities. |

2. Total Electricity Requirement - Demand Assumptions

The assumptions shared below are for input to inform the median demand forecast of Total Electricity Requirement. Total Electricity Requirement is the amount of electricity required to meet final use electricity including behind the meter generation (such as solar PV) and the amount of energy that is required to meet transmission and distribution grid losses.

The median Total Electricity Requirement⁶ demand forecast is EirGrid’s best estimate of how demand will change in the future to meet government targets for energy policy and climate action. The Total Electricity Requirement demand forecast is dependent on a significant number of economic, social and policy factors, therefore low and high forecasts are also defined in the Scenarios section of this paper. The low and high demand scenarios capture estimates above and below the median forecast that are realistically plausible given current trends and policies.

2.1. Electric Vehicles

2.1.1. Electric Vehicles Annual Electricity Demand

| Category | Ireland Data Source / Assumption |
|--------------------------------------|--|
| Types of Electric Vehicles Modelled | <ul style="list-style-type: none"> Passenger Battery Electric Vehicles (BEV). Passenger Plug in Hybrid Electric Vehicles (PHEV). Battery Electric Light Commercial Vehicles (LCV). Battery Electric Busses. |
| Historic Number of Electric Vehicles | <ul style="list-style-type: none"> Central Statistics Office PxStats, Mechanically Propelled Vehicles Under Licence (TTA02)⁷. |
| Forecast Number of Electric Vehicles | <ul style="list-style-type: none"> Sustainability Energy Authority of Ireland National Energy Projections Report 2024 With Existing Measures (WEM) Scenario⁸ Assume passenger BEV/PHEV proportion 58% BEV in 2025⁹, 78.9% BEV in 2030 and continuing to 84.4% in 2035¹⁰. Assume Low emissions LGV 50% BEV in 2025, 85% BEV in 2030. Interpolated projection of new EVs through latest historical figures and WEM figures, limited to 150,000 passenger vehicles per year based on historic average¹¹. Post 2030 assume all new passenger vehicles are EVs (150,000 per year), LGV and bus growth forecast to continue growth. Assume vehicles are scrapped at 15 years of age. |
| Distance Travelled / Year | <ul style="list-style-type: none"> Central Statistics Office Transport historic data^{12 13}. Forecast to 2030 based on 10-year average of historic data. Forecast 2025-2030 assumes 20% mileage reduction (CAP24 target)^{Error! Bookmark not defined.} and 5% between 2030-2035 applied to passenger and light goods vehicles. |

⁶ Equivalent to SEAI’s final electricity consumption plus transmission losses. [https://www.seai.ie/data-and-insights/seai-statistics/key-publications/national-energy-balance/#:-:text=The%20provisional%20RES%20values1,RES%2DT\)%20was%205.5%25](https://www.seai.ie/data-and-insights/seai-statistics/key-publications/national-energy-balance/#:-:text=The%20provisional%20RES%20values1,RES%2DT)%20was%205.5%25)

⁷ <https://data.cso.ie/>

⁸ [National Energy Projections Report 2024.pdf](https://www.seai.ie/data-and-insights/seai-statistics/key-publications/national-energy-projections-report-2024.pdf)

⁹ <https://alternative-fuels-observatory.ec.europa.eu/general-information/news/ireland-236-decline-new-ev-registrations>

¹⁰ <https://www.iea.org/reports/global-ev-outlook-2024/outlook-for-electric-mobility#vehicle-outlook-by-mode>

¹¹ <https://www.cso.ie/en/releasesandpublications/ep/p-vlftm/vehicleslicensedforthefirsttimenovember2024/>

¹² <https://www.cso.ie/en/statistics/transport/transportomnibus/>

¹³ [Vehicle Kilometres Road Traffic Volumes Transport Hub - Central Statistics Office](https://www.cso.ie/en/statistics/transport/transportomnibus/)

| | |
|-----------------------------|--|
| | <ul style="list-style-type: none"> PHEVs assumed 47% of distance travelled in EV mode based on European study of real-world driving, with 2% year-on-year increase¹⁴. |
| Electric Vehicle Efficiency | <ul style="list-style-type: none"> Driving split assumed to be 60% city driving and 40% motorway¹⁵ used to calculate current efficiency assumes 0.157 kWh/km for passenger BEV¹⁶, Current efficiency assumes 0.263 kWh/km for LGV, and 1.39 kWh/km for bus, both aligned to Tomorrows Energy Scenarios (TES) 2023¹⁷. Efficiency projections aligned with Tomorrows Energy Scenarios (0.9% improvement per year for passenger vehicles, 0.5% improvement per year for commercial vehicles). PHEVs assumed to be 49% less efficient than BEV equivalent¹⁸. |

Table 1 - Electric Vehicles Annual Electricity Demand

2.1.2. Electric Vehicles Demand Shape

| Category | Ireland Data Source / Assumption |
|--|---|
| Charging Profiles | <ul style="list-style-type: none"> Aligned to weekday and weekend charging profiles for cars, freight, and busses published in ENTSOE's TYNDP 2022 Scenario Building Guidelines¹⁹ Simple and smarter²⁰ profiles used to reflect flexibility through incentives to avoid charging during peak times. |
| Proportion of Users on Charging Profiles | <ul style="list-style-type: none"> Simple / Smarter proportion assumes 60% of people currently charge using a smarter profile. Based on SEAI's 2025 "Behavioural insights for electricity demand flexibility" study²¹. Assume this grows to 90% by 2030 and stays at 90% beyond 2030. |

Table 2 - Electric Vehicles Demand Shape

¹⁴ <https://theicct.org/publication/real-world-phev-use-jun22/>

¹⁵ <https://www.rsa.ie/docs/default-source/road-safety/r4.1-research-reports/safe-road-use/driver-attitudes-and-behaviour-survey-2021.pdf>

¹⁶ <https://alternative-fuels-observatory.ec.europa.eu/policymakers-and-public-authorities/electric-vehicle-model-statistics>

¹⁷ <https://www.eirgrid.ie/industry/tomorrows-energy-scenarios-tes>

¹⁸ <https://evstatistics.com/2022/04/bev-batteries-average-83-kwh-versus-15-kwh-for-phevs/#:~:text=Using%20the%20median%20numbers%2C%20BEVs,mile%20per%20kWh%20for%20PHEVs>

¹⁹ https://2022.entsos-tyndp-scenarios.eu/wp-content/uploads/2022/04/2021-10-TYNDP_2022_Scenario_Building_Guidelines.pdf

²⁰ https://2022.entsos-tyndp-scenarios.eu/wp-content/uploads/2022/04/TYNDP_2022_Scenario_Building_Guidelines_Version_April_2022.pdf

²¹ [Behavioural insights for electricity demand flexibility Report.pdf](#)

2.2. Heat Pumps

2.2.1. Heat Pump Annual Energy Demand

| Category | Ireland Data Source / Assumption |
|-------------------------------|---|
| Historic Number of Heat Pumps | <ul style="list-style-type: none"> SEAI Data from BER Database analysis for residential properties²² |
| Forecast Number of Heat Pumps | <ul style="list-style-type: none"> Retrofit Heat Pumps: Polynomial projection of growth through latest historical figures to SEAI's National Energy Projections Report 2024 WEM Scenario New Build Heat Pumps: Assume every new build house has a heat pump, aligning to the government's National Planning Framework²³ target of 300k new houses by 2030. Additionally include existing stock of new build heat pumps. Commercial Heat Pumps: Projection based on latest trends using historical figures |
| Heating Demand | <ul style="list-style-type: none"> Assume residential heat pumps only fitted to homes that have a BER of B2 and above. Annual space and hot water heating demand for BER of A2-B2 from 4.2 to 12.6 MWh/yr/property²⁴. Commercial Heat Demand based on proportional attribution of commercial and public heat demand from SEAI national heat study²⁵ (58.354 MWh/yr/property). Climatic variability factored into annual heating demand using when2heat study of heating demand from 2008-2022²⁶. The ENTSO-E Demand forecasting tool ensures the average heating demand across 36 forecast Pan-European Climatic Database (PECD) simulated weather scenarios is equivalent annual estimate, but captures the variability brought about by temperature. |
| Heat Pump Efficiency | <ul style="list-style-type: none"> Based on SEAI low-carbon heating study giving 2022 efficiency and projecting out to 2050²⁷. The impact of temperature on the heat pump coefficient of performance (COP) is based on the when2heat study²⁸ and is factored in by the ENTSO-E Demand forecasting tool when converting heat demand to electricity demand. |
| Heat Pump Type | <ul style="list-style-type: none"> Informed by the 2022 Census, 80% air source heat pump and 20% ground source heat pump²⁹. Change of proportion from 2030 informed by Tomorrow's Energy Scenarios (TES) 2023 analysis, 66% air source heat pump and 34% ground source heat pump³⁰. |

Table 3 - Heat Pump Annual Energy Demand

2.2.2. Heat Pump Demand Shape

| Category | Ireland Data Source / Assumption |
|--------------------|--|
| Climate Dependency | <ul style="list-style-type: none"> Hourly heat demand based on when2heat study, and hourly climate data from PECD 36 forecast weather scenarios. |
| Heat Pump Usage | <ul style="list-style-type: none"> Usage of heat pumps derived from Ireland's When2heat dataset, using hourly resolution of total space and water heating demand and heat pump COPs³¹. |

Table 4 - Heat Pump Demand Shape

²² <https://ndber.seai.ie/BERResearchTool/ber/search.aspx>

²³ [National-Planning-Framework-First-Revision-April-2025-1.pdf](https://www.seai.ie/data-and-insights/national-heat-study/heating-and-cooling-in-ir/)

²⁴ [Background Notes Domestic Building Energy Ratings Quarter 3 2024 - Central Statistics Office](https://www.seai.ie/data-and-insights/national-heat-study/heating-and-cooling-in-ir/)

²⁵ <https://www.seai.ie/data-and-insights/national-heat-study/heating-and-cooling-in-ir/>

²⁶ <https://data.open-power-system-data.org/when2heat/>

²⁷ <https://www.seai.ie/data-and-insights/national-heat-study/low-carbon-heating-and-co/>

²⁸ <https://data.open-power-system-data.org/when2heat/>

²⁹ <https://www.cso.ie/en/releasesandpublications/ep/p-cpp2/censusofpopulation2022profile2-housinginireland/occupieddwellings/>

³⁰ <https://www.eirgrid.ie/industry/tomorrows-energy-scenarios-tes>

³¹ <https://data.open-power-system-data.org/when2heat/>

2.3. Data Centres and New Technology Load

This sector considers large scale data centres and technology loads that have dedicated connections to the high voltage network. This includes all dedicated connections to the TSO operated 110 kV, 220 kV network and the DSO operated 110 kV network in Dublin. Customers with connection voltages less than 110 kV are captured as part of the commercial and industrial demand.

2.3.1. Data Centre and New Technology Load Annual Energy Demand

| Category | Ireland Data Source / Assumption |
|---------------|--|
| Annual Demand | <ul style="list-style-type: none"> The forecasted growth rates for individual sites are compared to sites from the same customer, and sites of a comparable size to verify if they are reasonable. Adjustments are made if required. Final utilisation of contracted capacity is assumed on a site-by-site basis, considering current utilisation and typical utilisation for a particular customer or site size. Demand is assumed to grow linearly across the year, from the previous year's forecast peak in December, to the subsequent years peak in December. This is based on historic trends. |

Table 5 - Data Centre and New Technology Load Annual Energy Demand

2.3.2. Data Centre and New Technology Load Demand Shape

| Category | Ireland Data Source / Assumption |
|---------------------|---|
| Hourly Demand Shape | <ul style="list-style-type: none"> Demand is assumed to be flat throughout the day on the basis of analysis of consumption patterns. |
| Daily Demand Shape | <ul style="list-style-type: none"> Demand is assumed to be consistent across weekdays and weekends on the basis of analysis of consumption patterns. |

Table 6 - Data Centre and New Technology Load Demand Shape

2.4. Conventional Demand

This section analyses the conventional demand. For the purposes of this paper, we are defining “conventional demand” as that from the residential, commercial and industrial sector, excluding the impact of electric vehicles, heat pumps and data centres and new technology loads.

2.4.1. Conventional Demand Annual Energy Demand

| Category | Ireland Data Source / Assumption |
|---------------------------------|--|
| Historic End User Demand | <ul style="list-style-type: none"> Residential Demand includes domestic electricity sales (ESB), and an assumed level of self-consumption from rooftop solar panels (detailed below). Commercial and Industrial Demand includes the DSO non-domestic energy sales (ESB), transmission connected energy sales (EirGrid), and self-consumption from Combined Heat and Power electricity generation (SEAI) Small Scale Generation (SEAI), and rooftop solar panels. Electrification of industrial heat will be informed by SEAI’s National Energy Projections Pathway 2024³² Installed capacity of residential solar panels based on ESB data from NC6 forms. Installed capacity of commercial and industrial solar panels based on ESB data from NC7 and NC8 forms. Solar panel capacity factor of 10% assumed³³. Current assumption that behind the meter (micro, mini and small-scale generation) solar generation energy is consumed on site. Assumed historic demand from electric vehicles, heat pumps and data centres and new tech loads is detracted to view the underlying conventional demand from residential, commercial and industrial sectors. |
| Historic Temperature Correction | <ul style="list-style-type: none"> Temperature correction applied to residential demand which is most sensitive to temperature. Daily Historic climate data from Met Eireann using a population weighting of temperatures at Dublin Airport, Knock Airport, Cork Airport, Shannon Airport. Number of degree days (15.5°C Base) for winter of each year compared to average to provide a metric of mild and cold winters³⁴. Delta to average number of degree days multiplied by temperature correction factor to calculate a correction to the total energy demand. Temperature correction factor calculated as factor which gives strongest correlation between temperature corrected demand and economic performance. |
| Historic Economic Performance | <ul style="list-style-type: none"> Historic residential demand correlated to historic personal consumption figures from the CSO. Historic commercial and industrial demand correlated to historic Modified GNI* figures from the CSO. |
| Forecast Economic Performance | <ul style="list-style-type: none"> Forecast economic growth for personal consumption based on ESRI private consumer expenditure forecast³⁵. Forecast economic growth for Modified GNI* based on ESRI Modified Domestic Demand forecast³⁵. |
| Forecast Housing Stock | <ul style="list-style-type: none"> Forecast number of new houses informed by the government’s National Planning Framework First Revision, April 2025³⁶. |
| Smart Meter Effects | <ul style="list-style-type: none"> Number of installed smart meters based on information received from ESB. |

³² <https://www.seai.ie/sites/default/files/publications/National-Energy-Projections-Report-2024.pdf>

³³ [JRC Photovoltaic Geographical Information System \(PVGIS\) - European Commission](https://www.jrc.ec.europa.eu/en/photovoltaic-geographical-information-system-pvgis)

³⁴ https://www.sustainabilityexchange.ac.uk/files/degree_days_for_energy_management_carbon_trust.pdf

³⁵ <https://www.esri.ie/publications/quarterly-economic-commentary-autumn-2024>

³⁶ [National-Planning-Framework-First-Revision-April-2025-1.pdf](https://www.nplf.gov.ie/~/media/1/2/0/1/2025-1.pdf)

| | |
|-------------------------|---|
| | <ul style="list-style-type: none"> 90% of currently installed smart meters assumed to be in residential buildings (90/10 split in number of residential/commercial buildings). Forecast rollout of smart meters assumes all domestic properties by end of 2025. Current uptake of smart tariffs based on ESB energy sales. 50% of residential properties using smart tariffs by 2030 based on CRU’s 2024 NEDS policy³⁷. Assume that a smart tariff reduces annual residential demand by 2.5% based on CRU study³⁸ Assume that smart meters have no statistically significant impact on commercial or industrial demand based on CRU study³⁹. |
| Efficiency Improvements | <ul style="list-style-type: none"> Residential, Commercial, and Industrial efficiency improvements based on EU Energy Directive⁴⁰, after accounting for inherent efficiency gains in historic load. Historic efficiency improvements inherent in historic industrial and commercial demand assumed to continue. |

Table 7 - Conventional Demand Annual Energy Demand

2.4.2. Conventional Demand Shape

Conventional demand shape is forecast within the ENTSO-E Demand Forecasting Tool on the basis of historical correlation between demand and a number of factors that are then forecasted into the future.

| Category | Ireland Data Source / Assumption |
|------------------|--|
| Correlation Data | <ul style="list-style-type: none"> Historic hourly demand measured by EirGrid at the transmission level from 2012 - 2022 used to train model, with historic data from 2023 used to verify correlation. Historic calendar used to draw correlation between time of day, day of week and day of year for demand trends. Special days identified and categorised to identify common trends where demand may be different to normal. Categories used include Public Holidays, Christmas Day, Boxing / St Stephen’s Day, Good Friday, Easter Weekend, Short week after Easter and St Patrick’s Day, Days around Christmas and New Year. Hourly climatic data for each jurisdiction based on the Pan European Climatic Database (PECD). Data includes wind speed, irradiance, and population weighted temperature. |
| Forecast Data | <ul style="list-style-type: none"> Future calendar including same categories of special days for study horizon. Forecast 36 weather scenarios of PECD v4.1 data from 2025-2060 used to forecast climatic variability and model extremes of wind speed, irradiance and population weighted temperature. Future small scale (rooftop) solar incorporated into demand shape. |

Table 8 - Conventional Demand Shape

³⁷ https://cruie-live-96ca64acab2247eca8a850a7e54b-5b34f62.divio-media.com/documents/NEDS_Decision_Paper_and_Annex.pdf

³⁸ <https://cruie-live-96ca64acab2247eca8a850a7e54b-5b34f62.divio-media.com/documents/cer11080.pdf>

³⁹ [cer11080.pdf \(divio-media.com\)](https://cruie-live-96ca64acab2247eca8a850a7e54b-5b34f62.divio-media.com/documents/cer11080.pdf)

⁴⁰ https://energy.ec.europa.eu/topics/energy-efficiency/energy-efficiency-targets-directive-and-rules/energy-efficiency-directive_en

2.5. Network Losses

Network losses are included in the forecast of Total Electricity Requirement and are included in Table 9.

| Category | Ireland Data Source / Assumption |
|-------------------------|---|
| Forecast Network Losses | <ul style="list-style-type: none"> Historic Losses are calculated using the difference between metered generation (net of interconnection and storage) and metered demand. This data is historically recorded by the TSO and DSO. Forecast losses are based on a 10-year average of historic network losses. Network losses are estimated as 7.1% for the duration of the study. |

Table 9 - Network Losses

2.6. Flexibility

As stakeholders continue working towards the actions called out in Ireland’s National Energy Demand strategy (NEDS)⁴¹ ([Q1 2025 update](#)), EirGrid will use the most recent and relevant information available to accurately account for demand flexibility and its associated effects. Demand flexibility is contributed to by multiple different sectors included in the demand and generation assumptions. The table below shows the assumed contribution to demand flexibility based on the data sources listed.

| Category | Ireland Data Source / Assumption |
|--------------------|--|
| Storage | <ul style="list-style-type: none"> Storage contribution to flexibility captured to battery storage and pumped storage in Section 3. This storage is able to charge and discharge providing flexibility. |
| DSUs | <ul style="list-style-type: none"> Aligned to Demand Side Units in Section 3. |
| Electric Vehicles | <ul style="list-style-type: none"> Electric vehicle contribution to peak shifting flexibility accounted for on the basis of charging profiles as described in Section 2.1. |
| Residential Demand | <ul style="list-style-type: none"> Residential demand flexibility achieved through the use of smart metering and tariffs and aligned with the contributions detailed in CRU’s NEDS policy⁴². Reduction in residential demand assumed to be spread evenly throughout the remainder of the day. |

Table 10 - Flexibility

⁴¹ <https://www.cru.ie/publications/28200/>

⁴² https://cruie-live-96ca64acab2247eca8a850a7e54b-5b34f62.divio-media.com/documents/NEDS_Decision_Paper_and_Annex.pdf

3. Adequacy Resources

This section specifies data sources and assumptions sources for relevant inputs as listed in the methodology.

3.1. Conventional Generation

Table 11 below outlines data input sources and assumptions related to conventional generation.

| Input Category | Input Source(s) | Input Assumption(s) |
|--|--|--|
| Existing Plant Annual Operating Capacity | <ul style="list-style-type: none"> • Connection Agreements. • Operational data from Electronic Dispatch Instruction Logger (EDIL) declarations for information related to enduring capacity changes. • Closure notices submitted under the EirGrid Grid Codes⁴³. • Directive 2010/75/EU⁴⁴ of the European Parliament and the Council on industrial emissions (the Industrial Emissions Directive or IED). • REMIT Urgent Market Messaging (REMIT UMM)⁴⁵. | <ul style="list-style-type: none"> • In the instance where information differs between data sources, the most conservative value will be taken as the input e.g. a unit has declared unavailability through REMIT for a given year it will be excluded even if it still holds a valid Connection Agreement. |
| New plant capacity & deliverability | <ul style="list-style-type: none"> • Projects with awarded capacity in published capacity market auction results. Data for successful projects will be obtained from capacity market qualification data forms submitted to the capacity market team when seeking to qualify for a capacity auction. • Capacity market termination notices. | <ul style="list-style-type: none"> • The CRU concluded its Security of Supply Programme in July 2025. The deliverability of new capacity awarded in the capacity market will continue to be monitored by the Electricity Adequacy Reporting Group. • New plant deliverability is tracked considering likely connection dates based on a range of factors including planning, grid connection, gas connection. • At the freeze date, the TSO will risk adjust each project to an expected delivery date aligned with best available information. |
| Heat Rate | <ul style="list-style-type: none"> • ENTSO-E Market Modelling Database Thermal Properties tab. | <ul style="list-style-type: none"> • Thermal operating characteristics based on standard values (e.g. efficiency) consistent with the ERAA modelling framework. |
| Plant Performance | <ul style="list-style-type: none"> • EirGrid and SONI monthly availability reports from 2020 - 2024 (five years of statistics). | <ul style="list-style-type: none"> • Forced outages are represented as an annual % that capacity is expected to be forced unavailable. • Ambient availability is represented as a weekly profile, applied to gas fired generation and reflects reduced capacity availability during summer months when conditions are warmer. • Scheduled outages are represented as an annual number of hours that capacity is expected to be on an agreed outage. |

⁴³ https://cms.eirgrid.ie/sites/default/files/publications/Grid-Code-Version-13_0.pdf

⁴⁴ <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32010L0075&from=EN>

⁴⁵ [Nord Pool - REMIT UMM \(nordpoolgroup.com\)](https://nordpoolgroup.com)

| | | |
|----------------------|---|---|
| | | <ul style="list-style-type: none"> • Statistics are calculated on an all-island basis i.e. not on a jurisdictional level. • Units that have retired or are known to be retiring within the study horizon are excluded from the calculation of outage statistics. Rationale: Such units do not represent the performance of the fleet expected to be operational over the study horizon. • Statistics are applied to new and existing units. • Statistics are fixed across the study horizon i.e. performance is not modelled as improving or declining over time. • Assumed 24 hours for a plant to return to operation when forced offline. • Assumed each unit undertakes a single scheduled outage per year. • No distinction made to differentiate minor from major planned outages. |
| Run Hour Limitations | <ul style="list-style-type: none"> • Best Available Techniques⁴⁶ (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for large combustion plants. • Environmental Protection Agency (EPA) guidance. • Data or information received from market participants or project developers. • Generator Survey. • Planning permission. • Fuel scarcity considerations. | <ul style="list-style-type: none"> • In the instance where information differs between data sources, the most conservative value will be taken as the input. • The information pertaining to Hydrogenated Vegetable Oil (HVO) as a primary fuel type is evolving and uncertain. In addition, fuel supply challenges are possible which could restrict the operation of some units. The assessment assumes capacity operating on HVO as a primary fuel source are restricted to a 1,500 hours per year operating hour restriction. |

Table 11 - Conventional Generation Input Sources and Assumptions

⁴⁶ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32021D2326>

3.2. Interconnection

Table 12 below outlines data input sources and assumptions related to interconnection including HVDC and HVAC interconnection.

| Input Category | Input Source(s) | Input Assumption(s) |
|--|--|--|
| SEM to GB and France HVDC Interconnection | <ul style="list-style-type: none"> • Connection Agreements. • European Ten-Year Network Development Plan. • European Commission Project of Common Interest (PCI) status. • EirGrid Transmission Development Plans. | <ul style="list-style-type: none"> • In the instance where information differs between data sources, the most conservative value will be taken as the input. |
| Ireland to Northern Ireland HVAC Interconnection | <ul style="list-style-type: none"> • EirGrid Transmission Development Plans for delivery dates of new North-South interconnector. • ERAA 2024 for Net Transfer Capacity. | <ul style="list-style-type: none"> • The existing North South consists of two bi-directional lines having a combined NTC of +/- 300 MW. The new North South Interconnector will increase this NTC by +900/-950 giving a total NTC of 1200 N → S and 1250 S → N. • The Net Transfer Capacity increase from the new North South Interconnector was determined through Grid Transfer Capacity Studies for TYNDP studies in 2016. • No outage statistics applied to HVAC. |
| Pan European model | <ul style="list-style-type: none"> • The model used for the European Resource Adequacy Assessment 2024. | <ul style="list-style-type: none"> • Model used to derive fixed import/export flows for non-explicitly modelled regions (regions beyond GB and France). |
| HVDC Interconnection Availability | <ul style="list-style-type: none"> • SEM Interconnectors: Regulatory Authority approved outage statistics received through capacity auction process for interconnection to the SEM. • Non-SEM Interconnectors: European Resource Adequacy Assessment 2024. | <ul style="list-style-type: none"> • Implemented as forced outage only. |

Table 12 - Interconnection Input Sources and Assumptions

3.3. Variable Generation

Table 13 below outlines data input sources and assumptions related to variable generation including wind, solar and hydro resources.

| Input Category | Input Source(s) | Input Assumption(s) |
|--|---|---|
| Variable Renewable Capacity | <ul style="list-style-type: none"> Renewable Electricity Support Scheme (RESS) deliverability monitoring of successful projects. Offshore Renewable Electricity Support Scheme (ORESS). Connection policy including Gate 3, Non-GPA and ECP. Climate Action Plan 2024⁴⁷. Connection offer process figures. Shaping Our Electricity Future Roadmap v1.1⁴⁸. EirGrid / ESNB publications of renewable connections. SEAI Expert Elicitation⁴⁹. | <ul style="list-style-type: none"> The SEAI forecasts developed for variable generation capacity from surveys of expert stakeholders in the Decarbonised Electricity System Study (DESS) - Forecasts of plausible rates of generation technology deployment 2024 -2040 are used for median forecasts⁵⁰. Sensitivities were implemented on different renewable trajectories using the SEAI data and Climate Action Plan. |
| Ireland Hourly Renewable Rating Factor (%) | <ul style="list-style-type: none"> ERAA PECD 4.1 database profiles. | <ul style="list-style-type: none"> The PECD profiles include significantly high-capacity factors beyond what has been observed in actual recorded wind availability. Overestimating wind availability could present underrepresent risks to resource adequacy and therefore scaling factors are proposed to adjust the PECD onshore and offshore profiles (detailed further below). Onshore profiles scaled to an annual target average capacity factor of 30% (averaged across the weather scenarios) through applying a scaling factor of 0.65972. Offshore profile scaled to an annual target average capacity factor of 46% (averaged across the weather scenarios) through applying a scaling factor of 0.85174. Performance of renewable generators is considered to be consistent across the study horizon. Considerations for degrading performance of renewable generators towards the end of operational life, plant retirements, or repowering to more efficient turbines are outside of the scope of this methodology. Assume that any technological efficiency improvements are captured in the PECD profiles which show increase capacity factor of technologies across the study horizon. Assuming same profile for rooftop solar as with large scale onshore. |
| France and Great Britain Hourly | <ul style="list-style-type: none"> ERAA PECD 4.1 database profiles. | Profiles used for GB and France are consistent with ERAA. |

⁴⁷ <https://assets.gov.ie/284675/70922dc5-1480-4c2e-830e-295afd0b5356.pdf>

⁴⁸ https://www.eirgridgroup.com/site-files/library/EirGrid/Shaping-Our-Electricity-Future-Roadmap_Version-1.1_07.23.pdf

⁴⁹ <https://www.seai.ie/renewable-energy/decarbonised-electricity-system-study>

⁵⁰ [Decarbonised electricity system study | Renewable Energy | SEAI](#)

| | | |
|-----------------------------|--|--|
| Renewable Rating Factor (%) | | |
|-----------------------------|--|--|

Table 13 - Variable Generation Input Sources and Assumptions

3.4. Battery Storage

Table 14 below outlines data input sources and assumptions related to battery storage.

| Input Category | Input Source(s) | Input Assumption(s) |
|--------------------------------|--|--|
| Battery Storage Capacity | <ul style="list-style-type: none"> Capacity market auction qualification data for MW and storage duration information. Operational data from Electronic Dispatch Instruction Logger (EDIL) declarations. Capacity market termination notices. | <ul style="list-style-type: none"> In the instance where information differs between data sources, the most conservative value will be taken as the input. |
| Battery Storage Deliverability | <ul style="list-style-type: none"> Projects with awarded capacity in published capacity market auction results will be considered as part of the input generation portfolio when also considering the latest risk assessment of project delivery. Data for successful projects will be obtained from capacity market qualification data forms submitted to the capacity market team when seeking to qualify for a capacity auction. | <ul style="list-style-type: none"> Enhanced Monitoring programme in Ireland comprising EirGrid, CRU, and DCEE. The programme tracks new plant deliverability and assesses likely connection dates based on a range of factors including planning, grid connection, gas connection. |
| Technical Characteristics | <ul style="list-style-type: none"> ERAA 2024 methodology. 3rd party independent review of battery storage technologies. | <ul style="list-style-type: none"> Round Trip Efficiency: 80%. Max State of Charge: 90%. Min State of Charge: 10%. It is assumed that performance does not decline over time as units are cycled more frequently or chemical storage erodes. The parameters above are a balanced approach as opposed to purely representing units at the start of end of life. Battery Storage units will be aggregated by duration to improve the modelling simulation time, grouped by the following durations: <ul style="list-style-type: none"> 1 hour 2 hours 3 hours 4 hours 6 hours |
| Pump Load | <ul style="list-style-type: none"> Connection offers and agreements. | <ul style="list-style-type: none"> Maximum Import Capacity (MIC) set to 50% of Maximum Export Capacity (MEC) for Ireland existing battery units. MIC set to 100% of MEC for Ireland new battery units. |
| Storage Performance | <ul style="list-style-type: none"> EirGrid and SONI monthly availability reports from 2024 (one year of statistics). | <ul style="list-style-type: none"> Forced outages are represented as an annual % that capacity is expected to be forced unavailable. Statistics are calculated on an all-island basis i.e. not on a jurisdictional level. Statistics are applied to new and existing units. |

| | | |
|--|--|--|
| | | <ul style="list-style-type: none"> Statistics are fixed across the study horizon i.e. performance is not modelled as improving or declining over time. Assumed 24 hours for a plant to return to operation when forced offline. Scheduled outages for battery storage units were observed to be close to 0% and therefore have not been included. |
|--|--|--|

Table 14 - Battery Storage Input Sources and Assumptions

3.5. Demand Side Units

Table 15 below outlines data input sources and assumptions related to demand side units.

| Input Category | Input Source(s) | Input Assumption(s) |
|----------------------------|---|--|
| Demand Side Units Capacity | <ul style="list-style-type: none"> Capacity market auctions successful projects information. Capacity market termination notices. | <ul style="list-style-type: none"> In the instance where information differs between data sources, the most conservative value will be taken as the input. |
| Rating Factor | <ul style="list-style-type: none"> EirGrid and SONI monthly availability reports from 2020 - 2024 (five years of statistics). | <ul style="list-style-type: none"> Applied as a rating factor in the model to restrict capacity available to the economic dispatch rather than model using forced and scheduled outages which are less representative of DSU availability. |
| Daily Run Hour Limits | <ul style="list-style-type: none"> Run hour limits based on capacity market data | <ul style="list-style-type: none"> Run Hour Limits are applied on a daily basis. They do not change throughout the day or across the year i.e. depending on what loads may be available for response. Annual Run Hour Limits associated with Individual Demand Sites are not considered. This is assumed to be reflected in overall DSU performance captured in the Rating Factor. |

Table 15 - Demand Side Units Input Sources and Assumptions

3.6. Pumped Storage

Table 16 below outlines data input sources and assumptions related to pumped storage.

| Input Category | Input Source(s) | Input Assumption(s) |
|---------------------------------|--|--|
| Import/Export Capacity | <ul style="list-style-type: none"> • Connection agreement. • Operational data from Electronic Dispatch Instruction Logger (EDIL) declarations. | <ul style="list-style-type: none"> • Assumed to be fixed across study horizon. |
| Pumped Storage Reservoir Volume | <ul style="list-style-type: none"> • Operational policy and procedures. | <ul style="list-style-type: none"> • Assumed to be fixed across study horizon. |
| Performance | <ul style="list-style-type: none"> • EirGrid and SONI monthly availability reports from 2020 - 2024 (five years of statistics). | <ul style="list-style-type: none"> • Five-year capacity weighted average statistics. Same calculation as conventional generators. • The same assumptions apply as per conventional generators i.e. not considering future performance will improve or decline. |
| Pumped Storage Efficiency | <ul style="list-style-type: none"> • Operational policy and procedures. | <ul style="list-style-type: none"> • Efficiency is assumed to be fixed i.e. does not vary depending on pumping or generating load. |

Table 16 - Pumped Storage Input Sources and Assumptions

3.7. Other RES / Other Non-RES

Table 17 below outlines data input sources and assumptions related to other RES and other non-RES.

| Input Category | Input Source(s) | Input Assumption(s) |
|----------------|---|---|
| Capacity | <ul style="list-style-type: none"> • DSO data (ESBN) • SEAI | <ul style="list-style-type: none"> • Assumed to be fixed across study horizon. |

Table 17 - Other RES / Non-RES Input Sources and Assumptions

4. Modelling

Table 18 below specifies modelling input(s) sources and assumption(s).

| Category | Input Source(s) | Assumption(s) |
|------------------------------|---|---|
| Reliability Standard | <ul style="list-style-type: none"> Engagement with CRU and DCEE. | <ul style="list-style-type: none"> The CRU have confirmed, following engagement with DCEE, the Reliability Standard for Ireland is 3 hours Loss of Load Expectation (LOLE). |
| Modelling application | <ul style="list-style-type: none"> N/A | <ul style="list-style-type: none"> Energy Exemplar's Plexos application will be utilised for stochastic modelling of resource adequacy. |
| Modelling resolution | <ul style="list-style-type: none"> N/A | <ul style="list-style-type: none"> Hourly |
| Monte Carlo samples | <ul style="list-style-type: none"> Internal convergence analysis. | <ul style="list-style-type: none"> Assessing the variation of sample results for a single weather scenario and target year to a ± 50 MW tolerance. This represents a reasonable balance between the time taken to run stochastic simulations and convergence analysis of results. |
| Maintenance Factor | <ul style="list-style-type: none"> Generator outage schedules from previous 5 years. | <ul style="list-style-type: none"> The maintenance factor is an hourly profile representing the average historic scheduled outages pattern. This profile is used by Plexos to generate maintenance patterns for future years which on average reflect the typical scheduled outage pattern observed historically. Single maintenance factor profile used in both Northern Ireland and Ireland. Rationale: The pattern of outages in either jurisdiction is not observed to be significantly different from the other in terms of when maintenance may occur as such generating different maintenance factor profiles for Ireland and Northern Ireland does not have significant impact results. |
| Reserve | <ul style="list-style-type: none"> Operational constraints policy (example⁵¹). System Operator GuideLines⁵² (SOGL). | <ul style="list-style-type: none"> LSI before Q2 2028: 500 MW. LSI from Q2 2028: 700 MW. Reserve is fixed across each hour of the model optimisation i.e. does not vary dynamically over time. |
| Transmission Outage Planning | <ul style="list-style-type: none"> Analysis of transmission outages on operation of plant. | <ul style="list-style-type: none"> From 2025 EirGrid account for a 350 MW transmission outage planning requirement in Ireland. Given the constrained nature of the transmission network, contingencies or planned outages can result in restricted power flows on the network. Whilst the network is not explicitly modelled in the Plexos model, this adjustment is included to facilitate outages needed to connect new generation and infrastructure. |
| Fuel and carbon prices | <ul style="list-style-type: none"> ERAA 2024 Preliminary Input Data⁵³. | <ul style="list-style-type: none"> Fuel and carbon price forecasts for adequacy modelling. |
| Weather scenarios | <ul style="list-style-type: none"> European Resource Adequacy Assessment 2024. | <ul style="list-style-type: none"> There are 36 forecasted weather scenarios available from the PECD 4.1 database. |
| Geographic Scope | <ul style="list-style-type: none"> European Resource Adequacy Assessment 2024. | <ul style="list-style-type: none"> Regions outside the SEM, which are modelled explicitly are assumed to be operating at their Reliability Standard as described in the list below: <ul style="list-style-type: none"> Great Britain 3 hrs LOLE France 3 hrs LOLE |

Table 18 - Modelling Input Sources and Assumptions

⁵¹ [Wk06_2024_Weekly_Operational_Constraints_Update_Rev2.pdf \(sem-o.com\)](#)

⁵² <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32017R1485>

⁵³ <https://consultations.entsoe.eu/system-development/eraa2024-call-for-evidence-preliminary-dat/>

5. Economic Viability Assessment (EVA)

In this section the inputs for the EVA will be outlined, this includes the capacity constraints, the technical assumptions, the cost assumptions and the revenue assumptions for Ireland and Northern Ireland. The proposed input source for the majority of the inputs is in the first instance the SEMC BNE Study⁵⁴, where these assumptions are not available from the BNE study these will be supplemented by the ERAA 2024 inputs⁵⁵. However, note that some assumptions may have to be taken if the data is not available from the main data sources.

| Input Category | Input Source(s) | Input Assumption(s) |
|--|---|--|
| Minimum capacity floor constraint | <ul style="list-style-type: none"> Assumption based on existing capacity resources. Each technology type will have a minimum floor of capacity to reflect the minimum potential size of a particular unit. For example, a CCGT would not be able to be built at a capacity of 100 MW. | <ul style="list-style-type: none"> CCGT: 200 MW OCGT: 50 MW BESS: 5 MW |
| Maximum capacity cap per year constraint | <ul style="list-style-type: none"> Assumption based on existing capacity resources. This capacity constraint is to ensure the level of commissioning is not significantly above historical rates of commissioning. Note: in reality, the constraints are unlikely to be binding for a large portion of technology types or modelled years. | <ul style="list-style-type: none"> CCGT IE: 600 MW/year CCGT NI: 400 MW/year OCGT IE: 300 MW/year OCGT NI: 200 MW/year BESS IE: 300 MW/year BESS NI: 200 MW/year |
| Economic and technical assumptions for capacity resources in the EVA | <ul style="list-style-type: none"> Inputs are consistent with the properties outlined in section 3 ERAA 2024 EVA Model | <ul style="list-style-type: none"> This may include but is not limited to fuel prices, price caps, VOWC, start costs, unit efficiency, fuel offtake at start, minimum up and down times, and emissions intensity. |
| Technology costs | <ul style="list-style-type: none"> Technology costs will be separated by new and existing, for Ireland and Northern Ireland, by technology type, and by modelled year. SEMC BNE Study ERAA 2024 EVA Model | <ul style="list-style-type: none"> Technology costs detailed in Table 20. This includes but is not limited to WACC, hurdle premium⁵⁶, economic lifetime, fixed costs, capex. |
| Variable costs for gas units | <ul style="list-style-type: none"> N/A | <ul style="list-style-type: none"> An assumption of an additional variable cost for gas units to reflect gas units in the SEM seeing higher costs (e.g. due to gas transportation charges). |
| Mothballing costs | <ul style="list-style-type: none"> ERAA 2024 EVA Model | <ul style="list-style-type: none"> For the costs associated with mothballing or de-mothballing used in the decision making of the EVA the costs from the ERAA 2024 EVA Model are used. |
| Ancillary service revenue assumptions | <ul style="list-style-type: none"> SEMC BNE Study | <ul style="list-style-type: none"> Ancillary service revenue assumptions detailed in Table 20. The revenues from the electricity market will be modelled using the All-Island Resource Adequacy Model |

⁵⁴ [SEMC BNE Study 2023](#)

⁵⁵ [ERAA 2024 Input Data & Assumptions](#)

⁵⁶ Hurdle rate is equal to the hurdle premium plus WACC.

| | | |
|----------------------------------|--|---|
| | | <p>as described in the methodology document.</p> <ul style="list-style-type: none"> The additional revenues from ancillary services are accounted for by assuming a flat EUR/kW/year assumption for different technology classes and jurisdictions. |
| Inflation adjustment assumptions | <ul style="list-style-type: none"> Eurostat Monthly Harmonised Index of Consumer Prices (HICP) for Eurozone | <ul style="list-style-type: none"> The inflation adjustment is used to bring money into a consistent money basis. The money basis used in ERAA 2024 is real 2023 EUR money, therefore, this will be the money basis for the EVA. For moving money from the SEMC BNE Study which is in real 2022/23 money to real 2023 money an inflation adjustment of 1.007 is used. |

Table 19 - Inputs and Assumptions for the Economic Viability Assessment

| Source | Data type | OCGT | CCGT | BESS 2hr |
|--|--|--------|----------|----------|
| SEMC BNE (Input data) | Capital fixed costs (million EUR, real 2022/23) | 126.15 | 495 | 98.45 |
| | Recurring costs (million EUR/year, real 2022/23) | 5.84 | 30.94 | 5.08 |
| | WACC (%) | 7.27% | 7.27% | 7.27% |
| | DS3 Revenue (EUR/kW/year, real 2022/23) | 6.99 | 15.7 | 66.51 |
| | Capacity (MW) | 198.6 | 470.62 | 100 |
| ERAA 2024 [1] (Input data and used in model) | Hurdle premium - new entry (%) | 6% | 4.5% | 3% |
| | Hurdle premium - existing (%) | 3.5% | 3% | N/A |
| AIRAA 2025 [1] [2] (Calculated based on SEMC BNE and used in model) | Capex (EUR/kW, real 2023) | 639.4 | 1,058.77 | 991.02 |
| | Opex (EUR/kW/year, real 2023) | 29.6 | 66.18 | 51.14 |
| | Ancillary service revenue (EUR/kW/year, real 2023) | 7.03 | 15.81 | 66.95 |
| | Economic lifetime (yr) | 20 | 20 | 10 |

Table 20 - Technology costs and revenues for the Economic Viability Assessment in rated capacity terms

[1] These are the values used in the revenue based viability assessment.

[2] These are the technology costs used in the EVA, calculated from SEMC BNE and the inflation adjustment.

6. Scenarios

6.1. High and Low Demand Scenarios

Given the high number of variables in the demand forecast that are highly dependent on external factors, low and high demand scenarios are modelled as an expected upper and lower band of where EirGrid believe demand could realistically fall. These are not deemed as extreme scenarios, but realistic forecasts.

| | Low | Median | High | |
|------------------------------------|--|--|---|---|
| Housing | Based on Macro-Economic Projections from ESRI | Gov Housing Targets Achieved (c. 50k houses per annum) | Gov Housing Targets + Reduced Efficiency Gain | |
| Heat Pumps | Retrofit | 75% SEAI WEM | SEAI WEM | SEAI WAM |
| | New Builds | Current Housing Trajectory based on Macro-economic Projections | Gov Housing Targets (c. 50k/year) + Existing (126k) | Gov Housing Targets (c. 50k/year) + Lower COP |
| Electric Vehicles | 75% SEAI WEM | SEAI WEM | SEAI WAM | |
| Data centre & New Technology Loads | Low Ramp | Median Ramp | High Ramp | |
| Economic Growth | 75% ESRI Economic Projection | 100% ESRI Economic Projection | 110% ESRI Economic Projection | |
| Industrial Heat | 75% SEAI's National Energy Projections 2024 WAM Scenario | SEAI's National Energy Projections 2024 WAM Scenario | 110% SEAI's National Energy Projections 2024 WAM Scenario | |

Table 21 below details the assumptions are the assumptions which are altered in comparison to the median demand forecast described in Section 3 for deriving high and low demand forecasts. Whilst this does not adjust all parameters within the forecast, each sector has a factor adjusted to provide a projection built on the same foundation. Unless stated below, all other assumptions remain the same as the median forecast.

| | | Low | Median | High |
|------------------------------------|------------|--|--|---|
| Housing | | Based on Macro-Economic Projections from ESRI | Gov Housing Targets Achieved (c. 50k houses per annum) | Gov Housing Targets + Reduced Efficiency Gain |
| Heat Pumps | Retrofit | 75% SEAI WEM | SEAI WEM | SEAI WAM |
| | New Builds | Current Housing Trajectory based on Macro-economic Projections | Gov Housing Targets (c. 50k/year) + Existing (126k) | Gov Housing Targets (c. 50k/year) + Lower COP |
| Electric Vehicles | | 75% SEAI WEM | SEAI WEM | SEAI WAM |
| Data centre & New Technology Loads | | Low Ramp | Median Ramp | High Ramp |
| Economic Growth | | 75% ESRI Economic Projection | 100% ESRI Economic Projection | 110% ESRI Economic Projection |
| Industrial Heat | | 75% SEAI's National Energy Projections 2024 WAM Scenario | SEAI's National Energy Projections 2024 WAM Scenario | 110% SEAI's National Energy Projections 2024 WAM Scenario |

Table 21 - Low and High Demand Forecast Assumptions in Ireland

6.2. Modelling Scenarios and Sensitivities

| Scenario | Description |
|----------|---|
| Base | The Base scenario analyses the adequacy position in line with the European Resource Adequacy Assessment (ERAA). |
| Secure | Secure scenario analyses the system considering outcomes of additional security analysis (e.g. annual run hour limits, low interconnector imports, climate risks, extended plant outages and other operational requirements). |

Table 22 - Adequacy Scenarios

| Risk Sensitivity | Description |
|------------------------|--|
| Low French Nuclear | Assessing the impact of removing 2 or 4 medium sized nuclear units in France. |
| Dunkelflaute | Assessing the impact of a 1 or 2 weeklong Dunkelflaute, implemented through assuming low wind availability across Ireland, Northern Ireland and Great Britain in December, meaning solar availability is naturally also low during the period. |
| Low Plant Availability | Assessing the impact of low plant availability, implemented through fixing unit level outage statistics to the highest years forced outage rates from the last 5 years. |
| Interconnector Outage | Assessing the impact of a 6-month interconnector outage, implemented through taking out a 500 MW interconnector between SEM and GB for 6 months during the winter period. |

Table 23 - Additional Security Analysis sensitivities

| Sensitivity | Description |
|------------------------------------|--|
| Demand | Assessing the impact of a lower or higher demand trajectory. |
| Flexibility | Assessing the impact of a lower or higher level of flexibility. |
| Renewable Trajectory | Assessing the impact of a lower or higher level of renewable deployment. |
| Energy Storage | Assessing the impact of additional storage deployment. |
| Capacity Market Gas Plant Delivery | Assessing the impact of all gas capacity which has been awarded a capacity contract that has not yet been terminated, delivering on time for the year in which its contract was due to commence. |
| New Technology Load | Assessing the impact of potential growth in new data centres beyond 2030 and investment in new energy intensive sectors. |

Table 24 - Adequacy Sensitivities

7. Glossary

| | | | |
|----------------|---|-----------------|---------------------------------------|
| ACER | The European Union Agency for Cooperation of Energy Regulators | GW | Gigawatts |
| AHC | Advanced Hybrid Coupling | LOLD | Loss Of Load Duration |
| ATC | Available Transmission Capacity | LOLE | Loss Of Load Expectation |
| BESS | Battery Energy Storage System | LOLP | Loss Of Load Probability |
| BEV | Battery Electric Vehicles | LSI | Largest Single Infeed |
| CCS | Carbon Capture & Storage | MW | Megawatt |
| CHP | Combined Heat & Power | NCV | Net Calorific Value |
| CO2 | Carbon Dioxide | NRAA | National Resource Adequacy Assessment |
| CONE | Cost Of New Entry | NTC | Net Transfer Capacities |
| COP | Coefficient Of Performance | P2X | Power-to-X |
| DFT | Demand Forecasting Tool | PEMMDB | Pan-European Market Database |
| DSU | Demand Side Units | PHEV | Plug-in Hybrid Electric Vehicles |
| EENS | Expected Energy Not Served | PTDF | Power Transfer Distribution Factor |
| ENS | Energy Not Served | PV | Photovoltaics |
| ENTSO-E | European Network of Transmission System Operators for Electricity | RES | Renewable Energy Sources |
| ERAA | European Resource Adequacy Assessment | ROCOF | Rate-of-Change-of-Frequency |
| EU | European Union | RR | Replacement Reserves |
| EV | Electric Vehicles | SEM | Single Electricity Market |
| EVA | Economic Viability Assessment | SNSP | System Non-Synchronous Penetration |
| FBMC | Flow Based Market Coupling | SONI | System Operator for Northern Ireland |
| FCR | Frequency Containment Reserve | SRMC | Short-Run Marginal Cost |
| FOR | Forced Outage Rate | SY | Submission Year |
| FR | France | TSO | Transmission System Operator |
| FRR | Frequency Restoration Reserves | VO&M | Variable Operations & Maintenance |
| GB | Great Britain | VOLL | Value of Lost Load |
| GCS | Generation Capacity Statement | WACC | Weighted Average Cost of Capital |
| GJ | Gigajoules | | |