

## ISSUER IN-DEPTH

1 April 2026



Send Your Feedback

### Contacts

Phil Cope +44.20.7772.5229  
VP-Senior Analyst  
phil.cope@moodys.com

Edoardo Gasparoni +44.20.3314.2277  
Lead Ratings Associate  
edoardo.gasparoni@moodys.com

Neil Griffiths-Lambeth +44.20.7772.5543  
Associate Managing Director  
neil.griffiths-lambeth@moodys.com

### CLIENT SERVICES

Americas 1-212-553-1653  
Asia Pacific 852-3551-3077  
Japan 81-3-5408-4100  
EMEA 44-20-7772-5454

## Electricity Supply Board (ESB)

Regulatory and company measures mitigate large investment programme's execution and financing risk

In December 2025, the Commission for Regulation of Utilities (CRU), Ireland's utility regulator, published its Final Determination (FD) for the country's electricity networks for the 2026-30 regulatory period (PR6), the largest of which – onshore transmission and distribution – are owned by ESB Networks (ESBN), a significant business within [Electricity Supply Board \(ESB\)](#) (A3 positive). For ESBN, the regulatory approach remains very stable and predictable, while regulatory measures designed to facilitate the substantial step-up in an already large network investment programme affirm our view of supportive regulation.

- » **Further step-up in investment programme.** ESBN's base cost allowances under PR6 are around €12 billion (in 2024 prices), around 60% higher than in the prior regulatory period (PR5), with the greatest increase in transmission capex (150%). However, cost allowances could increase by €4.5 billion if all contemplated load-related projects are delivered. Under this scenario, ESBN's capex in PR6 would exceed its current opening Regulatory Asset Base (RAB).
- » **Regulatory measures reduce capex execution risk.** The new Agile Investment and Monitoring Framework provides ESBN with greater flexibility and autonomy in adjusting its investment programme and should help secure supply chains and reduce risk.
- » **Cost recovery decisions will help key credit metrics.** While growth in ESBN's operating cash flow will continue to lag RAB growth under PR6 – because of the long asset lives of most networks investments (45-50 years) and deferred cash returns under the real returns framework – a growing share of faster-recovering investments, supportive regulatory measures, a sizeable recent equity injection from the [Government of Ireland](#) (Aa3 positive) and a planned reduction in distributions should enable ESB to maintain a solid financial profile.
- » **Relaxation of key performance targets reduces risk of material penalties.** We expect ESBN to earn net rewards on incentives if it maintains its strong performance on non-network reliability metrics. Our expectation reflects the significant relaxation of network reliability targets for PR6, carrying the largest rewards and penalty, which broadly align with outturn performance in the current control.
- » **Evolution of ESB's business risk profile will depend on the execution of planned networks and renewables investments.** Regulated electric networks typically account for two thirds of ESB's EBITDA, with electricity generation making up the majority of the residual. The evolution of this percentage over the period to 2030 will depend on the level of realised capex in electricity networks, prevailing commodity prices, and the rate and type of renewable capacity additions.

## Further step-up in investment programme

The PR6 Final Determination (FD) presents a substantial step-up in network investment to support the Republic of Ireland's objectives – outlined in its Climate Action Plan – on decarbonisation, electrification, security of supply, asset renewal and resilience to severe weather events.

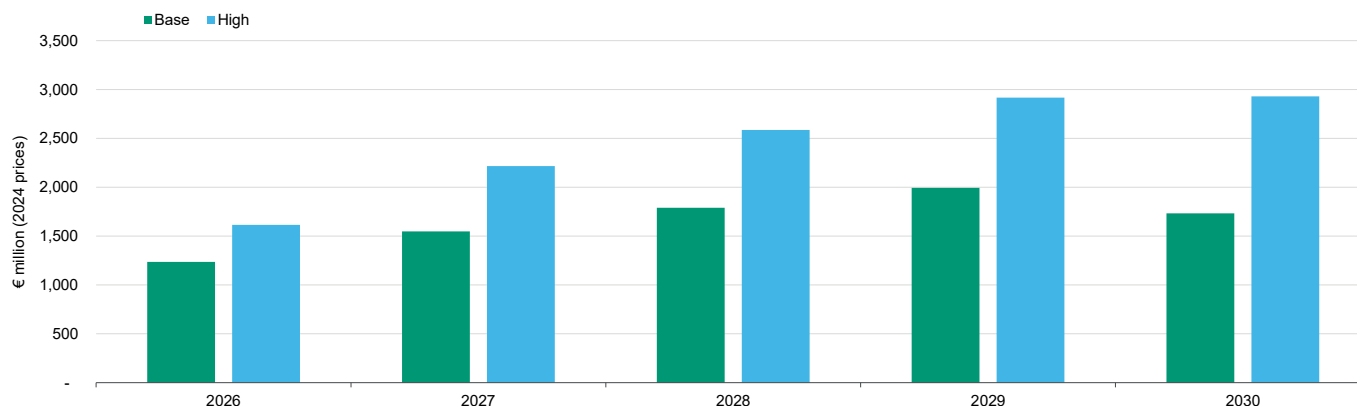
The PR6 framework is centered on an enhanced and expanded Agile Investment and Monitoring Framework (AIMF), which builds on the Agile Investment Framework (AIF) from PR5. The framework sets out a baseline investment programme that is incorporated into allowed revenues and customer bills, while also providing preapproved funding for incremental projects – primarily capex – as the need for and cost visibility of such investments becomes clearer during PR6 (high case). The FD clarifies that these additional allowances do not represent a binding cap. Efficient and well supported expenditure can be accommodated either during the period or through subsequent review, a credit positive given the limited visibility of prevailing supply chain and costs for less mature projects.

ESBN's FD includes regulatory cost allowances for around €12 billion under the base case (all figures in 2024 prices), around 60% above PR5 outturn levels. Under the high case, expenditure allowances could rise to over €16 billion, more than 2.2x PR5 outturn expenditure (Exhibit 1). The net base capex programme of €8.3 billion represents around 70% of ESBN's current RAB (€12 billion), with the high case programme exceeding this.

Approval of approximately €2 billion (base case) to €3 billion (high case) of transmission allowances is conditional on delivery of the 29 highest priority transmission projects, representing around 22% of ESBN's total capex programme. On the distribution side, almost half of baseline capex (€5.9 billion) relates to a broad network reinforcement programme of over €2 billion in the base case, alongside asset renewal and smart metering programmes of around €650 million each.

Exhibit 1

### Capex allowance would increase from already elevated levels under the high case



Source: CRU

The FD baseline cost allowances remain below ESBN's request, particularly for its distribution business, where the largest gap relates to planned maintenance. Despite an increase in regulatory allowances between the draft and final determinations, reflecting additional evidence submitted by the company (for example, on cost drivers and system requirements), baseline operating and capital expenditure allowances in distribution are around 13% and 15%, respectively, below ESBN's request.

This gap narrows to 7% and 4% under the high case, reflecting that most of the disallowances relate to scope (i.e., the CRU not sanctioning allowances in the project(s)), rather than a cost efficiency challenge. As a result, we believe the risk of unfunded overspend is limited.

This publication does not announce a credit rating action. For any credit ratings referenced in this publication, please see the issuer/deal page on <https://ratings.moody's.com> for the most updated credit rating action information and rating history.

### Regulatory measures reduce capex execution risk

The AIMF enables ESNB to adjust the pace and scale of its investment programme during PR6 by allowing expenditure and associated revenues to evolve in response to changes in scope, priorities and delivery pathways. Under the framework, ESNB's internal governance structures have primary responsibility for identifying and approving additional allowances, which are subsequently allowed by the regulator, subject to submission documentation being complete and well-justified. During the control, the CRU will continue to carry out monitoring, reporting and oversight functions, with formal reopeners applied on a targeted basis where well-supported proposals are brought forward. Access to additional allowances is through annual submissions, supported by evidence of progress on the baseline programme and the company's ability to deliver incremental investment. The CRU will continue to undertake its ex-post capex review to ensure expenditure has been efficiently incurred (see below).

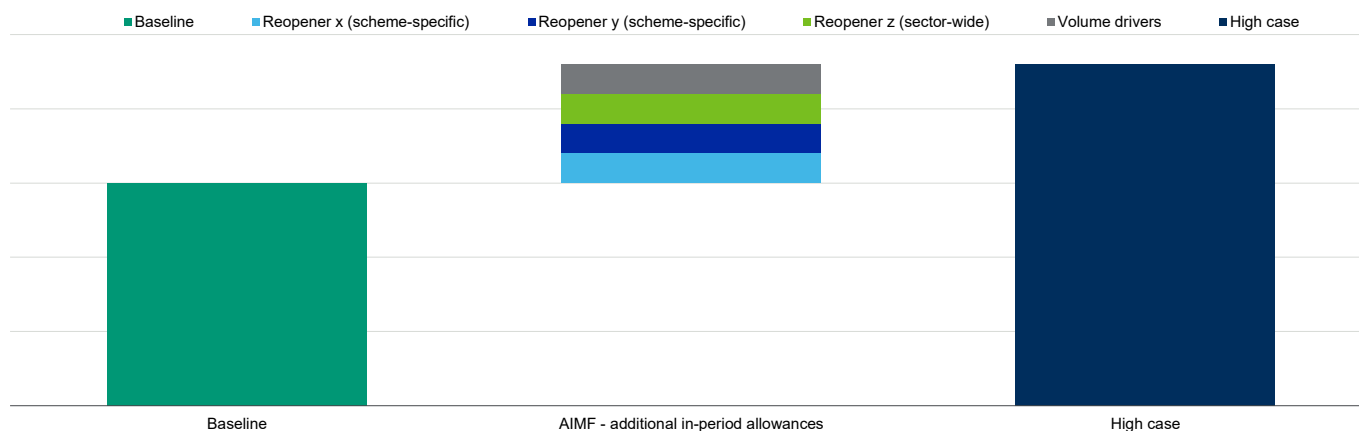
The streamlined approach will support investment amid competition for supply chain capabilities and facilitate timely delivery.

The framework operates through a predefined set of flexibility mechanisms across three main categories (Exhibit 2):

- » Sector-wide reopeners, allowing additional allowances or reallocations upon company requests, with most of these subject to a materiality threshold;
- » Specific reopeners for schemes with particularly uncertain costs or requirements, covering around 23% of distribution baseline capex and 46% of transmission baseline capex; and
- » Volume drivers, used where unit costs are predictable ex-ante but activity volumes are uncertain, and which apply to almost 40% of distribution baseline capex.

Exhibit 2

#### Material funding for reopeners will drive realisation of the high case Illustrative application of AIMF to ex-ante allowances



[1] Annual submission windows apply to multiple reopeners

Source: CRU

Compared with PR5, receipt of approved regulatory allowances is more explicitly conditioned on project delivery through the introduction of formalised delivery obligations (DOs). DOs ring-fence funding for strategic projects and programmes covering around 24% of distribution and 74% of transmission baseline capex, including the 29 highest priority transmission schemes, thereby linking allowances to deliverables and enhancing regulatory certainty.

However, ESNB still retains greater flexibility than some peers, including UK water companies, over how it executes its programme because the CRU has not introduced time-based incentives.

### Consistent ex-post approach supports regulatory stability

As in previous controls, the CRU will conduct an ex-post review of expenditure and continue to allow only efficiently incurred costs. ESB will therefore bear 100% of any inefficient overspend and retain 100% of any underspend, provided that DOs or other specified outputs have been met. The CRU will also retain its five-year rolling retention mechanism to incentivise capex efficiency.

Although outturn figures for 2024 and 2025 were still estimates at the time of the FD, the CRU provisionally allowed all ESBN expenditure incurred during PR5.<sup>1</sup> On the distribution side, the CRU allowed around €114 million of additional controllable opex as requested by ESBN (about 7% above the ex-ante allowance). On capex, it recognised the justification for underdelivery relative to ex-ante allowances on both the distribution and transmission programme (6.5% and 9% below baseline, respectively).

The PR6 determination process is consistent with the CRU's track record of supportive and predictable regulation, combining a constructive ex-post review with an expanded suite of flexibility mechanisms suited to managing the scale and uncertainty of the PR6 investment programme.

### Cost recovery decisions will help key credit metrics

Most of ESBN's network investments are depreciated over a very long period (a 45- and 50-year asset life is used for most distribution and transmission assets). As a result, depreciation on newly commissioned assets provides only limited support to operating cash flow during periods of elevated capital spending. The drag of slow cost recovery on operating cash flow is further accentuated by the deferral of cash returns under the real returns framework.

However, the PR6 distribution network investment programme includes a material proportion of faster depreciating asset categories, which mitigates this effect. Around 30%-40% of planned distribution capex relates to assets depreciated over 15 years or less, mainly smart metering and IT systems (system control and other ancillary services) – both around €0.7 billion. Together, these investments account for around 14% of ESB distribution's opening asset base. While the transmission investment programme almost entirely comprises long-life network assets, on an aggregate basis we expect cost recovery, expressed as regulatory depreciation over RAB, to marginally accelerate over PR6.

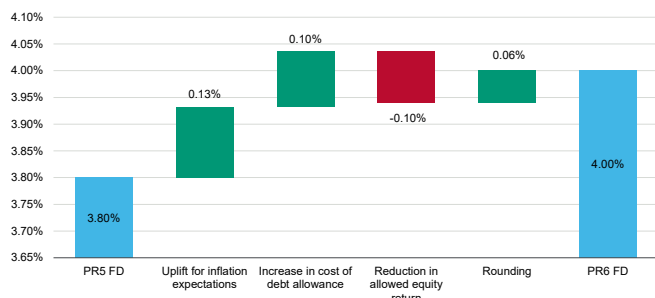
Similar to electricity transmission operators in Great Britain, ESBN has proposed shortening regulatory asset lives to better reflect the scale of network investment and evidence of earlier asset replacement cycles. ESBN estimates that unrecovered asset values linked to early replacement could amount to €394-€778 million, and we understand the CRU is assessing whether these costs could be recovered in PR6, a credit positive if implemented.

### Remuneration of working capital boosts operating cash flow

Allowed returns are 20 basis points (bp) higher in PR6 than PR5 (4.00% compared with 3.80% (both real, pre-tax)). This small increase reflects a higher regulatory cost of debt allowance, which more than offsets a small decline in allowed equity returns (Exhibit 3). If actual funding costs are in line with the CRU's allowance, the increase in ESBN's EBITDA from the higher allowed return will not boost funds from operations (FFO).

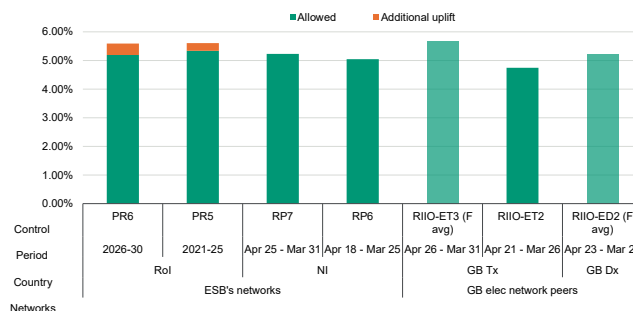
However, the introduction of a working capital mechanism for PR6 provides an additional (and sizeable) source of operating cash flow. We estimate this mechanism is equivalent to a 10-15 bp increase in the allowed WACC. Together with the CRU's continued approach of "aiming up" in its WACC calculation through the use of the 67th percentile of the range estimated by its economic consultants, this reinforces our view that the regulatory framework remains supportive (Exhibit 4).

Exhibit 3  
**Uplift for inflation expectations accounts for most of the increase in weighted average cost of capital (WACC)**  
 Allowed returns evolution from PR5 to PR6



Source: CRU

Exhibit 4  
**PR6 allowed equity return compares favourably with recent decisions**  
 Allowed equity returns for electricity networks across RoI, NI, GB (all figures real, post-tax)



[1] FD figure shown for RP7 and RP6, with true-ups for differences in predefined components of the calculation taking place either during or at the end of the period.  
 [2] All equity returns normalised on a 55% gearing, post-tax basis for comparability  
 Sources: CRU, UREG and Ofgem

**Recent equity injection will support maintenance of ESB's solid financial profile through PR6**

In advance of delivering its large investment programme in PR6, the Government of Ireland, ESB's owner, provided the company with a €1.5 billion equity injection in December 2025 (the government made the commitment in July, alongside the publication of its National Development Plan). We estimate that this capital will effectively pre-fund the baseline investment programme.

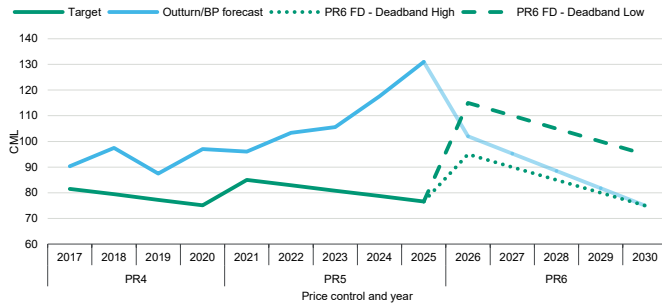
In addition, ESB agreed a revised dividend policy with the government, reducing distributions to 30% of adjusted profit after tax from the previous 40%, which ESB estimates will boost retained cash flow by over €300 million over PR6. While ESBN could require up to €500 million of net equity injections from ESB to maintain gearing in line with regulatory assumptions (55%) if PR6 investment outturns are at the high case, this could be met from the planned hybrid issuance. The reduction in the group's required distributions also provides scope to meet part of these funding requirements from operating cash flow generated by its other businesses.

**Relaxation of key performance targets reduces risk of material penalties**

Performance incentive rewards or penalties affect operating cash flow with a two-year lag. While the maximum rewards and penalties on performance incentives represent a similar portion of ESBN's RAB in PR6 as in PR5, we expect the company to earn higher net rewards in PR6. Our expectation reflects the significant relaxation of regulatory targets on the largest performance incentives, network reliability, to levels comparable with ESBN's actual performance in PR5 (Exhibit 5, 6); and the continuation of most PR5 incentives into PR6 with similar targets, where ESBN has a demonstrated track record of strong operational performance.

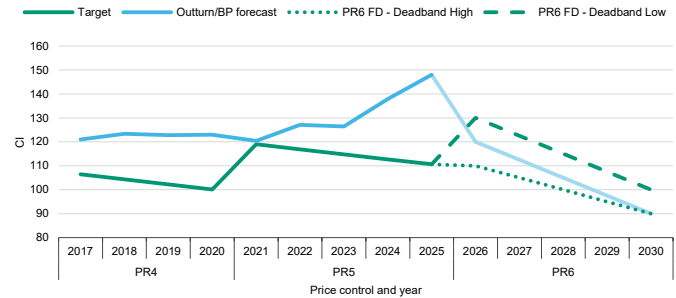
Over PR6, ESBN's annual maximum exposure to performance incentives averages around €80 million (or 4% of revenue). Reliability incentives for the distribution business, linked to unplanned outages measured through Customer Minutes Lost (CMLs) and Customer Interruptions (CIs), account for more than a third of this total exposure (€29 million in real 2024 prices).

Exhibit 5  
Introduction of deadbands reduced penalty risk...  
Unplanned Outage Duration - Customer Minutes Lost



[1] Deadband refers to a predefined range around the target within which no financial reward or penalty is applied; incentive payments are triggered only when performance falls outside this range  
[2] 2026-2030 performance as per ESNB business plan submission (BP forecast)  
Sources: CRU and ESNB

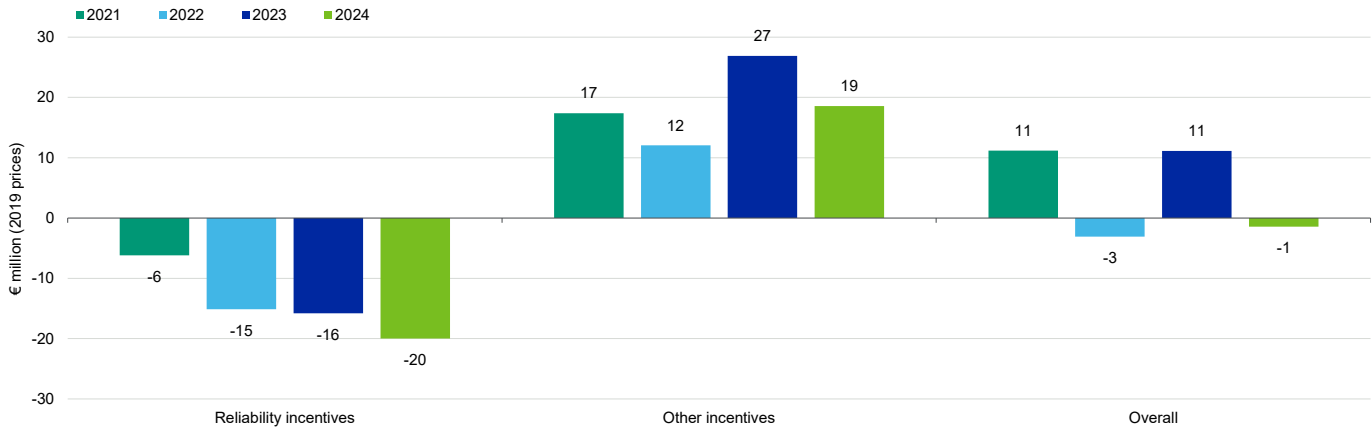
Exhibit 6  
...while requiring strong improvements from historical performance to unlock rewards  
Unplanned Outage Frequency - Customer Interruptions



Sources: CRU and ESNB

ESNB earned modest net rewards during PR5, as significant penalties under these reliability measures offset rewards earned in other areas (Exhibit 7). At the Draft Determination, the CRU proposed stretching reliability targets, which could have resulted in sizeable penalties. However, the regulator softened these targets at the Final Determination, accepting ESNB's evidence of increased storm-related damage and operational challenges. As part of this recalibration, the CRU introduced deadbands for CMLs and CIs, providing ESNB with meaningful headroom in the early years of PR6 and making financial penalties under these measures less likely. With its positive track record on other incentives, we believe ESNB is well positioned to earn net rewards over the period.

Exhibit 7  
Strong rewards on other incentives partly offset by penalties on reliability measures  
Aggregate ESNB evolution of earned rewards/penalties



Sources: CRU and ESNB

## Evolution of ESB's business risk profile will depend on the execution of planned networks and renewables investments

The PR6 determination is supportive of credit quality and provides ESB with good visibility over its electricity network investment through 2030. The current regulatory period for its smaller electricity network operations in Northern Ireland (also spanning transmission and distribution<sup>4</sup>) runs until March 2031.

ESBN regulated networks typically contribute around two thirds of consolidated ESB group earnings, with the remaining approximately 30% of EBITDA generated by non-network activities, mainly electricity generation. The evolution of these percentages, and in turn ESB's business mix, over the period to 2030 will depend on the level of realised capex in electricity networks, prevailing commodity prices, the pace of renewable additions and the resulting shift toward more contracted, less volatile generation earnings.

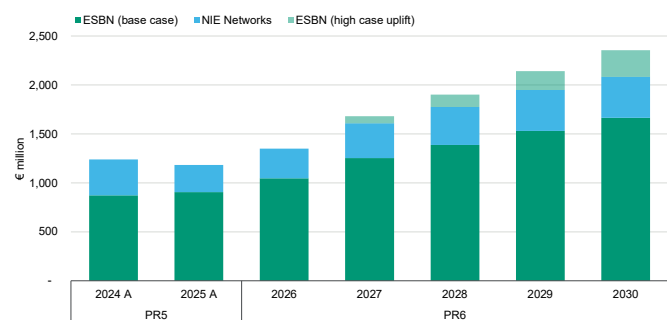
We expect ESB's EBITDA to grow significantly during PR6, mainly driven by expanding RAB through higher regulatory depreciation and allowed returns. On our estimates, ESB's EBITDA could increase to around €1.7–€1.9 billion by 2030 from €906 million in 2025 (Exhibit 8). Full utilisation of additional capex allowances under PR6 could further increase the relative contribution of ESB's earnings to the group mix by over 5%, lifting aggregate networks earnings (including NIE Networks) to around 75% of group EBITDA.

ESB's generation and trading EBITDA averaged around €510 million across 2024–25. As of December 2025, ESB's owned share of installed capacity of 6.3 gigawatts (GW) includes 2 GW of renewables and zero-carbon generation. The group's latest plan (covering 2026 to 2030) includes 4 GW of installed renewable capacity and 63% zero-carbon generation by 2030, supported by planned renewable investment of €3 billion. We believe ESB has good line of sight on reaching around 3.7 GW by 2030, based on awarded subsidies and committed investment decisions on new projects (Exhibit 9).

Given the long lead times for delivering new renewable projects (particularly offshore wind) from the development pipeline, ESB is likely to fall short of its prior 5 GW target. Absent inorganic growth or a sustained increase in commodity prices, we do not expect generation and trading earnings to grow at the same pace as regulated network earnings over the period to 2030.

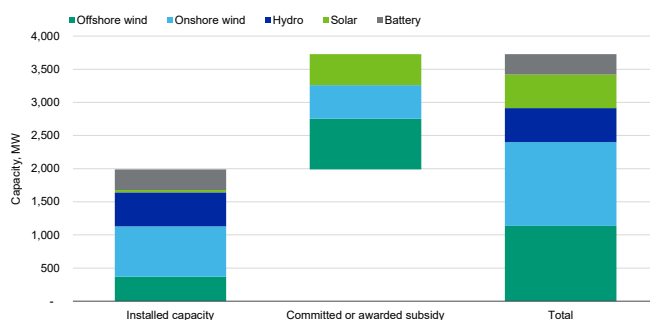
As a result, we expect the quality of group earnings to improve, driven by a higher contribution from regulated networks and a growing share of contracted earnings in the generation segment. These developments will also contribute to reducing ESB's carbon transition risk.

Exhibit 8  
**ESB's EBITDA from network activities will exceed €2 billion by 2030**  
 Networks EBITDA evolution



Sources: CRU and ESB

Exhibit 9  
**Renewable generation organic growth may fall short of the 5 GW by 2030 target**  
 ESB Renewable capacity, installed and perspective



"Committed or awarded subsidy" data based on 2024 published information  
 Source: ESB

## Endnotes

- 1 With the exception of €9.7 million in miscellaneous distribution opex items.
- 2 See [Northern Ireland Electricity Network's significant capex plans will only modestly raise parent ESB's leverage](#), 7 March 2024

© 2026 Moody's Corporation, Moody's Investors Service, Inc., Moody's Analytics, Inc. and/or their licensors and affiliates (collectively, "MOODY'S"). All rights reserved. CREDIT RATINGS ISSUED BY MOODY'S CREDIT RATINGS AFFILIATES ARE THEIR CURRENT OPINIONS OF THE RELATIVE FUTURE CREDIT RISK OF ENTITIES, CREDIT COMMITMENTS, OR DEBT OR DEBT-LIKE SECURITIES, AND MATERIALS, PRODUCTS, SERVICES AND INFORMATION PUBLISHED OR OTHERWISE MADE AVAILABLE BY MOODY'S (COLLECTIVELY, "MATERIALS") MAY INCLUDE SUCH CURRENT OPINIONS. MOODY'S DEFINES CREDIT RISK AS THE RISK THAT AN ENTITY MAY NOT MEET ITS CONTRACTUAL FINANCIAL OBLIGATIONS AS THEY COME DUE AND ANY ESTIMATED FINANCIAL LOSS IN THE EVENT OF DEFAULT OR IMPAIRMENT. SEE APPLICABLE MOODY'S RATING SYMBOLS AND DEFINITIONS PUBLICATION FOR INFORMATION ON THE TYPES OF CONTRACTUAL FINANCIAL OBLIGATIONS ADDRESSED BY MOODY'S CREDIT RATINGS. CREDIT RATINGS DO NOT ADDRESS ANY OTHER RISK, INCLUDING BUT NOT LIMITED TO: LIQUIDITY RISK, MARKET VALUE RISK, OR PRICE VOLATILITY. CREDIT RATINGS, NON-CREDIT ASSESSMENTS ("ASSESSMENTS"), AND OTHER OPINIONS INCLUDED IN MOODY'S MATERIALS ARE NOT STATEMENTS OF CURRENT OR HISTORICAL FACT. MOODY'S MATERIALS MAY ALSO INCLUDE QUANTITATIVE MODEL-BASED ESTIMATES OF CREDIT RISK AND RELATED OPINIONS OR COMMENTARY PUBLISHED BY MOODY'S ANALYTICS, INC. AND/OR ITS AFFILIATES. MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND MATERIALS DO NOT CONSTITUTE OR PROVIDE LEGAL, COMPLIANCE, INVESTMENT, FINANCIAL OR OTHER PROFESSIONAL ADVICE, AND MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND MATERIALS ARE NOT AND DO NOT PROVIDE RECOMMENDATIONS TO PURCHASE, SELL, OR HOLD PARTICULAR SECURITIES. MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND MATERIALS DO NOT COMMENT ON THE SUITABILITY OF AN INVESTMENT FOR ANY PARTICULAR INVESTOR. MOODY'S ISSUES ITS CREDIT RATINGS, ASSESSMENTS AND OTHER OPINIONS AND PUBLISHES OR OTHERWISE MAKES AVAILABLE ITS MATERIALS WITH THE EXPECTATION AND UNDERSTANDING THAT EACH INVESTOR WILL, WITH DUE CARE, MAKE ITS OWN STUDY AND EVALUATION OF EACH SECURITY THAT IS UNDER CONSIDERATION FOR PURCHASE, HOLDING, OR SALE.

MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS, AND MATERIALS ARE NOT INTENDED FOR USE BY RETAIL INVESTORS AND IT WOULD BE RECKLESS AND INAPPROPRIATE FOR RETAIL INVESTORS TO USE MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS OR MATERIALS WHEN MAKING AN INVESTMENT DECISION. IF IN DOUBT YOU SHOULD CONTACT YOUR FINANCIAL OR OTHER PROFESSIONAL ADVISER.

ALL INFORMATION CONTAINED HEREIN IS PROTECTED BY LAW, INCLUDING BUT NOT LIMITED TO, COPYRIGHT LAW, AND NONE OF SUCH INFORMATION MAY BE COPIED OR OTHERWISE REPRODUCED, REPACKAGED, FURTHER TRANSMITTED, TRANSFERRED, DISSEMINATED, REDISTRIBUTED OR RESOLD, OR STORED FOR SUBSEQUENT USE FOR ANY SUCH PURPOSE, IN WHOLE OR IN PART, IN ANY FORM OR MANNER OR BY ANY MEANS WHATSOEVER, BY ANY PERSON WITHOUT MOODY'S PRIOR WRITTEN CONSENT. FOR CLARITY, NO INFORMATION CONTAINED HEREIN MAY BE USED TO DEVELOP, IMPROVE, TRAIN OR RETRAIN ANY SOFTWARE PROGRAM OR DATABASE, INCLUDING, BUT NOT LIMITED TO, FOR ANY ARTIFICIAL INTELLIGENCE, MACHINE LEARNING OR NATURAL LANGUAGE PROCESSING SOFTWARE, ALGORITHM, METHODOLOGY AND/OR MODEL.

MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND MATERIALS ARE NOT INTENDED FOR USE BY ANY PERSON AS A BENCHMARK AS THAT TERM IS DEFINED FOR REGULATORY PURPOSES AND MUST NOT BE USED IN ANY WAY THAT COULD RESULT IN THEM BEING CONSIDERED A BENCHMARK.

All information contained herein is obtained by MOODY'S from sources believed by it to be accurate and reliable. Because of the possibility of human or mechanical error as well as other factors, however, all information contained herein is provided "AS IS" without warranty of any kind. MOODY'S adopts all necessary measures so that the information it uses in assigning a credit rating or assessment is of sufficient quality and from sources MOODY'S considers to be reliable including, when appropriate, independent third-party sources. However, MOODY'S is not an auditor and cannot in every instance independently verify or validate information received in the credit rating or assessment process or in preparing its Materials.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability to any person or entity for any indirect, special, consequential, or incidental losses or damages whatsoever arising from or in connection with the information contained herein or the use of or inability to use any such information, even if MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers is advised in advance of the possibility of such losses or damages, including but not limited to: (a) any loss of present or prospective profits or (b) any loss or damage arising where the relevant financial instrument is not the subject of a particular credit rating or assessment assigned by MOODY'S.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability for any direct or compensatory losses or damages caused to any person or entity, including but not limited to by any negligence (but excluding fraud, willful misconduct or any other type of liability that, for the avoidance of doubt, by law cannot be excluded) on the part of, or any contingency within or beyond the control of, MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers, arising from or in connection with the information contained herein or the use of or inability to use any such information.

NO WARRANTY, EXPRESS OR IMPLIED, AS TO THE ACCURACY, TIMELINESS, COMPLETENESS, MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OF ANY CREDIT RATING, ASSESSMENT, OTHER OPINION OR INFORMATION IS GIVEN OR MADE BY MOODY'S IN ANY FORM OR MANNER WHATSOEVER.

Moody's Investors Service, Inc., a wholly-owned credit rating agency subsidiary of Moody's Corporation ("MCO"), hereby discloses that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by Moody's Investors Service, Inc. have, prior to assignment of any credit rating, agreed to pay Moody's Investors Service, Inc. for credit ratings opinions and services rendered by it. MCO and all MCO entities that issue ratings under the "Moody's Ratings" brand name ("Moody's Ratings"), also maintain policies and procedures to address the independence of Moody's Ratings' credit ratings and credit rating processes. Information regarding certain affiliations that may exist between directors of MCO and rated entities, and between entities who hold credit ratings from Moody's Investors Service, Inc. and have also publicly reported to the SEC an ownership interest in MCO of more than 5%, is posted annually at [ir.moody.com](http://ir.moody.com) under the heading "Investor Relations — Corporate Governance — Charter and Governance Documents - Director and Shareholder Affiliation Policy."

Moody's SF Japan K.K., Moody's Local AR Agente de Calificación de Riesgo S.A., Moody's Local BR Agência de Classificação de Risco LTDA, Moody's Local MX S.A. de C.V., I.C.V., Moody's Local PE Clasificadora de Riesgo S.A., Moody's Local PA Clasificadora de Riesgo S.A., Moody's Local CR Clasificadora de Riesgo S.A., Moody's Local ES S.A. de CV Clasificadora de Riesgo, Moody's Local RD Sociedad Clasificadora de Riesgo S.R.L. and Moody's Local GT S.A. (collectively, the "Moody's Non-NRSRO CRAs") are all indirectly wholly-owned credit rating agency subsidiaries of MCO. None of the Moody's Non-NRSRO CRAs is a Nationally Recognized Statistical Rating Organization.

Additional terms for Australia only: Any publication into Australia of this document is pursuant to the Australian Financial Services License of MOODY'S affiliate, Moody's Investors Service Pty Limited ABN 61 003 399 657 AFSL 336969 and/or Moody's Analytics Australia Pty Ltd ABN 94 105 136 972 AFSL 383569 (as applicable). This document is intended to be provided only to "wholesale clients" within the meaning of section 761G of the Corporations Act 2001. By continuing to access this document from within Australia, you represent to MOODY'S that you are, or are accessing the document as a representative of, a "wholesale client" and that neither you nor the entity you represent will directly or indirectly disseminate this document or its contents to "retail clients" within the meaning of section 761G of the Corporations Act 2001. MOODY'S credit rating is an opinion as to the creditworthiness of a debt obligation of the issuer, not on the equity securities of the issuer or any form of security that is available to retail investors.

Additional terms for India only: Moody's credit ratings, Assessments, other opinions and Materials are not intended to be and shall not be relied upon or used by any users located in India in relation to securities listed or proposed to be listed on Indian stock exchanges.

Additional terms with respect to Second Party Opinions and Net Zero Assessments (as defined in Moody's Ratings Rating Symbols and Definitions): Please note that neither a Second Party Opinion ("SPO") nor a Net Zero Assessment ("NZA") is a "credit rating". The issuance of SPOs and NZAs is not a regulated activity in many jurisdictions, including Singapore. EU: In the European Union, each of Moody's Deutschland GmbH and Moody's France SAS provide services as an external reviewer in accordance with the applicable requirements of the EU Green Bond Regulation. JAPAN: In Japan, development and provision of SPOs and NZAs fall under the category of "Ancillary Businesses", not "Credit Rating Business", and are not subject to the regulations applicable to "Credit Rating Business" under the Financial Instruments and Exchange Act of Japan and its relevant regulation. PRC: Any SPO: (1) does not constitute a PRC Green Bond Assessment as defined under any relevant PRC laws or regulations; (2) cannot be included in any registration statement, offering circular, prospectus or any other documents submitted to the PRC regulatory authorities or otherwise used to satisfy any PRC regulatory disclosure requirement; and (3) cannot be used

within the PRC for any regulatory purpose or for any other purpose which is not permitted under relevant PRC laws or regulations. For the purposes of this disclaimer, "PRC" refers to the mainland of the People's Republic of China, excluding Hong Kong, Macau and Taiwan.

REPORT NUMBER 1475087

CLIENT SERVICES

Americas	1-212-553-1653
Asia Pacific	852-3551-3077
Japan	81-3-5408-4100
EMEA	44-20-7772-5454