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Decision – WACC annex 2026-2028

Annex to the method decision on electricity and drinking water in the Caribbean Netherlands 2026-2031

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WACC for energy and drinking water companies in the Caribbean Netherlands for the years 2026-2028

Part of the determination by the Netherlands Authority for Consumers and Markets of a method as referred to in Section 2.5, paragraph 5, and Section 3.14, paragraph 6, of the BES Electricity and Drinking Water Act (*Wet elektriciteit en drinkwater BES*).

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1 Summary

1. In this annex to the method decision on electricity and drinking water in the Caribbean Netherlands 2026-2031[1] (hereinafter: method decision) the Netherlands Authority for Consumers and Markets (hereinafter: ACM) determines the nominal pre-tax rate Weighted Average Cost of Capital (hereinafter: WACC) for electricity production, electricity distribution and water production and distribution in the Caribbean islands of Bonaire, St. Eustatius and Saba (hereinafter: the Caribbean Netherlands) for the first three years of the regulatory period 2026-2028, namely the period from January 1, 2026, up to and including December 31, 2028.

2. As the regulated companies each provide a different combination of services, the reasonable return for each activity differs. Therefore, for this period the ACM has decided to determine three different WACCs: a WACC for electricity production, a WACC for electricity distribution and a WACC for water production and distribution. Moreover, since the ACM sets yearly tariffs for the production and distribution of electricity and water in the Caribbean Netherlands, the ACM has decided to set a WACC upfront for each year separately. These WACCs may differ from year to year, since the Cost of Debt (hereinafter: CoD) may differ from year to year as well.

3. Compared to the previous WACC (annex) decision, the ACM changes the WACC determination on three elements. Firstly, the ACM calculates CoD based on the US BBB 10-year utility index, with an addition for the higher risk profile of the Caribbean region, compared to the US. This is explained in chapter 7. Secondly, the ACM introduces an annual ex ante adjustment of the risk free rate and CoD. Thirdly, the ACM introduces an annual ex post recalculation of the CoD, in addition to the already existing recalculation of the risk free rate.

4. A summary of the parameters and resulting WACCs is given in tables 1a to 1c below.

Table 1a: Summary of WACC calculations 2026

Parameter	Electricity production	Electricity distribution	Water production and distribution
Tax	0%	0%	0%
Gearing (D/A)	32.25%	39.63%	29.81%
Asset beta	0.64	0.51	0.37
Equity beta	0.94	0.84	0.53
Risk-free rate	4.16%	4.16%	4.16%
Equity risk premium	6.57%	6.57%	6.57%
Cost of Equity (post-tax)	10.34%	9.67%	7.65%
Cost of Equity (pre-tax)	**10.34%**	**9.67%**	**7.65%**
Cost of Debt (excl. non-interest fees)	5.01%	5.01%	5.01%
Non-interest fees	0.15%	0.15%	0.15%
Cost of Debt (pre-tax)	**5.16%**	**5.16%**	**5.16%**
Nominal WACC (pre-tax)	8.67%	7.88%	6.91%
Nominal WACC (pre-tax), rounded to 2 decimals	**8.67%**	**7.88%**	**6.91%**

[1] Methodebesluit ACM/24/187957, oktober 2025, *Methodebesluit elektriciteit en drinkwater Caribisch Nederland 2026 - 2031*.

Table 1b: Summary of WACC calculations 2027

Parameter	Electricity production	Electricity distribution	Water production and distribution
Tax	0%	0%	0%
Gearing (D/A)	32.25%	39.63%	29.81%
Asset beta	0.64	0.51	0.37
Equity beta	0.94	0.84	0.53
Risk-free rate	4.16%	4.16%	4.16%
Equity risk premium	6.57%	6.57%	6.57%
Cost of Equity (post-tax)	10.34%	9.67%	7.65%
Cost of Equity (pre-tax)	**10.34%**	**9.67%**	**7.65%**
Cost of Debt (excl. non-interest fees)	5.19%	5.19%	5.19%
Non-interest fees	0.15%	0.15%	0.15%
Cost of Debt (pre-tax)	**5.34%**	**5.34%**	**5.34%**
Nominal WACC (pre-tax)	8.73%	7.95%	6.96%
Nominal WACC (pre-tax), rounded to 2 decimals	**8.73%**	**7.95%**	**6.96%**

Table 1c: Summary of WACC calculations 2028

Parameter	Electricity production	Electricity distribution	Water production and distribution
Tax	0%	0%	0%
Gearing (D/A)	32.25%	39.63%	29.81%
Asset beta	0.64	0.51	0.37
Equity beta	0.94	0.84	0.53
Risk-free rate	4.16%	4.16%	4.16%
Equity risk premium	6.57%	6.57%	6.57%
Cost of Equity (post-tax)	10.34%	9.67%	7.65%
Cost of Equity (pre-tax)	**10.34%**	**9.67%**	**7.65%**
Cost of Debt (excl. non-interest fees)	5.30%	5.30%	5.30%
Non-interest fees	0.15%	0.15%	0.15%
Cost of Debt (pre-tax)	**5.45%**	**5.45%**	**5.45%**
Nominal WACC (pre-tax)	8.76%	8.00%	6.99%
Nominal WACC (pre-tax), rounded to 2 decimals	**8.76%**	**8.00%**	**6.99%**

2 Introduction

5. Since July 1, 2016, the ACM has been charged with the task to regulate the tariffs of the energy and drinking water companies on the Caribbean Netherlands. One of the elements of the tariff regulation is the reasonable return that companies are allowed to earn on their invested capital. The ACM determines this reasonable return using the WACC.

6. In this WACC annex to the method decision, the ACM determines the WACC for the regulated electricity and drinking water companies in the Caribbean Netherlands. References made in the method decision to the WACC annex, as of January 1, 2026, refer to the subsequent WACC annex. For determining the subsequent WACC, the ACM had an external investigation carried out by The Brattle Group Limited (hereinafter: Brattle). The general approach to the WACC, including the method of the determination and calculation, is explained in chapter 3 of this annex.

7. The regulated companies in the Caribbean Netherlands differ from each other in terms of activities. Currently, Water en Energiebedrijf Bonaire N.V. (hereinafter: WEB) is responsible for the electricity distribution and the water production and distribution on Bonaire. ContourGlobal Bonaire B.V. (hereinafter: CGB) is responsible for the electricity production on Bonaire. On St. Eustatius, Statia Utility Company N.V. (herafter: STUCO) is responsible for the production and distribution of electricity and water. Saba Electricity Company N.V. (hereinafter: SEC) is responsible for the electricity production and distribution on Saba.

8. In the subsequent chapters, the ACM sets out the methodology for calculating the WACC and the results for the relevant parameters. All parameters combined are used to calculate the WACC. In this document, only the main results are presented. The report[2] by Brattle (hereinafter: Brattle report), with a more detailed calculation of the WACC, will be published alongside this WACC annex.

2.1 Procedure

9. Prior to starting the WACC 2026-2028 investigation, the ACM gave the regulated companies the opportunity to provide input on the WACC methodology. CGB provided input on February 18, 2025. WEB, STUCO and SEC jointly provided input on February 19, 2025. The ACM has asked Brattle to take these comments into consideration.

10. On May 28, 2025, the ACM published the draft version of the WACC annex and the Brattle report. Stakeholders, such as utility companies and end-user organizations, had an opportunity to respond to this draft method. On the basis of the responses, ACM adopted the definitive method on October 16th, 2025. ACM published all responses on its website. In the response annex, ACM explains how the responsed are processed.

[2] The Brattle Group (April 30, 2025), *Beta, gearing, ERP and cost of debt for Electricity and Water Companies in the Caribbean Netherlands*.

3 General approach to the WACC

11. Tariffs are meant to compensate network operators and production companies for the costs they incur. In the method decision, two types of costs are distinguished: capital costs and operational costs. Capital costs consist of two components: a) the depreciation of assets, which is related to the aging of the assets, and b) a reasonable return on invested capital, also referred to as the so-called opportunity costs of the investments in these assets. The opportunity costs consist of the benefits that investors in the companies could have received if they had invested in an alternative (the second-best) portfolio of assets. After all, by investing in a specific asset, such as an asset of an energy distribution company in the Caribbean Netherlands, the investor will not receive the benefits of investing that same amount of capital in some other asset(s). The return on the best alternative option is generally based on the return in financial markets for companies with activities similar to those of the company in question. This equals the return that investors might be able to achieve by investing both debt and equity capital in similar assets in the market. The required return by investors is the WACC to the company.

12. One consequence of the idea of opportunity costs is that the ACM uses the perspective of investors as the starting point when determining the WACC. Hence, the cost of capital of a specific investment in a specific industry is determined by what a group of relevant investors could earn in the market. By investing in this industry, the potential earnings in this market are their opportunity costs. In order to determine the opportunity costs of investing in the industries in the Caribbean Netherlands, the ACM needs to define the group of potential investors as well as the capital markets in which they are active. The group of potential investors is not restricted to those investors that have already invested in the Caribbean Netherlands, but it includes all investors that could have a potential interest in the companies in the Caribbean Netherlands.

13. Similarly, lenders also want to be compensated for their opportunity costs and risks on their invested capital (e.g. bankruptcy risk). A lender will therefore charge interest. To account for the opportunity costs of lenders, the ACM determines what a lender would charge to an efficient company in the Caribbean Netherlands.

14. The ACM has asked Brattle to determine the representative and up-to-date peer groups and to advise on parameters of the WACC. The data used by Brattle are obtained from financial databases. Data available until February 28, 2025 are used. The outcomes in this Annex are based on calculations in the Brattle report.

15. The WACC gives the return that investors require by investing both debt and equity capital with similar risk in the market. The WACC weights both capital parts by the following formula:

$$WACC_{pre-tax} = \frac{D}{A} * CoD + \left(1 - \frac{D}{A}\right) * \frac{CoE}{(1 - T_c)}$$

In which:
D/A = Gearing (debt over assets), percentage financed by debt (section 5.1)
CoD = Cost of debt (chapter 7)
CoE = Cost of equity (chapter 6)
T_c = Corporate tax rate (section 5.2)

16. In subsequent chapters, these elements of the WACC are addressed.

4 Peer group

17. In this chapter, the ACM discusses the peer group. The peer group is relevant for determining two parameters: the beta (systematic risk; see chapter 6) and gearing (see chapter 5). The beta for the regulated companies in the Caribbean Netherlands can be determined by looking at the stocks of a group of companies that are representative for the energy and drinking water companies. These are companies that are active in similar industries within a similar economic environment. In addition, the companies preferably are subject to a regulatory regime. This group of selected companies is called the peer group.

18. As before the ACM determines a peer group per activity to calculate the beta and the gearing. The ACM defines a peer group for each of the relevant activities: electricity production, electricity distribution, and water production and distribution. To this end, Brattle selected companies whose shares are publicly traded and which derive the majority of their income from that single activity (so-called “pure player” peers).[3] Based on these peer groups, Brattle then calculated a beta and gearing per activity, resulting in a WACC per activity. This WACC per activity is used as parameter for the tariff decisions.

19. The ACM is of the opinion that the approach of Brattle leads to a better estimation of the beta and gearing per company. By only looking at “pure player” peers, who earn a majority of their income from an activity comparable to the regulated companies in the Caribbean Netherlands, the systematic risk and the gearing of each activity is estimated separately. Even though in the approach previous to the period 2023-2025 peers were also primarily selected based on whether they produced the same product or were involved in the same activities as the regulated companies, in accordance with the 2020 Court ruling,[4] the current approach of Brattle is more transparent in identifying the differences in systematic risk between the different activities.

20. As for the years 2023-2025, Brattle selects the peer companies from the regions of Latin America, USA and Europe. The underlying assumption that potential investors consider companies in those regions carrying out comparable activities as an alternative to investing in the regulated companies in the Caribbean Netherlands is still valid. This is also in line with the 2020 Court ruling.[5] The ACM would have included listed peer companies in the Caribbean, if these peer companies would have existed. Such companies however do not exist. Moreover, as Brattle wrote in 2022, it is not necessary to include peers from the Caribbean region in order to estimate the systematic risk of the regulated companies.[6] According to Brattle, location specific risks and related costs, such as the risk for hurricanes, will not be reflected in the systematic risks. Hurricane risk may for example lead to higher insurance costs, which are reflected in the operational costs, not in the capital costs.

21. On request of ACM, Brattle applied a number of liquidity tests to the selection of peer companies in order to guarantee a reliable estimate of the beta. As the primary liquidity criterion, Brattle applied a bid-ask spread threshold of 1%, which led to the exclusion of a few potential peers. Additionally, Brattle has checked that the credit rating of the candidate peers was not below investment grade and that the companies were not involved in substantial merger and acquisition activity, which resulted in the exclusion of one more potential peer company.

[3] The Brattle Group (April 30, 2025), *Beta, gearing, ERP and cost of debt for Electricity and Water Companies in the Caribbean Netherlands*.
[4] Joint Court, October 21, 2020, ECLI:NL:OGHACMB:2020:197, marginal 12.1-12.5.
[5] Joint Court, October 21, 2020, ECLI:NL:OGHACMB:2020:197, marginal 10.1-10.6.
[6] The Brattle Group (May 10, 2022), *The WACC for Electricity and Water Companies in the Caribbean Netherlands for the years 2023-2025*.

22. The result of the Brattle study to construct the peer groups for each activity is presented in tables 2, 3 and 4 below. These peers are used for determining the beta and the gearing.

Table 2: Peer group for electricity production

Company	Country
Edp Renovaveis SA	Spain
ENGIE Brasil Energia SA	Brazil
Edison International	US
Endesa SA	Spain
Verbund AG	Austria
Eneva SA	Brazil
Eolus Vind AB (publ)	Sweden

Table 3: Peer group for electricity distribution

Company	Country
CPFL Energia SA	Brazil
Enel Americas SA	Chile
Elia Group SA/NV	Belgium
National Grid PLC	UK
Redeia Corp SA	Spain
REN – Redes Energeticas Nacionais	Portugal
Terna-Rete Elettrica Nazionale	Italy

Table 4: Peer group for water production and distribution

Company	Country
Artesian Resources Corp	US
American Water Works	US
American States Water Co	US
Cia Saneamento Minas Gerais	Brazil
California Water Service	US
Thessaloniki Water and Sewerage Company SA	Greece
Athens Water Supply & Sewage	Greece
Middlesex Water Co	US
Pennon Group PLC	UK
Cia Saneamento Do Parana	Brazil
SJW Group	US
Severn Trent PLC	UK
AS Tallinna Vesi	Estonia
United Utilities Group	UK
York Water Co	US

5 Generic parameters

5.1 Gearing

23. As the WACC is the weighted average between the Cost of Equity (hereinafter: CoE) and the CoD, it is necessary to determine the ratio between the equity and debt of a company. Furthermore, this ratio is also needed to calculate the equity beta (chapter 6). To determine this ratio, we use the gearing. The gearing reflects the extent to which a company is financed with debt as a fraction of its total assets.

24. The gearing is determined reflecting efficient debt financing. As an efficient ratio between equity and debt can differ between activities, the gearing will also be different across sectors. This is why the ACM determines the efficient gearing on the basis of the gearing of the peer group companies.

25. The ACM calculates the gearing of each peer company as the three-year average of quarterly gearing ratios, obtained by dividing net debt over market capitalization. For the net debt, the ACM subtracts any cash and cash equivalents from the gross debt to determine the net debt. The market capitalization refers to the total value of each peer company's shares of stock. The gearing is determined for each activity (electricity production, electricity distribution, and water production and distribution) based on the median gearing of each of the peer groups.

26. To determine the gearing for this WACC annex, the same three-year reference period is used as for the determination of the beta, that is the period March 1, 2022 to February 28, 2025.

27. Dividing debt by equity results in the debt over equity ratio (D/E). To determine the gearing (debt over asset ratio (D/A)), the following formula is used:

$$D/A = \frac{D}{D+E} = \frac{D/E}{(1+D/E)}$$

28. The relevant gearing has been calculated for each of the activities of the regulated entities by using the peer group as described in chapter 4. Table 5 lists median gearing for the different peer groups.

Table 5: Gearing

Gearing (D/A)	Median Gearing
Electricity production	32.25%
Electricity distribution	39.63%
Water production and distribution	29.81%

5.2 Tax

29. Energy and drinking water companies may be obliged to pay a corporate tax rate. The ACM calculates a *pre-tax* WACC to cover for these tax expenses. This way, the WACC includes the expenses for the corporate tax rate. The ACM method prescribes that the tax rate is equal to the applicable tariff for the regulated entity. Some of the regulated companies have a tax exemption. If this is not the case, the ACM reimburses tax expenses via the operational costs in the tariff regulation. Therefore, the ACM uses a tax rate of 0% in the WACC calculation.

6 Cost of Equity (CoE)

30. In this chapter the ACM describes the method used for estimating the CoE. On the basis of theory as well as empirical evidence, the ACM concludes that investors want to increase the diversification (e.g. geographic diversification) of the investment portfolio in order to reduce the risk of their specific investments. The risks that can be reduced through diversification are called 'non-systematic risks'. The risk of an investment portfolio decreases when it becomes more diversified over both countries and industries. Diversification mitigates and eventually eliminates the non-systematic risks.

31. The remaining risks are the so-called *systematic* risks, which are the risks that *cannot* be removed by diversification. Because of the presence of systematic risks, investors have to be compensated for their investments in excess of the risk-free interest rate. Systematic risk is measured by the degree to which the stock return of a company moves in tandem (covaries) with the stock return of the market as a whole. Systematic risk can be estimated using regressions of the stock return on the market return and is expressed in the beta.

32. The Equity Risk Premium (hereinafter: ERP) represents the return investors demand for investing in the market, which has a systematic risk of 1. When investing in a specific firm, investors demand a surplus return over the risk-free rate that reflects the systematic risk of that company.

33. The ACM determines the CoE using the Capital Asset Pricing Model (hereinafter: CAPM). The CAPM is a model which postulates that the expected return of the equity is based on the risk-free rate and a premium as a reimbursement of the systematic risk an investor accepts when investing in the shares of the company. The financial world and regulators consider the CAPM to be the most appropriate model for determining the CoE.

34. The formula of the CAPM is as follows:

$$CoE = R_f + \beta_e * ERP$$

In which:
CoE = Cost of equity
R_f = Risk-free rate
β_e = Equity beta
ERP = Equity Risk Premium

35. This chapter is structured as follows. Section 6.1 describes the method used for estimating the risk-free rate. Section 6.2 describes the method used for estimating the equity beta. Section 6.3 describes the method used for estimating the ERP.

6.1 Risk-free rate

36. The risk-free rate is the return the market requires for an investment in a risk-free object. In practice, there is no such thing as a risk-free object. It is widely accepted that government bonds are in general the least risky objects. Therefore the ACM bases the risk-free rate on government bonds. For determining which government bonds represents the risk-free rate best, a choice has to be made with respect to the reference market (section 6.1.1), maturity of the bonds (section 6.1.2), and the reference period (section 6.1.3). In section 6.1.4, the ACM introduces a yearly ex-ante adjustment of the risk-free rate, besides the already existing ex-post recalculation.

6.1.1 Reference market

37. As before the ACM follows Brattle's advice to use government bonds of the USA to determine the risk-free rate. Brattle recognized[7] that the regulated companies in the Caribbean Netherlands operate in US dollars. Their revenues, costs and profits are in US dollars and these companies are financed in US dollars. When considering the required return to invest in a regulated business in the Caribbean Netherlands, an investor would compare the returns of investments in the regulated companies in the Caribbean Netherlands to returns in other dollar investments. Brattle also noted that the risk-free rate accounts for regulatory and country risk.

38. Brattle explained that ideally the risk-free rate should be based on Dutch government bonds issued in US dollars. This would reflect the correct currency for the investment by investors and it would reflect the country and regulatory risk of the Netherlands. However, the Dutch government does not issue bonds in US dollars. As a consequence, Brattle indicated that there are two options to determine the risk-free rate. The first option is to use US government bonds, and the second option is converting Dutch government in euros to the US dollar. The first one, using US government bonds, is preferable according to Brattle. The country and regulatory risk of the Netherlands and the USA are low and comparable, while the second option would have introduced inaccuracy, due to differences in expected inflation and, for example, monetary policies which are reflected in a Dutch Eurobond but are not relevant for a dollar investment in the Caribbean Netherlands. As a result, Brattle advises to use government bonds of the USA for the risk-free rate. The ACM follows this advice.

6.1.2 Maturity

39. Before 2023 the ACM used government bonds with a remaining maturity of ten years. For the years 2023-2025 the ACM followed Brattle's advice to use a remaining maturity of twenty years. For 2026-2028 the ACM will again follow Brattle's advice to use a remaining maturity of twenty years. The ACM motivates this as follows.

40. Brattle stipulates that the maturity of the bonds used for calculating the market risk premium and the risk-free rate should be consistent. The ACM bases the ERP on the data of Dimson, Marsh and Staunton (hereinafter: DMS) (see section 6.3). These authors have developed a dataset from 1900 onwards with return data. They calculate historical excess stock returns over short term bills as well as over long term bonds. Brattle concludes that either a risk-free rate with a short maturity in combination with an ERP relative to short term bills should be used, or a risk-free rate with a long maturity with the ERP relative to long term bonds.

41. Interest rates with longer maturities are generally higher than short term interest rates, mainly because of higher inflation risk and in addition because of higher probability of default. This means that a short term interest rate matches the risk-free rate as assumed in the CAPM best, because risks of short term government bonds are lower than risks of longer term government bonds.[8] A drawback of short term bonds is that these are more sensitive to changes in economic and monetary circumstances than long term bonds, resulting in a more volatile interest rate. In addition, empirical tests show that the CAPM using a short-term risk-free rate has a risk-return line that is too steep, resulting in underestimating the CoE of companies with an equity below 1 and overstating the CoE of companies with a beta above 1.

[7] The Brattle Group (April 30, 2025), *Beta, gearing, ERP and cost of debt for Electricity and Water Companies in the Caribbean Netherlands*.
[8] The Brattle Group (November 26, 2012), *Calculating the Equity Risk Premium and the Risk-free Rate*.

Since regulated companies typically have a beta below 1, using a short term risk-free rate results in underestimating the CoE. Therefore, Brattle advises to use a long term risk-free rate.[9]

42. Brattle has determined that the maturity of the long term bonds DMS use to calculate the excess stock returns have a maturity of around twenty years. Since longer maturities have higher interest rates, this means that combining a risk-free rate with a remaining maturity of ten years with an ERP based on bonds with a twenty-year maturity is inconsistent, and could result in underestimating the CoE. Brattle stipulates that in order to ensure consistency, either the risk-free rate should be based on a twenty year maturity, or the ERP should be determined or adjusted in such a way to reflect excess stock returns over bonds with a ten year remaining maturity.

43. Determining or adjusting the ERP in order to relate to ten year maturity of bonds is not feasible. DMS do not calculate historical excess stock returns relative bonds with a ten year maturity, because their dataset does not contain bonds with ten year maturity. Brattle informed the ACM that data on historical ten-year bond returns do not exist for the whole period from 1900 onwards, for all the Eurozone countries and the USA, which the ACM uses for determining the ERP (see section 6.3). Hence it is not possible to accurately determine ERP relative to bonds with a ten year maturity, either directly using DMS's return data, or indirectly by calculating an adjustment to the ERP based on the difference in bond returns of ten year and twenty year bonds for this whole period. Ten year bond returns for a shorter period for the Eurozone countries and the USA is available, but using this to calculate an adjustment to the ERP will be inaccurate, since there is no assurance that this shorter period is representative for the longer period.

44. Using a risk-free rate with a remaining maturity of twenty years is possible. For the USA government bonds with a remaining maturity of twenty years are available. Brattle also determined that these bonds are sufficiently frequently traded. Using USA government bonds with a remaining maturity of twenty years is consistent with basing the ERP on the historical excess returns over bonds from DMS.

6.1.3 Reference period and data frequency

45. The reference period is the period for which the risk-free rate is measured. The question is which period represents the best estimate for the future. The most recent interest rate, the *spot* rate, has a reference period of one day. The spot rates indicate the appreciation of the financial markets of the risk-free rate on that specific day. It is the most actual estimate based on all the information available on that moment. In that respect the spot rate is representative for expectations investors have on that moment with respect to the future. However, the spot rate is sensitive for circumstances that only exist on that specific day. Using a longer reference period will therefore increase representativeness as short term effects are averaged.

46. Using a reference period of three years of daily data balances these two aspects. Therefore, the ACM will determine the risk-free rate using a reference period of three years of daily data.

6.1.4 Yearly adjustment and recalculation of the risk-free rate

47. The ACM recognizes that the risk-free rate is currently hard to estimate. For this reason, the ACM has introduced a yearly ex post recalculation of the risk-free rate for the years 2023-2025. The ACM applies this symmetrically: both an increase and decrease of the risk-free rate are being recalculated. The ACM will continue this approach for the years 2026-2028.

[9] The Brattle Group (April 30, 2025), *Beta, gearing, ERP and cost of debt for Electricity and Water Companies in the Caribbean Netherlands*.

48. In addition, for the years 2026-2028 the ACM will annually ex ante re-estimate the risk-free rate in the tariff decisions, and ex ante adjust the WACC accordingly. This re-estimation will be based on recent data and the above method to determine the risk-free rate. With this adjustment the ACM aims to increase the accuracy of the estimated risk-free rate, by reducing the time lag between estimates and realizations.

6.1.5 Conclusion

49. As explained above, the ACM will use USA government bonds with a remaining maturity of twenty years and a reference period of three years of daily data. The ACM determines the risk free rate to be 4.16%, using a reference period of March 1st 2022 to February 28th 2025. This risk free-rate will annually ex ante be adjusted in tariff decisions, using a more recent reference period. This risk-free rate will ex post be recalculated on a yearly basis for the years 2026-2028.

6.2 Beta

50. Under the CAPM, the beta is used to measure the systematic risk, that is the risk that the investor bears by investing in a specific company or activity relative to the risk of investing in the market portfolio.

51. The beta expresses the relationship between the expected return of a specific asset and the expected return of the market portfolio. This relationship is known as the systematic risk associated with the asset, equating to the risk that an investor cannot diversify away by holding the market portfolio. Since expected returns are not observable, the systematic risk is determined based on historical data on stock returns of the asset and the market.

52. Given that the regulated companies in the Caribbean Netherlands are not publicly traded companies, the ACM uses a peer group of publicly traded companies with similar systematic risk to estimate the equity beta. The equity betas are estimated by regressing the daily returns of individual stocks on market returns over the last three years. Brattle has constructed three different peer groups, one for each regulated activity, and estimates a beta to measure the systematic risk associated with each activity (see chapter 4).

53. For each peer, the equity beta is estimated by taking the covariance between the return on the asset and the return of the market index where the shares are traded. Brattle has estimated the equity betas by regressing the daily returns of individual stocks on market returns over the last three years, following ACM's methodology which specifies a three-year daily sampling period. Results have been tested for autocorrelation using the Breusch-Godfrey test and heteroskedasticity using the White test. Additionally, Brattle has tested for the presence of market imperfections by including the market return of the day before and the day after and testing these for separate and joint significance.

54. The equity beta for each peer expresses the systematic risk of investing in this company for shareholders. The presence of debt increases the risk for shareholders, because in normal circumstances the interest payments to debt holders have to be paid from the earnings of the assets. The tax rate influences the net CoD because of the deductibility of interest costs. Since gearing and tax rate of peers differ, the ACM needs to correct for these differences and apply the normative gearing and applicable tax rate for regulated companies in the Caribbean Netherlands. This process takes three steps: (1) convert the equity betas of the peers into asset betas by removing the influence of the peer's gearing and tax rate (this is called de-levering), (2) determine the asset beta for each activity based on the asset betas of peers, and (3) convert the asset beta into an equity beta by applying the normative

gearing and applicable tax rate for regulated companies in the Caribbean Netherlands (this is called re-levering).

55. The first step is to convert the equity betas of the peers into asset betas by removing the influence of the peer's gearing and tax rate. The asset beta represents the systematic risk as if the company was financed by 100% equity. As a result, the asset betas of the different companies are comparable to each other. The equity betas of the peers are converted into asset betas using the Modigliani Miller formula. Using this formula turns out to be the best approach, since, among other reasons, it delivers more consistent results in the presence of tax rate changes compared to other methods and since it explicitly accounts for taxes.[10] The formula is as follows:

$$\beta_a = \frac{\beta_e}{1+(1-t_c)*(D/E)}$$

In which:
β_a = Asset beta
β_e = Equity beta
t_c = Corporate tax rate
D/E = Debt over equity ratio

56. In this case, the applicable tax rate of the peer in question is used. This tax rate is calculated over the same period as the reference period used for the beta. The rates come from the Corporate Marginal Tax Rates – by Country that has been provided by NYU.[11]

57. The equity and asset beta that Brattle has calculated for each peer company and each peer group are included in the table below.

[10] P. Fernandez (January 2003), *Levered and unlevered Beta*, IESE Business School Research Paper.
[11] https://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/countrytaxrates.html

Table 6: Equity and asset beta

	Region	Equity beta	Asset beta
Electricity Production			
EDP Renovaveis SA	Europe	1.00	0.75
ENGIE Brasil Energia SA	Latin America	0.84	0.64
Edison International	United States	0.60	0.31
Endesa SA	Europe	0.57	0.42
Verbund AG	Europe	0.65	0.61
Eneva SA	Latin America	1.18	0.75
Eolus Vind AB (publ)	Europe	1.62	1.34
Median		**0.84**	**0.64**
Electricity Distribution			
CPFL Energia SA	Latin America	0.92	0.68
Enel Americas SA	Latin America	0.63	0.51
Elia Group SA/NV	Europe	0.94	0.56
National Grid PLC	Europe	0.91	0.51
Redeia Corp SA	Europe	0.40	0.27
REN - Redes Energeticas Nacionais	Europe	0.21	0.11
Terna-Rete Elettrica Nazionale	Europe	0.56	0.38
Median		**0.63**	**0.51**
Water Production and Distribution			
Artesian Resources Corp	United States	0.42	0.32
American Water Works	United States	0.61	0.46
American States Water Co	United States	0.50	0.42
Cia Saneamento Minas Gerais	Latin America	1.02	0.76
California Water Service	United States	0.53	0.41
Thessaloniki Water and Sewerage Company SA	Europe	0.37	0.37
Athens Water Supply & Sewage	Europe	0.42	0.42
Middlesex Water Co	United States	0.60	0.49
Pennon Group PLC	Europe	0.83	0.37
Cia Saneamento Do Parana	Latin America	0.82	0.58
SJW Group	United States	0.42	0.25
Severn Trent PLC	Europe	0.62	0.35
AS Tallinna Vesi	Europe	0.11	0.09
United Utilities Group	Europe	0.62	0.33
York Water Co	United States	0.43	0.35
Median		**0.53**	**0.37**

58. The second step is to determine the asset beta for each activity based on the asset betas of peers. The ACM determines the asset beta for each activity based on the median of the asset betas of the relevant peers. Since the number of peers is relatively small, the median is preferred, because the asset betas may not represent a normal distribution. By using the median instead of the average, outliers do not unduly influence the result.

59. Third and finally, the applicable equity betas for the activities in the Caribbean Netherlands are calculated by converting the asset beta back into an equity beta, using the applicable tax rate of 0%

(section 5.2) and the normative gearing (section 5.1). The results from this conversion can be found in table 7[12].

Table 7: Equity betas

Peer group	Asset beta	Gearing (D/A)	Tax	Equity beta
Electricity production	0.64	32.25%	0%	0.94
Electricity distribution	0.51	39.63%	0%	0.84
Water production and distribution	0.37	29.81%	0%	0.53

6.3 Equity Risk Premium (ERP)

60. The ERP represents the expected return of the market on top of a risk-free investment. Investors require an extra return as investing in the market is more risky than investing in the risk-free object.

6.3.1 Reference market

61. Previously the ACM determined the ERP for the Dutch Caribbean companies by reference to the capital markets in Latin America, the USA and Europe, consistent with the assumption that international investors that would invest in the Dutch Caribbean companies would likely diversify their portfolios in the same region as the Caribbean Netherlands, namely Latin America and the USA. Furthermore, because the Caribbean Netherlands are part of the Netherlands, also investors from Europe would potentially invest in the Caribbean Netherlands, so that the Eurozone is also a reference market to determine the WACC for the Caribbean Netherlands.

62. In their report Brattle endorses this approach. As capital markets are not fully integrated the ACM needs to make a distinction between the ERP of different regions. Investors tend to invest more in countries that are geographically close and with which they are more familiar. Because of geographic proximity, investors from Latin America and the USA would likely invest in the Caribbean Netherlands. Similarly, investors from Europe would also consider investing in a Dutch Caribbean company subject to a regulatory framework they are familiar with.

63. The ACM estimates the ERP for each region by considering long-term historical data on the excess return of shares over long-term bonds, using historical data published by DMS. However, because DMS does not report any data about the ERP in Latin America, the ACM considered the ERP estimate reported by Damodaran for this region.

6.3.2 Historical ERP

64. The ERP is determined by several factors and circumstances in the capital market. By using historical data, it can be estimated what premium investors were able to get in the past in order to be compensated for such circumstances. Therefore, it is important to use a period of data that is as long as possible in order to determine the historical ERP. By using a long period of data, the ERP will reflect multiple circumstances that have occurred on the capital market in the past, and perhaps may occur in the future. Taking a long period of data prevents that the ERP will be distorted by specific market circumstances that occurred in some short time period. Therefore, a long period of data is assumed to be the best estimator (according to investors) for the future expected premium.

[12] Note that in the Brattle report D/E is shown and in table 7 D/A. These two relate as shown in section 5.1.

65. To calculate this historical ERP, Brattle uses ERP from the annually published yearbook of DMS.[13] This is an extensive study on the level of the ERP during a period from 1900 to 2024.

66. In the academic literature[14] scientists are divided about the question whether the arithmetic mean or the geometric mean should be used to calculate the historical ERP.[15] Therefore, the ERP is calculated as the arithmetic average of both methods.

6.3.2.1 Eurozone

67. The ERPs of the individual countries in the Eurozone are calculated based on the current market capitalization of each country's stock market. Table 8 lists the arithmetic mean and geometric mean for the ERPs using data from 1900 to 2024 for the Eurozone economies reported by DMS. Each country's ERP is weighted by the current market capitalization of the main stock market in that country as of December 31, 2024, in line with a typical European investor's behavior of placing more weight in a portfolio on stocks in countries with larger stock markets.

Table 8: Equity risk premium DMS - Eurozone

	Geometric Mean	Arithmetic Mean	Average	Current Market Cap (2021, €m)
Austria	3.30%	21.20%	12.25%	142,485
Belgium	2.60%	4.60%	3.60%	372,061
Finland	5.50%	9.00%	7.25%	259,757
France	3.50%	5.70%	4.60%	2,927,979
Germany	5.20%	8.30%	6.75%	2,400,751
Ireland	3.00%	5.00%	4.00%	81,690
Italy	3.30%	6.60%	4.95%	721,221
The Netherlands	3.70%	5.90%	4.80%	959,196
Portugal	5.20%	9.20%	7.20%	71,896
Spain	2.00%	3.90%	2.95%	788,853
Weighted Average Eurozone			**5.27%**	

6.3.2.2 United States

68. Table 9 lists the arithmetic mean and geometric mean for the ERP using data from 1900 to 2024 for the USA reported by DMS. Since this is just a single economy, there is no need to calculate a weighted average using market capitalizations.

Table 9: Equity risk premium DMS – USA

	USA
Geometric Mean	4.90%
Arithmetic Mean	7.00%
Average	**5.95%**

[13] E. Dimson, P. Marsh and M. Staunton (2025), *UBS Global Investment Returns Yearbook 2025*.
[14] A. Damodaran (2016), *Equity Risk Premiums (ERP): Determinants, Estimation and Implications* – The 2016 Edition, working paper, p.33-34; D.C. Indro and W.Y. Lee, Biases in arithmetic and geometric averages as estimates of long-run expected *returns and risk premia*, Financial Management, vol. 26, no.4, winter 1997, p.81-90; P. Fernandez, *The Equity Premium in 150* Textbooks, Journal of Financial Transformation, 2009, vol. 27, p.14-18; S. Wright and A. Smithers, The Cost of Equity Capital for Regulated Companies: A Review for Ofgem, 2014 (p.8-11).
[15] Smithers rapport (2003); P. Fernandez, *The Equity Premium in 150 Textbooks*, Journal of Financial Transformation, 2009, vol. 27, p. 14-18.

6.3.2.3 Latin America

69. The ACM prefers the use of historical data as the source to base the ERP on. However, DMS do not report any data about the ERP in Latin America. The ACM believes that it would be incorrect to calculate an ERP without taking into account Latin America. Many of the countries in Latin America are classified as emerging markets, such as Brazil and Chile. Emerging markets data provide special challenges, since the behavior of emerging market returns differs significantly from the developed equity market returns. The average ERP in emerging markets is higher than that in developed markets, although the reasons as to why this is remain unclear. Also, the ERP for countries in Latin America are, on average, high compared to developed countries. Not including Latin America would therefore underestimate the ERP for the Caribbean Netherlands. As such, Brattle uses the dataset of Damodaran to calculate the ERP for Latin America.

70. There is one consistency problem with using the ERP published by Damodaran. The ERP for Latin America published by Damodaran considers the spot rate of the USA government bond with a maturity of ten years. However, the ACM uses a risk-free rate with a maturity of twenty years. To ensure consistency between the ERP and risk-free rate we need to adjust Damodaran's ERP estimate to be consistent with a twenty-year bond. Brattle has adjusted the ERP for Latin America by calculating the difference between a maturity of ten years and twenty years.

71. Table 10 shows the ERP for Latin America after the adjustment, ensuring consistency with respect to the maturity of the risk-free rate.

Table 10: Equity risk premium Damodaran – Latin America (2024)

Parameters	
ERP – Latin America	**8.78%**
US Gov. Bond Yield – 10 year	4.48%
US Gov. Bond Yield – 20 year	4.76%
Adjustment	**0.28%**
Adjusted ERP – Latin America	**8.50%**

6.3.2.4 Results

72. The ERP in the Caribbean Netherlands is calculated using the arithmetic average of each region. As described in this section, the ERP for the Eurozone is estimated at 5.27%, for the USA at 5.95% and for Latin America at 8.50%. The arithmetic average and therefore the estimated ERP is equal to 6.57%.

6.3.3 Ex ante ERP

73. It is expected that the ERP calculated over a period of approximately 110 years as DMS do, will be overestimated. Markets have become more liquid over the past decades, and this should lead to lower premiums. Therefore, a downward adjustment is often made to the historical ERP to make an ex ante estimation of the ERP.

74. On the other hand, ex ante estimates on the ERP (based on Dividend Growth models) imply that the ERP estimation based on historical data is an underestimation and should be adjusted upwards.

75. The ACM has no reason to assume that either one of these opposed effects is stronger. Therefore, the ERP will not be adjusted upward or downward.

6.3.4 Conclusion

76. The ERP used in the WACC calculations is based on the arithmetic average of the ERP for the three reference markets Europe, US and Latin America and is equal to 6.57%.

7 Cost of Debt (CoD)

77. The WACC represents the return that investors would achieve by investing in both debt and equity capital in similar assets in the market (chapter 3). In this chapter the ACM considers the determination of the CoD to calculate the WACC.

78. The ACM makes two changes to the determination of CoD in the regulatory period 2026-2028. First, the ACM introduces a new method to determine comparable debt (section 7.1). Second, the ACM introduces a yearly ex-ante adjustment and ex-post recalculation of the CoD (section 7.3).

79. To determine the CoD and as before, the ACM considers that companies have existing debt. The ACM uses a so-called staircase model to determine the efficient cost for the existing debt in future years. For this the ACM assumes that the portfolio of debt has an average maturity of ten years. Debt until 2024 is labelled as existing debt, debt as of 2025 is labelled as new debt. This distinction is only relevant for the way in which the CoD for each specific year is calculated. Although the CoD will be based on an average of ten years, the methodology will apply different numbers of 'historical' years and 'future' years, depending on when the WACC will apply. For example, the CoD for the year 2026 is based on eight historical years (2017-2024) and two future years (2025-2026). The CoD for the year 2028 is based on six historical years (2019-2024) and four future years (2025-2028). Table 11 below illustrates this.

Table 11: Staircase Model

		2026	2027	2028
2017	Realized rates	10%		
2018	Realized rates	10%	10%	
2019	Realized rates	10%	10%	10%
2020	Realized rates	10%	10%	10%
2021	Realized rates	10%	10%	10%
2022	Realized rates	10%	10%	10%
2023	Realized rates	10%	10%	10%
2024	Realized rates	10%	10%	10%
2025	Estimated rates	10%	10%	10%
2026	Estimated rates	10%	10%	10%
2027	Estimated rates		10%	10%
2028	Estimated rates			10%

	2026	2027	2028
Part existing debt	80%	70%	60%
Part new debt	20%	30%	40%
Total debt	100%	100%	100%

80. For existing debt, ACM uses the average daily rate for the relevant year. For new debt, the ACM uses a reference period of 3 years, namely March 1st 2022 to February 28th 2025, similar to the reference period for the risk free rate.

7.1 Comparable debt and credit rating

81. For previous years the ACM based the interest rate on a long-list of bonds with a maturity of around ten years and a BBB credit rating from companies in the Caribbean region whose bonds are traded and issued in US dollars. For the years 2026-2028, Brattle has identified several issues with this approach

that make it difficult, possibly even infeasible, to update CoD annually. Therefore, Brattle suggests to determine the CoD as the sum of the yield of a USA based index and a predetermined spread over the utility index reflecting the additional cost of issuing debt for a company operating in US dollars in the Caribbean region.

82. For the index yield, Brattle advises to use the 10-year bond yields of USD denominated senior unsecured fixed rate bonds issued by USA utilities companies with a BBG composite rating of BBB+, BBB and BBB-, found in Bloomberg's IGUUUB10 BVLI Index. Then for the period March 1, 2017 to February 28, 2025, ACM computes the average daily yield for the bonds in this index. ACM then calculates yearly averages of the index yields as the average of the average daily yields for the relevant year.

83. To calculate the spread, Brattle identified a set of comparable bonds. Brattle considered BBB-rated corporate bonds issued in the Caribbean region and traded in US dollars with a remaining maturity between 9 and 13 years at any point during the measurement period, March 2017 to February 2025. This resulted in a list of 76 bonds. Brattle analyzed if these bonds were issued by companies operating in the Caribbean region or local subsidiaries of international companies and financial vehicles. Brattle found that only 20 out of the 76 bonds were issued by companies operating in the Caribbean. Brattle further analyzed the spreads and recommends ACM to use the spread after excluding companies that do not operate in the Caribbean. Brattle found that this spread is 0.80%.

84. The ACM follows the advice of Brattle for the comparable debt, as this approach is effective, practical, transparent and predictable. It allows ACM to update CoD annually and includes additional costs of issuing debt for companies operating in the Caribbean, compared to companies operating in the USA.

7.2 Results

85. All data to calculate the steps and the accompanying averages are summarized in table 12.

Table 12: Yields

Yields	US BBB 10-year utility index
2017 (realized)	3.56%
2018 (realized)	4.18%
2019 (realized)	3.43%
2020 (realized)	2.31%
2021 (realized)	2.46%
2022 (realized)	4.60%
2023 (realized)	5.53%
2024 (realized)	5.45%
2025 (estimated)	5.32%
2026 (estimated)	5.32%
2027 (estimated)	5.32%
2028 (estimated)	5.32%
Average interest rate 2026	**4.22%**
Average interest rate 2027	**4.39%**
Average interest rate 2028	**4.51%**

86. The ACM adds the spread of 0,80% to these average interest rates. In addition, the ACM adds 0,15% to the resulting interest rate to compensate for transaction costs. This results in a CoD including transaction costs of 5.16% in 2026, 5.34% in 2027 and 5.45% in 2028.

7.3 Yearly adjustment and recalculation of Cost of Debt

87. The ACM recognizes that the cost of new debt is currently hard to estimate accurately, due to high fluctuations in market rates in recent years. For this reason, the ACM introduces a yearly ex post recalculation of the CoD. This means that the ACM will recalculate the cost of new debt on a yearly basis for the years 2026-2028, leading to a yearly ex-post recalculation of the WACC over this period. The ACM will do this symmetrically: both an increase and decrease of the CoD are being recalculated.

88. In addition, for the years 2026-2028 the ACM will annually ex ante re-estimate new debt in the tariff decisions and adjust the WACC accordingly. In this re-estimation, the ACM will use recent data to determine the CoD as outlined in the above. With this adjustment the ACM aims to increase the accuracy of the estimated CoD, by reducing the time lag between estimates and realizations.

8 Conclusion

89. For 2026 the ACM determines the nominal pre-tax WACC for electricity production on 8.67%, for electricity distribution on 7.88%, and for water production and distribution on 6.91%. A summary of the WACC calculation for 2026 can be found in table 13. The ACM presents the value of each parameter with two decimals, but calculations are made with unrounded numbers. Only the nominal pre-tax WACC is rounded to two decimals in the calculations.

Table 13: Summary of WACC calculations 2026

Parameter	Electricity production	Electricity distribution	Water production and distribution
Tax	0%	0%	0%
Gearing (D/A)	32.25%	39.63%	29.81%
Asset beta	0.64	0.51	0.37
Equity beta	0.94	0.84	0.53
Risk-free rate	4.16%	4.16%	4.16%
Equity risk premium	6.57%	6.57%	6.57%
Cost of Equity (post-tax)	10.34%	9.67%	7.65%
Cost of Equity (pre-tax)	**10.34%**	**9.67%**	**7.65%**
Cost of Debt (excl. non-interest fees)	5.01%	5.01%	5.01%
Non-interest fees	0.15%	0.15%	0.15%
Cost of Debt (pre-tax)	**5.16%**	**5.16%**	**5.16%**
Nominal WACC (pre-tax)	8.67%	7.88%	6.91%
Nominal WACC (pre-tax), rounded to 2 decimals	**8.67%**	**7.88%**	**6.91%**

90. For 2027 the ACM determines the nominal pre-tax WACC for electricity production on 8.73%, electricity distribution on 7.95%, and water production and distribution on 6.96%. A summary of the WACC calculation for 2027 can be found in table 14.

Table 14: Summary of WACC calculations 2027

Parameter	Electricity production	Electricity distribution	Water production and distribution
Tax	0%	0%	0%
Gearing (D/A)	32.25%	39.63%	29.81%
Asset beta	0.64	0.51	0.37
Equity beta	0.94	0.84	0.53
Risk-free rate	4.16%	4.16%	4.16%
Equity risk premium	6.57%	6.57%	6.57%
Cost of Equity (post-tax)	10.34%	9.67%	7.65%
Cost of Equity (pre-tax)	**10.34%**	**9.67%**	**7.65%**
Cost of Debt (excl. non-interest fees)	5.19%	5.19%	5.19%
Non-interest fees	0.15%	0.15%	0.15%
Cost of Debt (pre-tax)	**5.34%**	**5.34%**	**5.34%**
Nominal WACC (pre-tax)	8.73%	7.95%	6.96%
Nominal WACC (pre-tax), rounded to 2 decimals	**8.73%**	**7.95%**	**6.96%**

91. For 2028 the ACM determines the nominal pre-tax WACC for electricity production on 8.76%, electricity distribution on 8.00%, and water production and distribution on 6.99%. A summary of the WACC calculation for 2028 can be found in table 15.

Table 15: Summary of WACC calculations 2028

Parameter	Electricity production	Electricity distribution	Water production and distribution
Tax	0%	0%	0%
Gearing (D/A)	32.25%	39.63%	29.81%
Asset beta	0.64	0.51	0.37
Equity beta	0.94	0.84	0.53
Risk-free rate	4.16%	4.16%	4.16%
Equity risk premium	6.57%	6.57%	6.57%
Cost of Equity (post-tax)	10.34%	9.67%	7.65%
Cost of Equity (pre-tax)	**10.34%**	**9.67%**	**7.65%**
Cost of Debt (excl. non-interest fees)	5.30%	5.30%	5.30%
Non-interest fees	0.15%	0.15%	0.15%
Cost of Debt (pre-tax)	**5.45%**	**5.45%**	**5.45%**
Nominal WACC (pre-tax)	8.76%	8.00%	6.99%
Nominal WACC (pre-tax), rounded to 2 decimals	**8.76%**	**8.00%**	**6.99%**

Final remarks

This WACC annex is part of the “Methodebesluit elektriciteit en drinkwater Caribisch Nederland 2026 - 2031”.[16]

In this WACC annex, the ACM has described the manner in which the WACC for the Caribbean Netherlands has been determined for the period January 1, 2026 to December 31, 2028.

The abovementioned method is announced in the Government Gazette. Furthermore, the Netherlands Authority for Consumers and Markets will publish this WACC annex on the Netherlands Authority for Consumers and Markets’ internet page.

The Hague,
Date: October 16th, 2025

The Netherlands Authority for Consumers and Markets
on its behalf,

M.R. Leijten
Member of the Board

[16] Methodebesluit ACM/24/187957, oktober 2025, *Methodebesluit elektriciteit en drinkwater Caribisch Nederland 2026 - 2031*.