



Decision – WACC annex 2023-2025

Annex to the method decision on electricity and drinking water in the Caribbean Netherlands 2020-2025

Our reference : ACM/UIT/585024

Case number : ACM/21/167703

WACC for energy and drinking water companies in the Caribbean Netherlands for the year 2023-2025

Part of the determination by the Netherlands Authority for Consumers and Markets of a method as referred to in Section 2.5, paragraph 4, and Section 3.14, paragraph 5, of the BES Electricity and Drinking Water Act (*Wet elektriciteit en drinkwater BES*).

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Table of contents

1	Summary	3
2	Introduction	5
2.1	Procedure	5
3	General approach to the WACC	7
4	Peer group	8
5	Generic parameters	10
5.1	Gearing	10
5.2	Tax	11
6	Cost of Equity	11
6.1	Risk-free rate	12
6.1.1	Reference market	12
6.1.2	Maturity	13
6.1.3	Reference period and data frequency	14
6.1.4	Yearly (ex post) recalculation of the risk-free rate	14
6.1.5	Conclusion	15
6.2	Beta	15
6.3	Equity risk premium	18
6.3.1	Reference market	18
6.3.2	Historical ERP	18
6.3.3	Ex ante ERP	20
6.3.4	Conclusion	20
7	Cost of Debt	20
7.1	Comparable debt and credit rating	20
7.2	Debt portfolio: staircase model	20
7.3	Results	22
8	Conclusion	24

1 Summary

1. In this annex to the method decision on electricity and drinking water in the Caribbean Netherlands 2020-2025,¹ the Netherlands Authority for Consumers and Markets (hereafter: ACM) determines the nominal pre-tax rate Weighted Average Cost of Capital (hereafter: WACC) for electricity production, electricity distribution and water production and distribution in the Caribbean islands of Bonaire, St. Eustatius and Saba (hereafter: the Caribbean Netherlands) for the last three years of the regulatory period 2020-2025, namely the period from January 1, 2023, up to and including December 31, 2025.
2. As the four 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 differ from year to year, since the cost of debt differs from year to year as well.
3. Compared to previous WACC (annex) decision, the ACM changes the WACC determination on three elements based on the advice of Brattle. Firstly, and as already mentioned in marginal 2, a WACC is determined per activity instead of per company. This is explained in chapter 4. Secondly, the ACM chooses for this period to only use government bonds of the United States of America to determine the risk-free rate and use a maturity of twenty years. This is explained in section 6.1. Thirdly, the ACM bases the cost of debt on specific bonds of companies in the Caribbean region issued in US dollars. This is explained in section 7.1.
4. A summary of the parameters and resulting WACCs is given in table 1a to 1c.

Table 1a: Summary of WACC calculations 2023

Parameter	Electricity production	Electricity distribution	Water production and distribution
Tax	0%	0%	0%
Gearing (D/A)	27.29%	40.59%	28.57%
Asset beta	0.64	0.46	0.62
Equity beta	0.88	0.77	0.87
Risk-free rate	1.87%	1.87%	1.87%
Equity risk premium	6.11%	6.11%	6.11%
Cost of Equity (post-tax)	7.23%	6.60%	7.16%
Cost of Equity (pre-tax)	7.23%	6.60%	7.16%
Cost of Debt (excl. non-interest fees)	4.39%	4.39%	4.39%
Non-interest fees	0.15%	0.15%	0.15%
Cost of Debt (pre-tax)	4.54%	4.54%	4.54%
Nominal WACC (pre-tax)	6.50%	5.77%	6.41%
Nominal WACC (pre-tax), rounded to 2 decimal	6.50%	5.77%	6.41%

¹ Method decision from September 25, 2019 with case no. ACM/18/034526 and document no. ACM/UIT/519575, *Method decision on electricity and drinking water in the Caribbean Netherlands 2020-2025*.

Table 1b: Summary of WACC calculations 2024

Parameter	Electricity production	Electricity distribution	Water production and distribution
Tax	0%	0%	0%
Gearing (D/A)	27.29%	40.59%	28.57%
Asset beta	0.64	0.46	0.62
Equity beta	0.88	0.77	0.87
Risk-free rate	1.87%	1.87%	1.87%
Equity risk premium	6.11%	6.11%	6.11%
Cost of Equity (post-tax)	7.23%	6.60%	7.16%
Cost of Equity (pre-tax)	7.23%	6.60%	7.16%
Cost of Debt (excl. non-interest fees)	4.27%	4.27%	4.27%
Non-interest fees	0.15%	0.15%	0.15%
Cost of Debt (pre-tax)	4.42%	4.42%	4.42%
Nominal WACC (pre-tax)	6.46%	5.72%	6.38%
Nominal WACC (pre-tax), rounded to 2 decimal	6.46%	5.72%	6.38%

Table 1c: Summary of WACC calculations 2025

Parameter	Electricity production	Electricity distribution	Water production and distribution
Tax	0%	0%	0%
Gearing (D/A)	27.29%	40.59%	28.57%
Asset beta	0.64	0.46	0.62
Equity beta	0.88	0.77	0.87
Risk-free rate	1.87%	1.87%	1.87%
Equity risk premium	6.11%	6.11%	6.11%
Cost of Equity (post-tax)	7.23%	6.60%	7.16%
Cost of Equity (pre-tax)	7.23%	6.60%	7.16%
Cost of Debt (excl. non-interest fees)	4.20%	4.20%	4.20%
Non-interest fees	0.15%	0.15%	0.15%
Cost of Debt (pre-tax)	4.35%	4.35%	4.35%
Nominal WACC (pre-tax)	6.45%	5.69%	6.36%
Nominal WACC (pre-tax), rounded to 2 decimal	6.45%	5.69%	6.36%

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 decision² to the WACC annex, as of January 1, 2023, refer to the subsequent WACC annex. For determining the subsequent WACC, the ACM had an external investigation carried out by The Brattle Group Limited (hereafter: 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. Water en Energiebedrijf Bonaire N.V. (hereafter: WEB) is responsible for the electricity distribution and the water production and distribution on Bonaire. Contour Global Bonaire B.V. (hereafter: CGB) is responsible for the electricity production on Bonaire. On Statia, St. Eustatius Utility Company N.V. (hereafter: STUCO) is responsible for the production and distribution of electricity and water. Saba Electricity Company N.V. (hereafter: 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 by Brattle, with a more detailed calculation of the WACC, will be published alongside this WACC annex.

2.1 Procedure

9. Prior to starting the WACC 2023-2025 investigation, the ACM gave the regulated companies the opportunity to provide input on the WACC methodology. WEB and SEC provided input on January 7, 2022. STUCO did on January 8, 2022. CGB provided input on January 27, 2022. The ACM has asked Brattle to take these comments into consideration.
10. On July 1, 2022, the ACM published the draft version of the WACC annex and the Brattle advisory report.³
11. In August 2022, the ACM received questions and comments on this draft WACC annex from:
 - CGB
 - SEC
 - WEB
 - STUCO
12. A summary of these comments and the reaction of the ACM to those comments have been summarized and published in the Decision - Opinions on the draft WACC annex.⁴ In addition, the original comments are published on the website of the ACM.

² Method decision from September 25, 2019 with case no. ACM/18/034526 and document no. ACM/UIT/519575, *Method decision on electricity and drinking water in the Caribbean Netherlands 2020-2025*.

³ The Brattle Group (May 2022), *The WACC for Electricity and Water Companies in the Caribbean Netherlands for the years 2023-2025*.

⁴ [PM]

13. These comments have led to one change in the WACC annex compared to the draft WACC annex. The ACM introduces a yearly ex post recalculation of the risk-free rate for the Cost of Equity. This means that the ACM will be recalculating the risk-free rate on a yearly basis for the years 2023-2025, leading to a yearly ex post recalculation of the WACC over this period and a renumeration of the capital costs. The ACM will apply this symmetrically: both an increase and decrease of the risk-free rate will be recalculated.

3 General approach to the WACC

14. Tariffs are meant to compensate network operators and production companies for the costs they incur. In the method decision for Caribbean Netherlands 2020-2025, 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 (regulated or otherwise) 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.
15. 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.
16. 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.
17. The ACM has asked Brattle to determine the representative and up-to-date peer groups and to calculate the parameters of the WACC. The data used by Brattle are obtained from financial databases. Data available until February 28, 2022 are used. The outcomes in this Annex are based on calculations by Brattle.
18. 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)

19. To determine these different parts of the WACC, the ACM uses the general ACM method as a starting point. This is a method that is applied by the ACM in various regulated sectors, including energy and

water regulation. At the start of each chapter, an explanation about the applied method for the specific parameters is given.

4 Peer group

20. In this chapter, the ACM discusses the peer group. The peer group is relevant for determining two parameters: the beta and gearing. 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.
21. In the WACC annex to the method decision for the years 2020-2022 the ACM constructed peer groups for each relevant combination of activities of the regulated companies in the Caribbean Netherlands.⁵ Because there were four such combinations, ACM used four peer groups. A total of 46 companies were used as peer companies, with some companies being included in multiple peer groups due to the overlap of activities between those peer groups.
22. For the regulatory period 2023-2025 the ACM determines a peer group per activity instead of per regulated company to calculate the beta and 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 has selected companies whose shares are publicly traded and which derive the majority of their income from that single activity (so-called “pure player” peers).⁶ Based on these peer groups, Brattle then calculates a beta and gearing per activity, resulting in a WACC per activity. This WACC per activity will be used as parameter for the tariff decisions.
23. 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 previous approach 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,⁷ the approach of Brattle is more transparent in identifying the differences in systematic risk between the different activities.
24. In accordance with the WACC decision 2020-2022, 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.⁸ 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 writes in its report, it is not necessary to include peers from the Caribbean region in order to estimate the systematic risk of the regulated companies.⁹ According to Brattle, location specific risks and related costs, such as the risk for

⁵ ACM (September 2019), Calculating the WACC for energy and water companies in the Caribbean Netherlands, document no. ACM/UIT/519576, page 4, table 4.

⁶ The Brattle Group (May 2022), The WACC for Electricity and Water Companies in the Caribbean Netherlands for the years 2023-2025, page 19, marginal 60.

⁷ Joint Court, October 21, 2020, ECLI:NL:OGHACMB:2020:197, marginal 12.1-12.5.

⁸ Joint Court, October 21, 2020, ECLI:NL:OGHACMB:2020:197, marginal 10.1-10.6.

⁹ The Brattle Group (May 2022), The WACC for Electricity and Water Companies in the Caribbean Netherlands for the years 2023-2025, page 21-22, marginal 66-68.

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.

25. At the 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.¹⁰ As the primary liquidity criterion, Brattle applied a bid-ask spread threshold of 1%, which led to the exclusion of two potential peers. Brattle has also verified that all companies had reported annual revenues above € 100 million in 2020. 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.¹¹
26. The result of the Brattle study to construct the peer groups for each activity is presented in tables 2, 3 and 4. These peers are used for determining the beta and the gearing.

Table 2: Peer group for electricity production

Company	Country
Albioma Sa	France
Edp Renovaveis Sa	Spain
Endesa Sa	Spain
Falck Renewables Spa	Italy
Ibedrola Sa	Spain
Verbund Ag	Austria
Engie Brasil Energia sa	Brazil
Edison International	US

Table 3: Peer group for electricity distribution

Company	Country
Elia Group Sa/Nv	Belgium
Hera Spa	Italy
National Grid Plc	UK
Red Electrica Corporacion Sa	Spain
Snam Spa	Italy
Sse Plc	UK
Terna-Rete Elettrica Naziona	Italy
Cpfl Energia Sa	Brazil
Enel Americas Sa	Chile

¹⁰ Frontier Economics (January 2021), Criteria to select peers for efficient beta estimation. A report for the ACM.

¹¹ The Brattle Group (May 2022), The WACC for Electricity and Water Companies in the Caribbean Netherlands for the years 2023-2025, page 22-24.

Table 4: Peer group for water production and distribution

Company	Country
Athens Water Supply & Sewage	Greece
Pennon Group Plc	UK
Severn Trent Plc	UK
United Utilities Group Plc	UK
Cia Saneamento Do Parana-Prf	Brazil
Cia Saneamento Minas Gerais	Brazil
America Water Works Co Inc	US
California Water Service Grp	US
Essential Utilities Inc	US
Middlesex Water Co	US
Sjw Group	US

5 Generic parameters

5.1 Gearing

27. As the WACC is the weighted average between the cost of equity and the cost of debt, 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 (section 6.2). 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.
28. The gearing is determined reflecting efficient debt financing decisions for the regulated companies. 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.
29. 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 standalone activity (electricity production, electricity distribution, and water production and distribution) based on the median gearing of each of the peer groups.
30. To determine the gearing for this WACC decision, the same three-year reference period is used as for the determination of the beta, that is the period March 1, 2019 to February 28, 2022.
31. 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:

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

32. 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	27.29%
Electricity distribution	40.59%
Water production and distribution	28.57%

5.2 Tax

33. Energy and drinking water companies are usually obliged to pay a corporate tax rate. To cover for these tax expenses, the ACM calculates a pre-tax WACC. In 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

34. In this chapter the ACM describes the method used for estimating the cost of equity. On the basis of theory as well as empirical evidence, we conclude 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.
35. 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.
36. The equity risk premium 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.
37. The ACM determines the cost of equity using the Capital Asset Pricing Model (hereafter: 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 CAPM reimburses systematic risks. The investor cannot avoid market or systematic risk by diversifying his investment portfolio. Therefore the CAPM postulates that market risk should be reimbursed and thus included in the cost of equity. The financial world and regulators consider the CAPM to be the most appropriate model for determining the cost of equity. The CAPM model consists of the risk-free rate,
38. The formula of the CAPM is as follows:

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

In which:

CoE = Cost of equity
Rf = Risk-free rate
 β_e = Equity beta
ERP = Equity Risk Premium

39. 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 Equity Risk Premium.

6.1 Risk-free rate

40. 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 (nationality and currency) and the maturity of the bonds. In addition it should be determined what reference period should be used. The estimate of the risk-free rate depends on the reference market (section 6.1.1), the maturity (section 6.1.2) and the reference period and data frequency (section 51). In section 6.1.4, the ACM introduces a yearly ex-post recalculation of the risk-free rate. The ACM concludes in section 6.1.5 that the risk-free rate is 1.87%.

6.1.1 Reference market

41. In the first regulatory period and the first half of the second regulatory period, the ACM based the risk-free rate on governments bonds of Germany, United States of America and Chile. The ACM argued that potential investors in the Caribbean Netherlands look for investments in the United States and in Latin America. Further, the ACM argued that the Caribbean Netherlands is part of the Kingdom of the Netherlands, and therefore investors benefits from the institutional, judicial and governmental framework of the Netherlands. Hence, the European market was also used as a reference market. Regarding the risk-free rate the ACM chose the country with the lowest risk-free rate in each region, that is Germany in Europe, the United States of America and Chile in Latin America.
42. In the regulatory period 2023-2025, however, the ACM will follow Brattle's advice to only use government bonds of the United States of America to determine the risk-free rate. Brattle recognizes 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.¹² Brattle also notes that the risk-free rate accounts for regulatory and country risk.¹³
43. Brattle explains that ideally the risk-free rate should be based on Dutch government bonds issued in US dollars.¹⁴ 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 indicates 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 convert Dutch

¹² The Brattle Group (May 2022), The WACC for Electricity and Water Companies in the Caribbean Netherlands for the years 2023-2025, marginal 34.

¹³ The Brattle Group (May 2022), The WACC for Electricity and Water Companies in the Caribbean Netherlands for the years 2023-2025, marginal 35.

¹⁴ The Brattle Group (May 2022), The WACC for Electricity and Water Companies in the Caribbean Netherlands for the years 2023-2025, marginal 36.

government in euros to the US dollar. The first one, using US government bonds, is preferable according to Brattle.¹⁵ The country and regulatory risk of the Netherlands and the USA are very low and comparable, while the second option will introduce 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.

44. As a result, Brattle advises to use government bonds of the United States of America for the risk-free rate. The ACM follows this advice.

6.1.2 Maturity

45. In the previous regulatory periods the ACM used government bonds with a remaining maturity of ten years. In the regulatory period 2023-2025 the ACM will follow Brattle's advice to use a remaining maturity of twenty years.
46. 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 Equity Risk Premium (ERP) on the data of Dimson, Marsh and Staunton (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.
47. 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 chance of default. This means that a short term interest rate best matches the risk-free rate as assumed in the CAPM, because risks of short term government bonds are lower than risks of longer term government bonds.¹⁶ A drawback of short term bonds is that they 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 cost of equity of companies with an equity below 1 and overstating the cost of equity of companies with a beta above 1. Since regulated companies typically have a beta below 1, using a short term risk-free rate results in underestimating the cost of equity. Therefore Brattle advises to use a long term risk-free rate.¹⁷
48. Brattle has determined that the maturity of the long term bonds Dimson, Marsh and Staunton 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 a ERP based on bonds with a twenty-year maturity is inconsistent, and could result in underestimating the cost of equity. 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.
49. Determining or adjusting the ERP in order to relate to ten year maturity of bonds is not feasible. Dimson, Marsh and Staunton 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,

¹⁵ The Brattle Group (May 2022), The WACC for Electricity and Water Companies in the Caribbean Netherlands for the years 2023-2025, marginal 38.

¹⁶ The Brattle Group (2012), Calculating the Equity Risk Premium and the Risk-free Rate, page 7.

¹⁷ The Brattle Group (May 2022), The WACC for Electricity and Water Companies in the Caribbean Netherlands for the years 2023-2025, page 11-13.

for all the Eurozone countries and the United States, which the ACM uses for determining the ERP (see section 7.3). 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.

50. Using a risk-free rate with a remaining maturity of twenty years is possible. For the United States government bonds with a remaining maturity of twenty years are available. Brattle also determined that these bonds are sufficiently frequently traded. Using US government bonds with a remaining maturity of twenty years is consistent with basing the ERP on the historical excess returns over bonds from DMS.
51. Brattle advises to use a twenty year remaining maturity for the risk-free rate. The ACM follows this advice.

6.1.3 Reference period and data frequency

52. The reference period is the period for which the risk-free rate is measured. As in the previous decisions the ACM uses a reference period of three years of daily data.
53. When choosing a reference period 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 indicates 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.
54. However, the spot rate is sensitive for circumstances that by chance exist on that specific day and the uncertainty about those circumstances. These circumstances of a specific day can contain unusual circumstances which may not be representative of the regulatory period. By using a longer reference period these outliers can be averaged as a result of which the interest rate reflect many different circumstances, which are more likely to be representative for the future. This produces an estimate that is less volatile and as a result of that more representative for the regulatory period.
55. 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 (ex post) recalculation of the risk-free rate

56. The ACM recognizes that the risk-free rate is currently hard to estimate. This has become especially visible now that the interest rate on US government bond has risen rapidly and sits at a higher level even after the cut-off date for the reference period (28 February 2022). The ACM does not have a better estimator for the risk-free rate at this time. The ACM therefore introduces a yearly ex post recalculation of the risk-free rate. This means that the ACM will be recalculating the risk-free rate on a yearly basis for the years 2023-2025, leading to a yearly ex-post recalculation of the WACC over this period. The ACM will apply this symmetrically: both an increase and decrease of the risk-free rate will be recalculated.

6.1.5 Conclusion

57. As explained above, the ACM will use US government bonds with a remaining maturity of twenty years and a reference period of three years of daily data.¹⁸ Brattle indicates that the average interest rate on these bonds is 1.87%.¹⁹ Therefore the ACM determines the risk-free rate likewise. This risk-free rate will be recalculated ex post on a yearly basis for the years 2023-2025, leading to a yearly ex post recalculation of the WACC over this period.

6.2 Beta

58. 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.

59. 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.

60. 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).

61. 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. If one or more of these tests are significant, weekly betas are used to estimate the equity beta.²⁰

62. 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 cost of debt 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).

¹⁸ The reference period Brattle uses ranges from March 1, 2019 to February 28, 2022.

¹⁹ Brattle uses the index DGS20.

²⁰ The Brattle Group (May 2022), The WACC for Electricity and Water Companies in the Caribbean Netherlands for the years 2023-2025, page 28-30. ACM's required approach to adjusting for market imperfections is described in [this document](#) (only available in Dutch).

63. The first step is to convert the equity beta's 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.²¹ 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 = Corporate tax rate

D/E = Debt over equity ratio (section 5.1)

64. 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 Tax Rate Table that has been provided by KPMG.²²
65. The equity and asset beta that Brattle has calculated for each peer company and each peer group are included in the table below.

²¹ P. Fernandez, Levered and unlevered Beta, IESE Business School Research Paper, January 2003.

²² <https://home.kpmg/dk/en/home/insights/2016/11/tax-rates-online/corporate-tax-rates-table.html>

Table 6: Equity and asset beta

	Region	Equity beta	Asset beta
Electricity Production			
Albioma Sa	Europe	0.78	0.51
Edp Renovaveis Sa	Europe	0.76	0.63
Endesa Sa	Europe	0.82	0.68
Falck Renewables Spa	Europe	0.85	0.65
Ibedrola Sa	Europe	0.80	0.53
Verbund Ag	Europe	0.96	0.90
Engie Brasil Energia sa	Latin America	0.83	0.67
Edison International	United States	0.86	0.51
Median		0.82	0.64
Electricity Distribution			
Elia Group Sa/Nv	Europe	0.69	0.41
Hera Spa	Europe	0.85	0.58
National Grid Plc	Europe	0.61	0.36
Red Electrica Corporacion Sa	Europe	0.51	0.34
Snam Spa	Europe	0.86	0.53
Sse Plc	Europe	0.93	0.62
Terna-Rete Elettrica Naziona	Europe	0.69	0.45
Cpfl Energia Sa	Latin America	0.97	0.75
Enel Americas Sa	Latin America	0.59	0.46
Median		0.69	0.46
Water Production and Distribution			
Athens Water Supply & Sewage	Europe	0.62	0.62
Pennon Group Plc	Europe	0.52	0.38
Severn Trent Plc	Europe	0.55	0.29
United Utilities Group Plc	Europe	0.58	0.29
Cia Saneamento Do Parana-Prf	Latin America	1.04	0.84
Cia Saneamento Minas Gerais	Latin America	1.07	0.84
America Water Works Co Inc	United States	0.74	0.58
California Water Service Grp	United States	0.77	0.60
Essential Utilities Inc	United States	0.92	0.71
Middlesex Water Co	United States	0.83	0.73
Sjw Group	United States	0.89	0.63
Median		0.77	0.62

66. 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.

67. 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.

Table 7: Equity betas

Peer group	Asset beta	Gearing (D/A)	Tax	Equity beta
Electricity production	0.64	27.29%	0%	0.88
Electricity distribution	0.46	40.59%	0%	0.77
Water production and distribution	0.62	28.57%	0%	0.87

6.3 Equity risk premium

68. The Equity Risk Premium (hereafter: 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

69. In 2019, the ACM determined the ERP for the Dutch Caribbean companies by reference to the capital markets in Latin America, the US 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 US. 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.

70. Brattle confirms this approach of the ACM.²³ 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 US 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.

71. The ACM estimates the ERP for each region in line with the general ACM method, which considers long-term historical data on the excess return of shares over long-term bonds, using historical data published by Dimson, Marsh and Staunton (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.

72. The ACM method prescribes that this premium will be based on the historic ERP (ex post) and as far historical data is not available on the expectations on the ERP (ex ante).

6.3.2 Historical ERP

73. 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

²³ The Brattle Group (May 2022), The WACC for Electricity and Water Companies in the Caribbean Netherlands for the years 2023-2025, page 15.

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.

74. To calculate this historical ERP, Brattle uses ERP from the annually published yearbook of Dimson, Marsh and Staunton (hereafter: DMS).²⁴ This is an extensive study on the level of the ERP during a period from 1900 to 2021.
75. In the academic literature²⁵ scientists are divided about the question whether the arithmetic mean or the geometric mean should be used to calculate the historical ERP.²⁶ Therefore, the ERP is calculated as the arithmetic average of both methods.

6.3.2.1 Eurozone

76. 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 2021 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, 2021, 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	2.80%	21.00%	11.90%	178,642
Belgium	2.20%	4.30%	3.25%	424,650
Finland	5.40%	9.00%	7.20%	351,754
France	3.20%	5.40%	4.30%	3,464,305
Germany	4.90%	8.20%	6.55%	2,763,953
Ireland	2.70%	4.70%	3.70%	129,865
Italy	3.00%	6.30%	4.65%	736,545
The Netherlands	3.40%	5.70%	4.55%	1,249,391
Portugal	5.10%	9.20%	7.15%	88,210
Spain	1.60%	3.50%	2.55%	713,692
Weighted Average Eurozone			5.06%	

6.3.2.2 United States

77. Table 9 lists the arithmetic mean and geometric mean for the ERP using data from 1900 to 2021 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	4.60%
Arithmetic Mean	6.70%
Average	5.65%

²⁴ E. Dimson, P. Marsh and M. Staunton (2022), Credit Suisse Global Investment Returns Yearbook 2022.

²⁵ 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).

²⁶ 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

78. 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. It is a well-known fact that 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 ex ante dataset of Damodaran to calculate the ERP for Latin America.²⁷
79. 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 US 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.
80. Table 10 shows that the ERP for Latin America after the adjustment, which ensures consistency with respect to the maturity of the risk-free rate, is equal to 7.61%.

Table 10: Equity risk premium Damodaran – Latin America

Parameters	
ERP – Latin America	8.03%
US Gov. Bond Yield – 10 year	+1.52%
US Gov. Bond Yield – 20 year	-1.94%
Adjustment	-0.42%
Adjusted ERP – Latin America	7.61%

6.3.2.4 Results

81. 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 5.06%, for the USA at 5.65% and for Latin America at 7.61%. The arithmetic average and therefore the estimated ERP is equal to 6.11%.

6.3.3 Ex ante ERP

82. It is expected that the ERP calculated over a period of 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.
83. 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.
84. 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. This is in line with other WACC decisions that the ACM prepared or that different consultants have prepared for the ACM.

²⁷ The Brattle Group (May 2022), The WACC for Electricity and Water Companies in the Caribbean Netherlands for the years 2023-2025, page 17.

6.3.4 Conclusion

85. 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 6.11%.

7 Cost of Debt

86. 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 cost of debt to calculate the WACC.

87. To determine the cost of debt, the ACM considers that companies have existing debt. The ACM uses a 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 2021 is labelled as existing debt, debt as of 2022 is labelled as new debt. This distinction is only relevant for the way in which the cost of debt for each specific year is calculated. Although the cost of debt will always 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 cost of debt for the year 2023 is based on eight historical years (2014-2021) and two future years (2022-2023). The cost of debt for the year 2025 is based on six historical years (2016-2021) and four future years (2022-2025). The ACM also uses this method for determining the WACC for energy network operators in the Netherlands.

88. For existing debt, ACM uses the actual rates. For new debt, the ACM uses estimated rates which are based on the average of the actual rates in 2019, 2020 and 2021.

7.1 Comparable debt and credit rating

89. In the previous decision the ACM based the interest rate on corporate bond indices for North America, Europe and Chile with a maturity of around ten years and a BBB credit rating, following the approach of Europe Economics.²⁸ Brattle advised to use a bond index consisting of bonds issued in the Caribbean region and in US dollars, as this reflects both the region and the currency.²⁹ However, there does not exist a bond index that fulfils these requirements. Brattle therefore suggests a novel approach, in which Brattle identified a long-list of bonds from companies in the Caribbean region whose bonds are traded and issued in US dollars.

90. Consistent with the previous decision, Brattle then screened this long-list to select bonds rated BBB- to BBB+ by Standard & Poors (S&P).³⁰ Brattle selected bond issues with a remaining maturity between nine to thirteen years at any point in time during the ten-year period March 1, 2014 to February 28, 2022. The average of the remaining maturity for each year is around ten years, consistent with the use of bond indices in the previous decision. For each day during the ten-year period March 1, 2014 to February 28, 2022, Brattle computed the average daily yield for the bonds considered. Brattle then calculated yearly averages of the bond yields as the simple average of the average daily yields for the relevant year. The average bond yields are presented in paragraph 7.3.

²⁸ Europe Economics (2019), Calculating the WACC for energy and water companies in the Caribbean Netherlands for the year 2020-2022.

²⁹ The Brattle Group (May 2022), The WACC for Electricity and Water Companies in the Caribbean Netherlands for the years 2023-2025, page 35.

³⁰ The Brattle Group (May 2022), The WACC for Electricity and Water Companies in the Caribbean Netherlands for the years 2023-2025, page 35.

91. The ACM follows the advice of Brattle for the comparable debt, as this approach leads to a more direct estimate of comparable debt, reflecting what interest rate a lender would charge to a company operating in the Caribbean region.

7.2 Debt portfolio: staircase model

92. The staircase model assumes that network operators finance their existing investment with ten-year loans, and refinance 10% of their invested capital each year. Accordingly, the model calculates the average interest rate of a hypothetical loan portfolio, 10% of which was issued in each one of the past 10 years. To calculate the cost of debt for 2023, the debt consists of 80% existing debt and 20% new debt, in 2024 of 70% existing debt and 30% new debt and in 2025 of 60% existing debt and 40% new debt. Table 11 illustrates this.

Table 11: Staircase Model

		2023	2024	2025
2014	Realized rates	10%		
2015	Realized rates	10%	10%	
2016	Realized rates	10%	10%	10%
2017	Realized rates	10%	10%	10%
2018	Realized rates	10%	10%	10%
2019	Realized rates	10%	10%	10%
2020	Realized rates	10%	10%	10%
2021	Realized rates	10%	10%	10%
2022	Estimated rates	10%	10%	10%
2023	Estimated rates	10%	10%	10%
2024	Estimated rates		10%	10%
2025	Estimated rates			10%

	2023	2024	2025
Part existing debt	80%	70%	60%
Part new debt	20%	30%	40%
Total debt	100%	100%	100%

7.3 Results

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

Table 12: Interest rate

Interest rate	Caribbean region
2014 (realized)	5.15%
2015 (realized)	4.65%
2016 (realized)	4.39%
2017 (realized)	4.79%
2018 (realized)	5.11%
2019 (realized)	4.29%
2020 (realized)	3.88%
2021 (realized)	3.72%
2022 (estimated)	3.96%
2023 (estimated)	3.96%
2024 (estimated)	3.96%
2025 (estimated)	3.96%
Average interest rate 2023	4.39%
Average interest rate 2024	4.27%
Average interest rate 2025	4.20%

94. In line with the ACM method, the ACM adds 15 basis points to the resulting interest rate to compensate for transaction costs. This results in a cost of debt including transaction costs of 4.54% in 2023, 4.42% in 2024 and 4.35% in 2025.

8 Conclusion

95. For 2023 the ACM determines the nominal pre-tax WACC for electricity production on 6.50%, for electricity distribution on 5.77%, and for water production and distribution on 6.41%. A summary of the WACC calculation for 2023 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 one decimal.

Table 13: Summary of WACC calculations 2023

Parameter	Electricity production	Electricity distribution	Water production and distribution
Tax	0%	0%	0%
Gearing (D/A)	27.29%	40.59%	28.57%
Asset beta	0.64	0.46	0.62
Equity beta	0.88	0.77	0.87
Risk-free rate	1.87%	1.87%	1.87%
Equity risk premium	6.11%	6.11%	6.11%
Cost of Equity (post-tax)	7.23%	6.60%	7.16%
Cost of Equity (pre-tax)	7.23%	6.60%	7.16%
Cost of Debt (excl. non-interest fees)	4.39%	4.39%	4.39%
Non-interest fees	0.15%	0.15%	0.15%
Cost of Debt (pre-tax)	4.54%	4.54%	4.54%
Nominal WACC (pre-tax)	6.50%	5.77%	6.41%
Nominal WACC (pre-tax), rounded to 2 decimal	6.50%	5.77%	6.41%

96. For 2024 the ACM determines the nominal pre-tax WACC for electricity production on 6.46%, electricity distribution on 5.72%, and water production and distribution on 6.38%. A summary of the WACC calculation for 2024 can be found in table 14.

Table 14: Summary of WACC calculations 2024

Parameter	Electricity production	Electricity distribution	Water production and distribution
Tax	0%	0%	0%
Gearing (D/A)	27.29%	40.59%	28.57%
Asset beta	0.64	0.46	0.62
Equity beta	0.88	0.77	0.87
Risk-free rate	1.87%	1.87%	1.87%
Equity risk premium	6.11%	6.11%	6.11%
Cost of Equity (post-tax)	7.23%	6.60%	7.16%
Cost of Equity (pre-tax)	7.23%	6.60%	7.16%
Cost of Debt (excl. non-interest fees)	4.27%	4.27%	4.27%
Non-interest fees	0.15%	0.15%	0.15%
Cost of Debt (pre-tax)	4.42%	4.42%	4.42%
Nominal WACC (pre-tax)	6.46%	5.72%	6.38%
Nominal WACC (pre-tax), rounded to 2 decimal	6.46%	5.72%	6.38%

97. For 2025 the ACM determines the nominal pre-tax WACC for electricity production on 6.45%, electricity distribution on 5.69%, and water production and distribution on 6.36%. A summary of the WACC calculation for 2025 can be found in table 15.

Table 15: Summary of WACC calculations 2025

Parameter	Electricity production	Electricity distribution	Water production and distribution
Tax	0%	0%	0%
Gearing (D/A)	27.29%	40.59%	28.57%
Asset beta	0.64	0.46	0.62
Equity beta	0.88	0.77	0.87
Risk-free rate	1.87%	1.87%	1.87%
Equity risk premium	6.11%	6.11%	6.11%
Cost of Equity (post-tax)	7.23%	6.60%	7.16%
Cost of Equity (pre-tax)	7.23%	6.60%	7.16%
Cost of Debt (excl. non-interest fees)	4.20%	4.20%	4.20%
Non-interest fees	0.15%	0.15%	0.15%
Cost of Debt (pre-tax)	4.35%	4.35%	4.35%
Nominal WACC (pre-tax)	6.45%	5.69%	6.36%
Nominal WACC (pre-tax), rounded to 2 decimal	6.45%	5.69%	6.36%

Final remarks

This WACC annex is part of the “Method decision on electricity and drinking water in the Caribbean Netherlands 2020-2025”.³¹

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, 2023 to December 31, 2025.

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 24, 2022

The Netherlands Authority for Consumers and Markets
on its behalf,

M.R. Leijten
Member of the Board

³¹ Method decision from September 25, 2019 with case no. ACM/18/034526 and document no. ACM/UIT/519575, *Method decision on electricity and drinking water in the Caribbean Netherlands 2020-2025*.