The WACC for Electricity and Water Companies in the Caribbean Netherlands for the years 2023-2025

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10 MAY 2022

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I. Introduction and Summary

1. The Dutch Authority for Consumers and Markets (ACM) is responsible for regulating the production and distribution of electricity and water in the Dutch Caribbean islands of Bonaire, Saint Eustatius and Saba (jointly, the Caribbean Netherlands).
2. Each of the Dutch Caribbean islands has different arrangements, and the production and distribution of water and electricity is provided by four different companies: Water en Elektriciteitsbedrijf Bonaire (WEB), Contour Global Bonaire (CGB), Statia Utility Company (STUCO), and Saba Electricity Company (SEC) (together "the Companies"). These four companies each provide a different combination of services: electricity production (EP), electricity distribution (ED), and water production and distribution (WPD).
3. In more detail:
    a. **WEB (EP, ED, WPD)** is owned by the Public Entity of Bonaire and provides electricity and water production and distribution services in the island of Bonaire;
    b. **CGB (EP only)** is a private company, part of the British company CG, is the main electricity producer in Bonaire. It uses wind energy and diesel generators to produce electricity that it sells at regulated prices to WEB.
    c. **STUCO (EP, ED, WPD)** is owned by the Public Entity of Saint Eustasius and is the sole provider of electricity and water in the island of Saint Eustasius.
    d. **SEC (EP, ED)** is owned by the public entity of Saba and provides electricity production and distribution services in the island of Saba.
4. In 2019, the ACM determined the regulatory method for the electricity and water companies in the Caribbean Netherlands for the regulatory period 2020-2025. In the regulation, the ACM set the tariffs based on the efficient costs of the Dutch Caribbean companies, for which the Weighted Average Cost of Capital (WACC) is a key input. Simultaneous with the determination of the regulatory method, the ACM has also set the WACC for the period 2020-2022.

5. The ACM has commissioned The Brattle Group (Brattle) to calculate the nominal pre-tax WACC for electricity production, electricity distribution and water production and distribution in the Caribbean Netherlands for the remainder of the regulatory period (2023-2025).
6. The ACM has instructed us to consider the method it applied in 2019. This method differs on several aspects from the general ACM method, largely reflecting adjustments to the general ACM methodology to take into account the specific region the companies are active in. The ACM has also asked us to consider several comments received from the relevant stakeholders about specific aspects of the WACC methodology.
7. The ACM has asked us to estimate a different WACC for each activity. Hence each WACC will differ based on its systematic risk – as reflected in the beta estimate – and the gearing calculated for the activity. The ACM also requires us to calculate a different WACC for each year, which differ only on the relative weight of existing capital and new investments (new capital) and, therefore, on the calculation of the cost of debt.
8. In preparing this report, we use data up to and including 28 February 2022 (measurement date), being the most recent data available at the time of our analysis.

A. Risk-Free Rate

9. The regulated businesses in the Caribbean Netherlands, for which we are calculating the cost of capital, operate using US dollars. Accordingly, the risk-free rate should be a return on a bond denominated in US dollars. From the perspective of a US dollar investor, returns on bonds denominated in other currencies would not be risk-free, and so are not relevant to determining the risk-free rate.
10. Given that the ACM regulates the businesses in the Caribbean Netherlands, and that we should measure the risk-free rate by reference to a return in dollars, the ideal measure of the risk-free rate for regulated businesses in the Caribbean Netherlands would be the yield on a Dutch government bond issued in US dollars. However, no such bonds exist at present.
11. In practice, both the US and the Netherlands have very low levels of country/regulatory risk, and using the yield on US government bonds will provide the most accurate estimate of a risk-free rate for a regulated businesses in the Caribbean Netherlands.

12. We measure the risk-free rate by reference to a long-term bond, rather than a short-term (e.g. six-month) bill. Using a long-term bond will result in a cost of equity that better matches empirical tests of the Capital Asset Pricing Model (CAPM).

13. In estimating the cost of equity we need to ensure that the maturity of the bond we use to calculate the risk-free rate is consistent with the ERP. Because we base our estimate of the ERP for the United States and the Eurozone based on historical excess returns over long-term bonds with a maturity of about 20-years over the period 1900-2021, we should calculate the risk-free rate based on 20-years bonds. Alternatively, we could calculate the risk-free rate using 10-years bonds and try to make an adjustment to the historical ERP to ensure consistency. In practice, however, we do not have data on historical returns on 10-year bonds for the period 1900-2021 to calculate a correct adjustment, and using a shorter period of 10-year bond returns would result in an inaccurate adjustment to the ERP. Hence, we cannot make an accurate adjustment to the ERP. In contrast, using a 20-year bond directly will give a more accurate estimate of the cost of equity.

14. We note that the ERP for Latin America published by Damodaran considers the spot rate of the 10-year US government bond. However, because Damodaran uses a forward-looking dividend growth model, we can easily adjust it to be consistent with a 20-year US government bond.

15. Based on the considerations above, we estimate the risk-free rate for the Dutch Caribbean Netherlands based on the three-year average yield on the 20-year US government bonds. Over our three-year reference period ending on 28 February 2022, 20-year US government bond yields averaged 1.87%.

B. Equity Risk Premium

16. In 2019, the ACM determined the equity risk premium (ERP) for the Dutch Caribbean companies as the average of the ERP estimated for Latin America, the US and Europe. We find this approach reasonable and apply it in this report.

17. We calculate the ERP for the US and Europe in line with the general ACM method, based on long-term historical data on the excess return of shares over long-term bonds, using historical data published by Dimson, Marsh and Staunton (DMS). Specifically, we select the average of

the arithmetic and geometric averages of the realized ERP in the USA and within the Eurozone.

18. Because DMS does not report any data about the ERP for Latin America, in line with the ACM methodology in 2019, we consider the ERP estimate reported by Damodaran for this region. As noted above, to ensure consistency between the risk-free rate and the ERP, we adjust Damodaran's ERP estimate to be consistent with a 20-year bond.

19. By taking the simple average of the ERP for Europe, the US and Latin America we derive an ERP of 6.11%. We use this value in our WACC calculations.

C. Selection of the Peer Groups

20. We estimate a beta for each activity being, (1) electricity production, (2) electricity distribution and (3) water production and distribution. We can estimate a beta for each activity from publicly traded firms that derive the majority of their revenues from that activity. We refer to these companies as the 'comparables' or 'peers'.

21. In this report, we start considering the peer group of companies considered by the ACM in 2019. This group included 30 companies engaged in various combinations of electricity and water, production and distribution activities. From this group, we exclude companies that were delisted. As a result of reviewing peers considered in other ACM determinations and reports on the WACC of energy and water companies, we add 13 candidate peers. This exercise yields an initial sample of 41 candidate peers. Table 6 provides the list of candidate peers.

22. To identify the companies that derive a majority of their revenues from one of the relevant activities – electricity production, electricity distribution and water production and distribution – we have reviewed Bloomberg's company descriptions and the revenue splits by activity reported in their annual accounts. We exclude companies that that were engaged in more than one activity. Application of this criterion led to the exclusion of 10 companies.

23. We check whether the remaining companies are sufficiently liquid to ensure a reliable beta estimate. Specifically, we calculate the average bid-ask spread of each candidate per over the reference period, and exclude companies with a bid-ask spread higher that 1%. Application of this criterion led to the exclusion of 2 companies.

24. We further consider two additional screening tests to ensure a reliable beta estimate. Specifically, we check that the credit rating of the candidate peers is not below investment grade and that the companies were not involved in substantial M&A activity. Application of these two additional criteria led to the exclusion of one company.

25. Overall, the final sample includes 8 companies for electricity production, 9 companies for electricity distribution and 11 companies for water production and distribution. Note that for electricity production we use companies that face price and volume risk. The betas for these companies is likely to overstate the actual beta for electricity production in the Caribbean Netherlands, where prices are regulated and the firms face little volume risk.

D. Beta and Gearing

26. ACM's methodology specifies a three-year daily sampling period for the beta. Accordingly, we estimate equity betas for the peer group of firms by regressing the daily returns of individual stocks on market returns over the last three years. We calculate market returns by reference to regional or broad national indices. We perform a series of diagnostic tests to assess if the beta estimates satisfy the standard conditions underlying ordinary least squares regression, and apply an adjustment for market imperfections. We calculate asset betas by un-levering the estimated equity betas using the Modigliani and Miller formula.

27. Consistent with the three-year reference period used to estimate the beta, we calculate the gearing of each comparator as the three-year average of quarterly gearing ratios obtained dividing quarterly net debt over quarterly market capitalization.

28. We calculate the WACC for the three standalone activities using the median asset beta and median gearing of the three peer groups:

    a. For electricity production we select the median asset beta of 0.64 and the median gearing of 38%.

    b. For electricity distribution we select the median asset beta of 0.46 and the median gearing of 68%.

    c. For water production and distribution we select the median asset beta of 0.62 and the median gearing of 40%.

E. Cost of Debt

29. ACM's methodology for calculating the cost of debt makes a distinction between existing capital and new capital.

    a. With respect to the existing capital, the methodology calculates the cost of debt based on the 'staircase model', which assumes that regulated companies finance their existing investment with ten-year loans, and refinance 10% of their invested capital every year. The methodology further distinguishes between historical years and future years, which vary depending on the year for which we are estimating the WACC. For historical years, the methodology takes the average daily yield to maturity of comparable debt in any given calendar year. For future years, the methodology takes the average daily yield to maturity of comparable debt over the three years prior to the measurement date. We find this method reasonable, because it recognises that the regulated companies in the Caribbean Netherlands finance existing infrastructure with a mix of legacy debt and more recently issued debt, and that the cost of the debt varies over time.

    b. With respect to new capital, the methodology requires to calculate the cost of debt simply based on the average daily yield to maturity of comparable debt over the three years prior to the measurement date. Again, this recognises that new capital will be financed with newly issued debt, and that recent debt yields are likely to be a good estimate of future debt costs.

30. We note that there is no need for the tenor of the loans used for the cost of debt calculation – which in this case is ten-years – to coincide with the tenor of the bonds used to measure the RFR in the cost of equity calculation. The cost of debt should reflect efficient debt financing decisions by the regulated companies. In contrast, the bonds used to measure the RFR must be consistent with the measured ERP.

31. As a measure of comparable debt we consider the yields of BBB-rated corporate bonds issued by companies operating in the Caribbean region issued in US dollars. This is the best proxy for the cost of debt for the Dutch Caribbean companies, were they to issue bonds. The use of BBB-rated bonds is consistent with the approach used by the ACM in 2019.

32. Application of this methodology results in a pre-tax debt yield for 2023, 2024 and 2025 of 4.39%, 4.27% and 4.20% respectively. ACM's methodology calculates the cost of debt by

adding 15 basis points to the yield on comparable debt to account for the cost of issuing debt. This results in a cost of debt for 2023, 2024 and 2025 of 4.54%, 4.42% and 4.35% respectively for Dutch Caribbean Companies.

F. WACC of the Electricity and Water Companies in the Caribbean Netherlands

33. Table 1, Table 2 and Table 3 detail our calculation of the nominal pre-tax WACC for the three regulated activities of electricity production, electricity distribution and water production and distribution in the Caribbean Netherlands. In calculating the nominal pre-tax WACC the ACM has informed us that a tax rate of zero should be applied.

TABLE 1: WACC FOR ELECTRICITY PRODUCTION IN THE CARIBBEAN NETHERLANDS (2023-2025)

			Electricity Production		
			2023	2024	2025
			[A]	[B]	[C]
Gearing (D/A)	[1]	[2]/(1+[2])	27.29%	27.29%	27.29%
Gearing (D/E)	[2]	See note	37.54%	37.54%	37.54%
Tax rate	[3]	ACM	0.00%	0.00%	0.00%
Risk free rate	[4]	See note	1.87%	1.87%	1.87%
Asset beta	[5]	See note	0.64	0.64	0.64
Equity beta	[6]	[5]x(1+(1-[3])x[2])	0.88	0.88	0.88
Equity Risk Premium	[7]	See note	6.11%	6.11%	6.11%
After-tax cost of equity	[8]	[4]+[6]x[7]	7.23%	7.23%	7.23%
Pre-tax cost of debt	[9]	See note	4.54%	4.42%	4.35%
Nominal after-tax WACC	[10]	((1-[1])x[8])+([1]x(1-[3])x[9])	6.50%	6.46%	6.45%
Nominal pre-tax WACC	[11]	[10]/(1-[3])	6.50%	6.46%	6.45%

Notes:
[2]: Table 10.
[4]: 3-Year average of 20-Year USD Government Bond Yield, as reported by the orange line in Figure 1.
[5]: Table 10.
[7]: Section III.
[9]: Table 13.

TABLE 2: WACC FOR ELECTRICITY DISTRIBUTION IN THE CARIBBEAN NETHERLANDS (2023-2025)

			Electricity Distribution		
			2023	2024	2025
			[A]	[B]	[C]
Gearing (D/A)	[1]	[2]/(1+[2])	40.59%	40.59%	40.59%
Gearing (D/E)	[2]	See note	68.33%	68.33%	68.33%
Tax rate	[3]	ACM	0.00%	0.00%	0.00%
Risk free rate	[4]	See note	1.87%	1.87%	1.87%
Asset beta	[5]	See note	0.46	0.46	0.46
Equity beta	[6]	[5]x(1+(1-[3])x[2])	0.77	0.77	0.77
Equity Risk Premium	[7]	See note	6.11%	6.11%	6.11%
After-tax cost of equity	[8]	[4]+[6]x[7]	6.60%	6.60%	6.60%
Pre-tax cost of debt	[9]	See note	4.54%	4.42%	4.35%
Nominal after-tax WACC	[10]	((1-[1])x[8])+([1]x(1-[3])x[9])	5.77%	5.72%	5.69%
Nominal pre-tax WACC	[11]	[10]/(1-[3])	5.77%	5.72%	5.69%

Notes:

[2]: Table 10.

[4]: 3-Year average of 20-Year USD Government Bond Yield, as reported by the orange line in Figure 1.

[5]: Table 10.

[7]: Section III.

[9]: Table 13.

TABLE 3: WACC FOR WATER PRODUCTION AND DISTRIBUTION IN THE CARIBBEAN NETHERLANDS (2023-2025)

			Water Production and Distribution		
			2023	2024	2025
			[A]	[B]	[C]
Gearing (D/A)	[1]	[2]/(1+[2])	28.57%	28.57%	28.57%
Gearing (D/E)	[2]	See note	40.00%	40.00%	40.00%
Tax rate	[3]	ACM	0.00%	0.00%	0.00%
Risk free rate	[4]	See note	1.87%	1.87%	1.87%
Asset beta	[5]	See note	0.62	0.62	0.62
Equity beta	[6]	[5]x(1+(1-[3])x[2])	0.87	0.87	0.87
Equity Risk Premium	[7]	See note	6.11%	6.11%	6.11%
After-tax cost of equity	[8]	[4]+[6]x[7]	7.16%	7.16%	7.16%
Pre-tax cost of debt	[9]	See note	4.54%	4.42%	4.35%
Nominal after-tax WACC	[10]	((1-[1])x[8])+([1]x(1-[3])x[9])	6.41%	6.38%	6.36%
Nominal pre-tax WACC	[11]	[10]/(1-[3])	6.41%	6.38%	6.36%

Notes:

[2]: Table 10.

[4]: 3-Year average of 20-Year USD Government Bond Yield, as reported by the orange line in Figure 1.

[5]: Table 10.

[7]: Section III.

[9]: Table 13.

II. The Risk-Free Rate

A. Reference Market

34. The regulated businesses in the Caribbean Netherlands, for which we are calculating the cost of capital, operate using US dollars. That is, the ACM will calculate a cost of capital to apply to assets valued in US dollars, and that will result in tariffs in US dollars. The companies' costs are paid in US dollars, and any profits are earned as US dollars. Accordingly, when considering the required return to invest in a regulated businesses in the Caribbean Netherlands, an investor would compare the return the companies offer to the return on other investments in US dollars.

35. In estimating the cost of equity, regulators generally do not apply a strictly risk-free rate. Rather they often use the yield on the government bonds for the country in which the regulated asset operates. Government bond yields are not risk free, but may contain a non-negligible premium for the risk of default. However, in other work we have noted that, for a regulator, using these yields is a reasonable approximation to account for regulatory and country risk, since the alternative of adjusting expected cash flows would be impractical.

36. Given that the ACM regulates the businesses in the Caribbean Netherlands, and that we should measure the risk-free rate by reference to a return in dollars, the ideal measure of the risk-free rate for regulated businesses in the Caribbean Netherlands would be the yield on a Dutch government bond issued in US dollars. This would reflect both the correct currency for the investment and the country/regulatory risk of the Netherlands. However, we have checked and confirmed that at present, no such bonds exist.

37. We then have two choices for the risk-free rate. First, we can use the yield on US government bonds, and make an approximation that US country/regulatory risk and Dutch country/regulatory risk are about the same. Alternatively, we could try to convert the yield on a Dutch government bond in Euros to a dollar yield.

38. Of the two options, the first will produce the most accurate estimate of the relevant risk-free rate. This is because in practice, both the US and the Netherlands have very low levels of

country/regulatory risk. Both bonds are highly rated (US bonds AA+, Dutch bonds AAA) and both countries are members of the OECD with a high degree of legal and regulatory predictability.

39. In contrast, trying to accurately convert a Dutch Euro bond into dollars using, for example, differences in expected inflation and the effect of QE, is not feasible in practice. Such an exercise is likely to introduce an inaccuracy that is much larger than any difference in country risk.

40. Put another way, the reason for the significant difference between US government bond yields in US dollars and Dutch Government Euro bonds is not to do with country risk, but rather to do with currency issues and in particular different monetary policies (including QE) between the US and the Eurozone. The latter means that the (real and nominal) risk-free rate an investor can earn in US dollars is higher than the (real and nominal) risk-free rate that an investor can earn in Euros.

41. Given the above, we conclude that a yield on a US government bond denominated in US dollars will give the most accurate estimate of a risk-free rate for a regulated businesses in the Caribbean Netherlands.[1]

B. Maturity of the Bond

42. The CAPM requires to calculate the risk-free rate on the expected return on a risk-free asset. This would suggest calculating the risk-free rate using a short-term bond, because only a short-term bond is truly risk-free. In practice, however, empirical tests show that the CAPM with a short-term risk-free rate has a risk-return (market) line that is 'too steep'. This means that the CAPM will under predict the return needed for low beta stocks and overestimate the return needed for high beta stocks. Accordingly, regulators generally calculate the risk-free

[1] Our proposed approach departs form the method used by the ACM in 2019, which calculated the nominal risk-free rate for the Caribbean Netherlands by reference to the average risk-free rate for the US, Latin America and Europe. However, as we have explained throughout this section, the relevant risk-free rate for a regulated businesses in the Caribbean Netherlands is a risk-free rate in US dollars. Furthermore, differences in the yields between European or Latin American bonds and US government bonds reflect differences in monetary policy and interest rates that are not relevant to an investment in US dollars in the Caribbean Netherlands. Accordingly, we do not consider yields on European or Latin American bonds to be relevant to the RFR.

rate using long-term bonds – either 10-year or 20-year bonds – which provide results that better correspond to the empirical tests.[2]

43. The maturity of the bond used in calculating the risk-free rate should also be consistent with the ERP.[3] In general, government bond yields typically increase with maturity: a 20-year bond generally has a higher yield than a 10-year bond. If the ERP is measured as the excess return of stock over 20-year bonds, then the risk-free rate should also be based on 20-year bonds. Similarly, if the ERP is measured over 10-year bonds, the RFR should also be based on 10-year bonds. Inconsistency between the maturity of the bond used in calculating the risk-free rate and in measuring the ERP could result in under or overestimating the cost of equity.[4]

44. As we describe in Section III below, we base our estimate of the ERP for the United States and the Eurozone on historical excess returns over long-term bonds calculated by Dimson, Marsh and Staunton (DMS). On average, the long-term bonds DMS use have a maturity of about 20-years.[5] Accordingly, to ensure consistency, we should calculate the risk-free rate based on 20-years bonds.

45. Alternatively, if we used returns on 10-year bonds to measure the RFR, it would be appropriate to make an adjustment to the DMS ERP. Specifically, because DMS estimate the ERP based on historical returns over the period 1900-2021, to make the adjustment we would need an estimate of the difference in returns on 10-year and 20-year bonds over the same

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[2] Empirical research has found that the CAPM tends to overstate the actual sensitivity of the cost of capital to beta: low-beta stocks tend to have higher risk premiums than predicted by the CAPM and high-beta stocks tend to have lower risk premiums than predicted. See for example, Brealey, Myers and Allen, Principles of Corporate Finance, Tenth edition, McGraw-Hill Irwin, Ch.8 p.195. See also, Fama and French, "The Capital Asset Pricing Model: Theory and Evidence", Journal of Economic Perspectives (. 2004), for a discussion about the ECAPM and results of empirical tests.

[3] See, *e.g.*, Harris, Caldwell, Lo Passo, and Bazzucchi, "Review of Approaches to Estimate a Reasonable Rate of Return for Investments in Telecoms Networks in Regulatory Proceedings and Options for EU Harmonization", prepared for DG Connect, July 2016.

[4] Using either a 10-year bond yield or a 20-year bond yield would both give results that better match the empirical tests of the CAPM than using a short-term risk-free rate. If DMS published long-term returns for 10-year bonds, and estimated an ERP based on the premium of market returns over 10-years bonds, we could use a 10-year bond for the RFR and the corresponding ERP. But DMS do not publish this data. They only publish an ERP calculated relative to a 20-year bond.

[5] DMS publications do not make specific reference to maturity, and generally refer to the asset class of 'long term bonds'. However, according to the DMS 2021 Yearbook's section on data sources, DMS have been using for most countries and from at least the 1990s, the FTSE 10+ year government bond country indices. We have verified that the average maturity of these indices is generally close to 20 years. For the US, DMS has been using the Ibbotson Associates' long bond index for 1927 to present, which were constructed with an approximate 20 year maturity.

period for all Eurozone countries and for the US. However, we do not have data on historical returns on 10-year bonds for the period 1900-2021. Hence, we cannot calculate a correct adjustment. The best we could do would be to estimate the difference between 10 and 20-year bond yields over a much shorter period of time than DMS use to measure the ERP, and hope that this shorter period approximates the longer period of 1900-2021. This approach, however, is likely to produce less accurate results than simply using 20-year bond returns that our consistent with DMS.[6]

46. In sum, it would be reasonable to either calculate the RFR based on:

    a. 20-years bonds, and use the DMS ERP without adjustments; or

    b. 10-years bonds, and try to make an adjustment to the DMS ERP to ensure consistency.

47. Of the two approaches, using a 20-year bond directly will give a more accurate estimate of the cost of equity. If we use a 20-year bond yield to measure the RFR then no adjustments to the DMS ERP estimates are needed, since the RFR and ERP are consistent. In contrast, using a 10-year bond to measure the RFR could introduce errors when we try to adjust the DMS ERP, as we lack data on 10-year bond returns in the period 1900-2021 and using a shorter period of 10-year bond returns would result in an inaccurate adjustment to the ERP.

48. We note that the ERP for Latin America published by Damodaran considers the spot rate of the 10-year US government bond.[7] However, because Damodaran uses a forward-looking dividend growth model, unlike DMS we can easily adjust Damodaran's ERP estimate to be consistent with a 20-year US government bond. Accordingly, in section III we adjust Damodaran's estimate of the ERP for Latin America to reflect the expected excess return over a 20-year government bond and estimate the RFR using 20-year government bonds.

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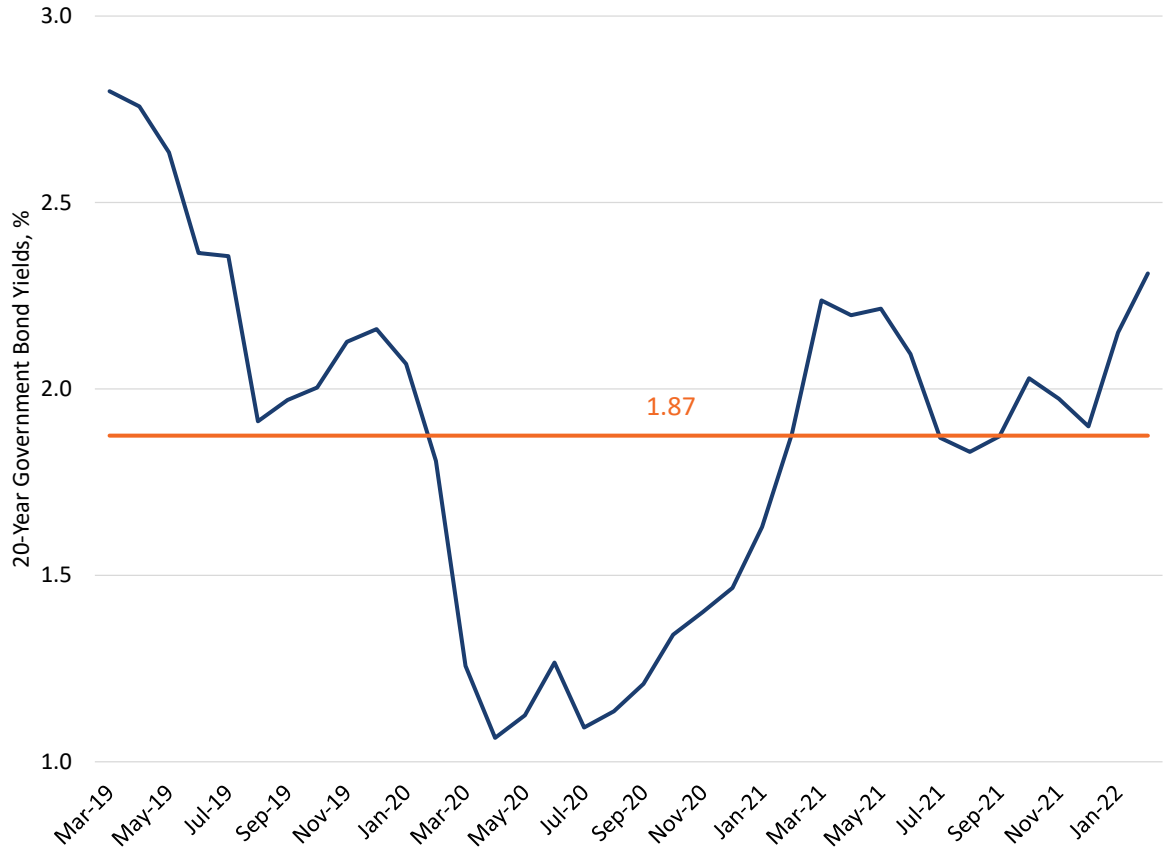
[6] This is because returns on equity and bonds of different maturities have varied significantly over DMS' reference period, which is one of the reasons why the ERP should be based on a very long time frame. Even using a very long series of bond returns, say of the last 50 years, would likely lead to an inaccurate approximation, as the first part of the twentieth century was markedly different from the second part.

[7] See Aswath Damodaran, "Equity Risk Premiums (ERP): Determinants, Estimation and Implications – The 2021 Edition", 23 March 2021, available at SSRN: https://ssrn.com/abstract=3825823 or http://dx.doi.org/10.2139/ssrn.3825823. The RFR used to calculate ERP estimates is based on the spot rate of the 10-year US Treasury bond.

C. The Risk-Free Rate for Regulated Activities in the Caribbean Netherlands

49. Based on the considerations above, we estimate the risk-free rate for the Dutch Caribbean Netherlands based on the three-year average yield on the 20-year US government bonds. Figure 1 illustrates the evolution of the yields of 20-year US government bonds over the past three years. As a measure of the yield of 20-year government bonds, we rely on the 'DGS20' index[8]. Over our three-year reference period, nominal government bond yields in the US have fluctuated significantly, decreasing from about 2.8% in early 2019, to just over 1% during the first wave of the Covid-19 pandemic. Since then, yields have gradually increased to over 2% by the end of 2020, fluctuating around that value thereafter. Over the three-year period ending on 28 February 2022, 20-year US government bond yields averaged 1.87%.

FIGURE 1: YIELD ON 20-YEAR US GOVERNMENT BONDS



Source: FRED, Market Yield on U.S. Treasury Securities at 20-Year Constant Maturity [DGS20].

[8] See FRED, Market Yield on U.S. Treasury Securities at 20-Year Constant Maturity [DGS20], available at: https://fred.stlouisfed.org/series/DGS20.

III. The Equity Risk Premium

50. In 2019, the ACM determined the equity risk premium (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 to 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 European market is also a reference market to determine the WACC for the Caribbean Netherlands.

51. We find the ACM approach reasonable. In principle, if financial markets were perfectly integrated, one would consider a world ERP. However, capital markets are not fully integrated. Investors tend to invest more in countries that are geographically close and with which they are more familiar. Therefore, investors may expect an excess return for their equity investments that is country or region specific. 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. Also, currencies and exchange rates are not relevant issues to consider when calculating the ERP. This is because the ERP is a real measure, calculated by subtracting the nominal risk-free rate from the nominal return to equities.

52. In more detail, the ACM calculated the ERP for the Caribbean Netherlands as the average of the ERP estimated for Latin America, the US and Europe. The ACM estimated 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. With respect to the historical DMS data, the ACM selected the average of the arithmetic and geometric averages of the realized ERP in the USA and within the Eurozone. We apply the same methodology here.

53. Table 4, below, illustrates the realised ERP published by DMS for individual European countries and for the US taken from the 2022 DMS report.[9] This report contains ERP estimates using data up to and including 2021. For the Eurozone, Table 4 shows the simple and weighted averages of the ERP countries for which DMS have data. Overall, we find that the simple average between the arithmetic and geometric ERP for the period 1900 to 2019 inclusive was 5.58% for the Eurozone. Using each country's stock market capitalization to weight the averages across the Eurozone, we derive an ERP of 5.06% for 2021. Taking the average of the arithmetic and geometric means of the realized ERP in the US, we derive an ERP of 5.65%.

TABLE 4: HISTORIC EQUITY RISK PREMIUM RELATIVE TO BONDS (1900 – 2021)

		Risk premiums relative to bonds, 1900 - 2021			
		Geometric mean % [A]	Arithmetic mean % [B]	Average % Average [A], [B]	Country Market Cap (2020) USD mln [C]
Austria	[1]	2.80	21.00	11.90	178,642
Belgium	[2]	2.20	4.30	3.25	424,650
Finland	[3]	5.40	9.00	7.20	351,754
France	[4]	3.20	5.40	4.30	3,464,305
Germany	[5]	4.90	8.20	6.55	2,763,953
Ireland	[6]	2.70	4.70	3.70	129,865
Italy	[7]	3.00	6.30	4.65	736,545
Netherlands	[8]	3.40	5.70	4.55	1,249,391
Portugal	[9]	5.10	9.20	7.15	88,210
Spain	[10]	1.60	3.50	2.55	713,692
Average Eurozone	[11]	3.43	7.73	5.58	
Value-weighted average Eurozone	[12]	3.60	6.51	5.06	
United States	[13]	4.60	6.70	5.65	

Notes and sources:
[A][1]-[10], [A][13], [B][1]-[10], [B][13]: Elroy Dimson, Paul Marsh and Mike Staunton, Credit Suisse Global Investment Returns Sourcebook 2022, Table 9.
[11]: Average of [1]-[10].
[12]: Average of [1]-[10], weighted by [C].

[9] Credit Suisse Global Investment Returns Sourcebook 2022, Table 9.

54. As noted in Section II above, the ERP for Latin America published by Damodaran considers the spot rate of the 10-year US government bond. However, to ensure consistency between the ERP and risk-free rate we need to adjust Damodaran's ERP estimate to be consistent with a 20-year bond. In Table 5, below we report Damodaran's estimate of the ERP for Latin America as well as the spot rate on the 10-year US government bond used for its calculation. The Table further reports the contemporaneous spot rate for the 20-year US government bond and the adjusted ERP for Latin America. We find that Damodaran's ERP for Latin America adjusted to reflect a bond maturity of 20 years is equal to 7.61%.[10]

TABLE 5: DAMODARAN'S ERP FOR LATIN AMERICA

ERP - Latin America	[1]	See note	8.03%
US Government Bonds Yield - 10-year	[2]	See note	1.52%
US Government Bonds Yield - 20-year	[3]	See note	1.94%
RFR Adjustment	[4]	[3]-[2]	0.42%
Adjusted ERP - Latin America	**[5]**	**[1]-[4]**	**7.61%**

Notes:
[1], [2]: Damodaran data on ERP, available at https://pages.stern.nyu.edu/~adamodar/.
[3]: FRED, Market Yield on U.S. Treasury Securities at 20-Year Constant Maturity [DGS20].

55. By taking the simple average of the ERP for Europe, the US and Latin America we derive an ERP of 6.11%. We use this value in our WACC calculations.

[10] The adjusted ERP of 7.61% for Latin America is significantly lower than the value of 10.61% selected in 2019. However, we note that Damodaran's 2018 estimate of the ERP for Latin America was an outlier, likely resulting from the significant drop in US stock prices at the end of 2018. This appear clear when we compare the 2018 value to the values of the ERP for Latin America in other recent years: Damodaran reported an ERP for Latin America of 8.63% in 2017, 8.48% in 2019, 8.71% in 2020 and 8.03% in 2021.

IV. Selection of the Peer Groups and Screening Tests

A. Potential Peers

56. The regulated companies in the Caribbean Netherlands are not listed on a stock exchange. Therefore, to estimate the beta parameter, we need to find publicly traded firms with similar systematic risk to the Dutch Caribbean companies. Since we are actually determining the WACC for each line of business, we estimate a beta for each activity being:

    a. Electricity production (EP);

    b. Electricity distribution (ED);

    c. Water productions and distribution (WPD);

57. We can estimate a beta for each activity from publicly traded firms that derive the majority of their revenues from that activity. We refer to these companies as the 'comparables' or 'peers'.

58. In determining the number of peers, there is a trade-off. On the one hand, adding more peers to the group reduces the statistical error in the estimate of the beta. On the other hand, as more peers are added, there is a risk that they may have a different systematic risk than the regulated firms, which makes the beta estimate less accurate. In statistical terms, once we have 6-7 peers in the group the reduction in the error from adding another firm is relatively small.

59. In this report, we start considering the peer group of companies considered by the ACM in 2019, which included 30 companies engaged in a combination of electricity and water, production and distribution activities.[11] From this group, we exclude Atlantic Power Corp. and

[11] See ACM, "Calculating the WACC for energy and water companies in the Caribbean Netherlands for the year 2020 – 2022", September 2019, pp. 11-12. See also Europe Economics, "WACC calculation for the Caribbean Netherlands", June 2019, pp. 8-10.

Pattern Energy Group because they were delisted.[12] We then add an additional 13 candidate peers, taking into account the peers considered in other ACM determinations and other reports on the WACC of energy and water companies.[13] We thus obtain an initial sample of 41 candidate peers. Table 6 provides the list of candidate peers.

60. To identify the companies that derive a majority of their revenues from one the regulated activities – electricity production, electricity distribution and water production and distribution – we have reviewed Bloomberg's company descriptions and the revenue splits by activity reported in their annual accounts. We were so able to determine whether each candidate peer was primarily engaged in only one of the three activities, and exclude companies that that were engaged in more than one activity.[14] Application of this criterion led to the exclusion of 10 companies.

61. Table 6 details the main activity of each candidate peer for the three activities and the companies that were excluded from the sample because engaged in multiple activities. We are left with 10 companies for electricity production, 9 companies for electricity distribution, and 12 companies for water production and distribution. We further check whether the remaining companies are sufficiently liquid to ensure a reliable beta estimate, which we describe in the following section of the report.

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[12] See Bloomberg, Atlantic Power Announces Closing of Transaction With I Squared Capital, available at: https://www.bloomberg.com/press-releases/2021-05-14/atlantic-power-announces-closing-of-transaction-with-i-squared-capital . See Bloomberg, Pattern Energy and Canada Pension Plan Investment Board Complete Transaction, available at: https://www.bloomberg.com/press-releases/2020-03-16/pattern-energy-and-canada-pension-plan-investment-board-complete-transaction-k7uh349g

[13] For American Water Works, Athens Water Supply & Sewage, Sjw Group and Pennon Group PLC see Dan Harris, Lucrezio Figurelli, Federico Guatri and Filippo Nezzo, "The WACC for Drinking Water companies in the Netherlands", August 2021. For Elia Group Sa/Nv, National Grid PLC, Red Electrica Corporacion SA, Snam SPA and Terna-Rete Elettrica Nazionale see Dan Harris and Lucrezio Figurelli, "The WACC for the Dutch Electricity TSO and Electricity and Gas DSOs", April 2021. For Endesa SA, Iberdrola SA, Hera SPA and SSE PLC, see Francesco Lo Passo and Lucrezio Figurelli, "Ulteriori osservazioni relative al calcolo del Beta e del Total Market Return per i settori regolati dell'energia in Italia", December 2021.

[14] For this report, we considered a company to be 'primarily engaged' in one of the three activities if the company derived more than 70% of its revenues from the specific activity. In practice, most of the companies considered in each peer group derived more than 80% or 90% of revenues from the relevant activity. On the other hand, detailed information of the revenue breakdown for the excluded companies was not always available. In these instances we decided to exclude the company because the company descriptions clearly indicated that the companies were multi-utilities. The 'cut-off' level of revenue for when we consider a company to be primarily engaged in a given activity will always involve a trade-off between the number of companies that remain in the peer group after we apply the cut-off criteria and the representativeness of each company.

TABLE 6: POTENTIAL PEER GROUP

Bloomberg Name		Country	ACM 2019 Sample	Revenue Segments		
				EP	ED	WPD
[A]		[B]	[C]	[D]	[E]	[F]
Albioma Sa	[1]	France	✓	✓		
Clearway Energy Inc	[2]	United States	✓	✓		
Edison International	[3]	United States	✓	✓		
Edp Renovaveis Sa	[4]	Spain	✓	✓		
Endesa Sa	[5]	Spain		✓		
Engie Brasil Energia Sa	[6]	Brazil	✓	✓		
Falck Renewables Spa	[7]	Italy	✓	✓		
Iberdrola Sa	[8]	Spain		✓		
Renova Energia SA	[9]	Brazil	✓	✓		
Verbund Ag	[10]	Austria	✓	✓		
Cpfl Energia Sa	[11]	Brazil	✓		✓	
Elia Group Sa/Nv	[12]	Belgium			✓	
Enel Americas Sa	[13]	Chile	✓		✓	
Hera Spa	[14]	Italy			✓	
National Grid Plc	[15]	United Kingdom			✓	
Red Electrica Corporacion Sa	[16]	Spain			✓	
Snam Spa	[17]	Italy			✓	
Sse Plc	[18]	United Kingdom			✓	
Terna-Rete Elettrica	[19]	Italy			✓	
Aguas Andinas	[20]	Chile	✓			✓
American Water Works	[21]	United States				✓
Athens Water Supply &	[22]	Greece				✓
California Water Service	[23]	United States	✓			✓
Cia Saneamento Do Parana-	[24]	Brazil	✓			✓
Cia Saneamento Minas Gerais	[25]	Brazil	✓			✓
Essential Utilities Inc	[26]	United States	✓			✓
Middlesex Water Co	[27]	United States	✓			✓
Pennon Group Plc	[28]	United Kingdom				✓
Severn Trent Plc	[29]	United Kingdom	✓			✓
Sjw Group	[30]	United States				✓
United Utilities Group	[31]	United Kingdom	✓			✓
Companies Excluded Because Multi-Utilities						
Acea Spa	[32]	Italy	✓	✓	✓	
Aes Corp	[33]	United States	✓	✓	✓	
American Electric Power	[34]	United States	✓	✓	✓	
Edp - Energias Do Brasil Sa	[35]	Brazil	✓	✓	✓	
Eneva Sa	[36]	Brazil	✓	✓	✓	
Eolus Vind AB (publ)	[37]	Sweden	✓	✓	✓	
Pampa Energia SA	[38]	United States	✓	✓	✓	

Pnm Resources Inc	[39]	United States	✓	✓	✓
Public Power Corporation SA	[40]	Greece	✓	✓	✓
Zespol Elektrowni Patnow	[41]	Poland	✓	✓	✓

62. In common with the 2019 WACC decision, we include potential peers from Europe, the US and South America. However, we note that the sample of firms that represent electricity generation include firms that sell electricity in competitive markets. In a competitive market, if there is a fall in demand due to, for example, an economic recession, then the companies will sell a lower volume of electricity. That is, the generating companies have volume risk.

63. In contrast, revenues from electricity generation in the Caribbean Netherlands are regulated. Specifically, Companies that generate and sell electricity in the Caribbean Netherlands are largely insulated against volume risk. Within limits, if the volume of electricity the companies sell is lower than forecast, it will be able to increase prices to recover the lost revenue. Accordingly, due to limited volume risk, we would expect the activity of regulated electricity generation in the Caribbean Netherlands to have a lower systematic risk than reflected by the betas of unregulated companies selling electricity in a free market.

64. Rather, the actual beta for regulated electricity generation and sales in the Caribbean Netherlands would logically be closer to the beta for regulated electricity distribution companies. As we discuss below, we find that the asset beta for electricity generation is [0.64], while the asset beta for electricity distribution is lower at [0.46]. That the electricity distribution beta is lower makes sense, as electricity distribution has lower volume risk, particularly in Europe.

65. Nevertheless, we maintain the approach of the 2019 WACC methodology, and use the electricity generation peers – which are all unregulated – to estimate a beta for regulated electricity generation and sales in the Caribbean Netherlands. For the reasons given above, this approach is likely to overestimate the true beta for regulated electricity generation and sales in the Caribbean Netherlands.

66. We understand that, when invited by the ACM to comment on the WACC methodology, some of the Companies expressed the view that the sample of peers should contain more companies in the Caribbean region. The reasoning was that these companies face similar risks to the Companies, such as the risk of destruction of power lines due to hurricanes. European distribution companies do not face these risks.

67. While we understand the concern, it would be incorrect to include companies from the Caribbean region on the basis that they would give a more accurate estimate of the Companies' beta. Beta reflects only a firm's systematic risk – that is, the risk that is correlated with the wider market and that investors cannot eliminate by holding a diverse portfolio of assets. Incidents such as damage of assets due to hurricanes are diversifiable. That is, a hurricane will only affect one region, and will not have an effect on the value of a wide portfolio of assets. Hence, an investor could eliminate the financial risk of a hurricane by holding a wide portfolio of assets, or even just a wide portfolio of electricity distribution companies. When we say 'eliminate the risk', this does not mean that the financial effects of hurricane damage should be ignored. Rather, it means that by holding a wide range of assets, the expected costs of hurricane damage can be factored in to the value of an investment with a high degree of certainty. Accordingly, investors do not need to be compensated for the risk of hurricane damage through a higher cost of capital, and the cost of hurricanes will not affect the Companies' beta.

68. Rather, the expected cost of hurricane damage should be factored into the Companies allowed costs. For example, if the Companies included the cost of insurance against hurricane damage as part of their allowed operating cost, then hurricanes would also have little or no effect on the Companies' financial performance and value.

B. Liquidity Tests

69. Illiquid stocks tend to underestimate the true industry beta.[15] Hence, for each of the potential peers in the initial sample, we test to see if the firms' shares are sufficiently liquid.

70. Historically, the ACM methodology applied two criteria to test for liquidity. First, the shares of the candidate peers had to be traded on at least 90% of the days in which the relevant market index traded over the reference period (the number of trading days test). Second, the

[15] To understand why this is true, for example, consider a firm with a true beta of 1.0, so that the firm's true value moves exactly in line with the market. Now suppose that the firm's shares are traded only every other day. In this case, the firm's actual share price will only react to news the day after the market reacts. This will give the impression that the firm's value is not well correlated with the market, and the beta will appear to be less than one. Using weekly returns to calculate beta mitigates this problem, since it is more likely that the firm's shares will be traded in the week. However, using weekly returns have other disadvantages, such as providing 80% less data points over any given period.

ACM methodology required that the candidate peers had annual revenues of at least € 100 million (the annual revenue requirement), on the basis that firms with larger revenues are likely to have shares that are liquidly traded.

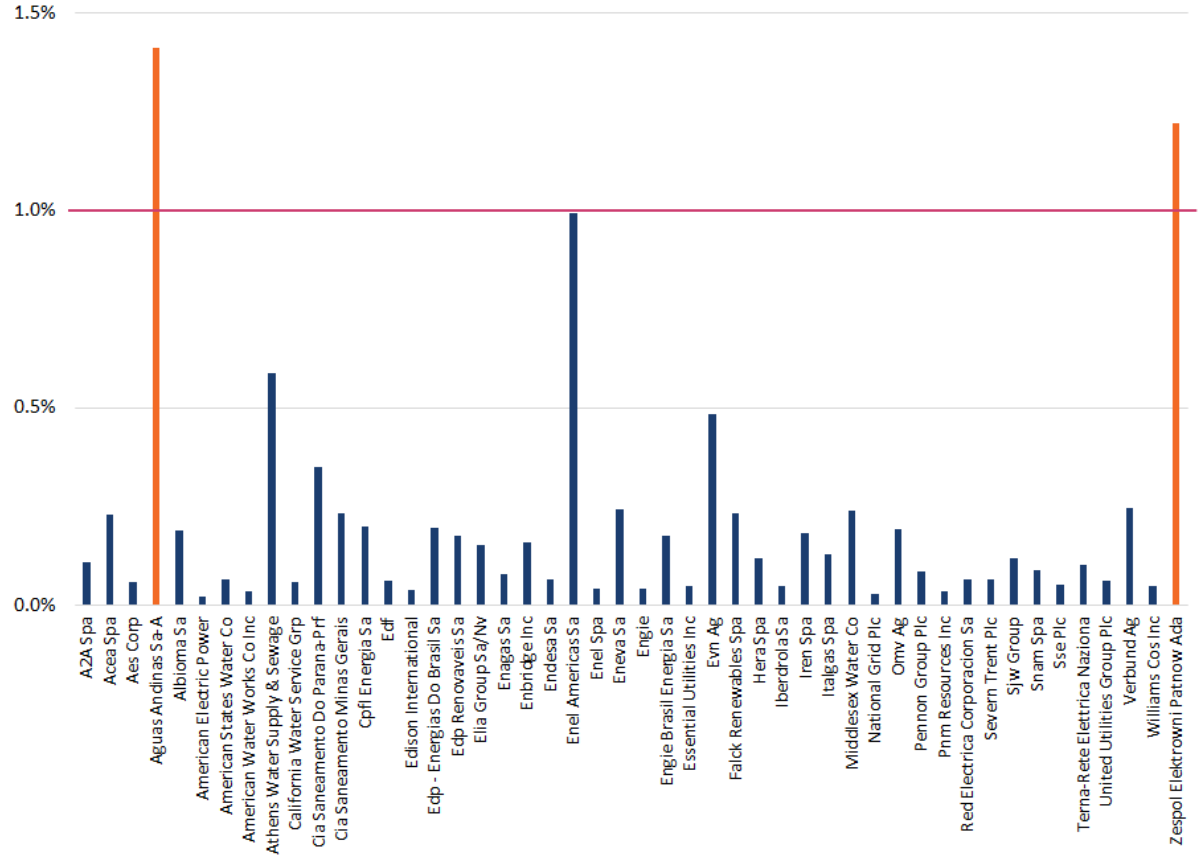
71. More recently, in response to a court ruling,[16] the ACM commissioned a study to provide a recommendation on the appropriate criteria to select peers for efficient beta estimation. The study determined that the two existing criteria adopted by ACM should be modified, and that a bid-ask spread threshold of 1% should be applied instead as the primary liquidity criterion.[17] The ACM has asked us to follow this recommendation, and to perform additional liquidity tests as 'sanity checks' on the results. We find this to be a reasonable approach to test for liquidity.

72. We calculate the average bid-ask spread as a percentage of the stock price over the reference period 1 March 2019 -28 February 2022. As illustrated in Figure 2, the 1% cut-off leads to the exclusion of two companies: Renova Energia SA and Aguas Andinas SA. As a further sanity check we have verified that all the remaining companies had reported annual revenues above 100 million in 2020.

[16] The court ruling was directly related to the peer group of companies used to estimate the beta for the Dutch network companies. The court found that one of the peer companies, Fluxys, did satisfy both the number of trading days and annual revenue requirements. However, the court determined that a high value of the bid-ask spread demonstrated that Fluxys' shares were illiquid.

[17] Frontier Economics, "Criteria to select peers for efficient beta estimation. A report for the ACM", 8 January 2020.

FIGURE 2: BID-ASK SPREAD



73. We consider two additional screening test to ensure a reliable beta estimate. Specifically, we check that the credit rating of the candidate peers is not below investment grade and that the companies were not involved in substantial M&A activity. Share prices of firms with lower credit ratings tend to be more reactive to company-specific news. This will lower the measured beta, in a way that may not be representative of the Dutch Caribbean companies. Similarly, substantial M&A activity will tend to affect a firm's share price in a way that is unrelated to the systematic risk of the business. Hence, the observed beta for a firm with substantial M&A activity will tend to underestimate the true beta for a firm with the same business activity absent M&A activity. Accordingly, we would exclude firms that have been involved in 'substantial' mergers and acquisitions (M&A) during the period for which data is used to calculate the beta.[18] Application of these two additional criteria led to the exclusion of Clearway Energy Inc., because the company has a credit rating of BB.

[18] We define a 'substantial' M&A activity as a transaction involving more than 30% of the average market capitalization of the firm in the thirty days preceding the transaction, and having a noticeable effect on the daily returns of the stock price.

C. The Final Peer Groups

74. In Table 7, below, we provide a summary of the final peer groups. Overall, the final sample includes 8 companies for electricity production, 9 companies for electricity distribution and 11 companies for water production and distribution.

TABLE 7: SCREENING TESTS SUMMARY

Name [A]		Region [B]	Country [C]
Electricity Production			
Albioma Sa	[1]	Europe	France
Edp Renovaveis Sa	[2]	Europe	Spain
Endesa Sa	[3]	Europe	Spain
Falck Renewables Spa	[4]	Europe	Italy
Iberdrola Sa	[5]	Europe	Spain
Verbund Ag	[6]	Europe	Austria
Engie Brasil Energia Sa	[7]	Latin America	Brazil
Edison International	[8]	United States	United States
Electricity Distribution			
Elia Group Sa/Nv	[9]	Europe	Belgium
Hera Spa	[10]	Europe	Italy
National Grid Plc	[11]	Europe	United Kingdom
Red Electrica Corporacion Sa	[12]	Europe	Spain
Snam Spa	[13]	Europe	Italy
Sse Plc	[14]	Europe	United Kingdom
Terna-Rete Elettrica Naziona	[15]	Europe	Italy
Cpfl Energia Sa	[16]	Latin America	Brazil
Enel Americas Sa	[17]	Latin America	Chile
Water			
Athens Water Supply & Sewage	[18]	Europe	Greece
Pennon Group Plc	[19]	Europe	United Kingdom
Severn Trent Plc	[20]	Europe	United Kingdom
United Utilities Group Plc	[21]	Europe	United Kingdom
Cia Saneamento Do Parana-Prf	[22]	Latin America	Brazil
Cia Saneamento Minas Gerais	[23]	Latin America	Brazil
American Water Works Co Inc	[24]	United States	United States
California Water Service Grp	[25]	United States	United States
Essential Utilities Inc	[26]	United States	United States
Middlesex Water Co	[27]	United States	United States
Sjw Group	[28]	United States	United States

V. Beta and Gearing

A. Peer Groups Equity Betas

75. ACM's methodology specifies a three-year daily sampling period for the beta. Accordingly, we estimate equity betas for the peer group of firms by regressing the daily returns of individual stocks on market returns over the last three years.[19]

76. The relative risk of each peer, as summarised in its beta parameter, must be measured against an index representing the overall market. Because investors tend to invest more in countries that are geographically close and also tend to diversify their portfolios within a single currency zone so as to avoid exchange rate risk, we calculate market returns by reference to regional or broad national indices. Using indices from the relevant region or currency zone avoids exchange rate movements or differences in market trading hours depressing the betas, and should result in a more reliable beta estimate than if we estimated betas against a world index or an index in a different currency. However, in the case of Latin America, in this case we opt to use a regional multi-currency index, to avoid underestimating betas.

77. Specifically, we use the STOXX Europe 600 (SXXP Index) for European companies, the S&P 500 (SPX Index) for US companies, the FTSE 100 (UKX Index) for UK companies and the FTSE Latin America All Cap (ACLAMERS Index) for Latin American companies.[20]

78. We perform a series of diagnostic tests to assess if the beta estimates satisfy the standard conditions underlying ordinary least squares regression. We test for autocorrelation using the Breusch-Godfrey test, but rely on the OLS estimate of the beta parameter even in the

[19] As mentioned above, we use the three-year period 1 Match 2019 through 28 February 2022 as our estimation window for the beta of all firms on the peer group.

[20] The betas estimated using national indices were lower for four of the companies (the four Brazilian companies Engie, Cpfl, Cia Saneamento Do Parana, Cia Saneamento Minas Gerais) and higher only for one (the Chilean company Enel Americas). Because the main reason to use national indices is to avoid potential downward biases in the beta due to currency effects, we ultimately determined that using the regional index for Latin America was less likely to underestimate the true betas.

presence of autocorrelation.[21] We test for the presence of heteroscedasticity using the White's test and use White's-Huber robust standard errors.

79. In addition to the above diagnostic tools and adjustment procedures, we apply an adjustment for market imperfections. This adjustment requires us to use a weekly beta instead of the daily beta, if it appears that share prices react to news the day before or the day after the market index reacts. This could occur because of differences in market opening times and trading hours, or differences in the liquidity of the firm's shares relative to the average liquidity of the market. If such an effect is present, a beta estimated using daily returns on the firm's share and on the market index may be biased. Similarly, financial market frictions caused by information asymmetries, transaction costs, limit orders, and overreaction to news may also affect the way information is incorporated in the share price. In contrast, weekly betas are less sensitive to the speed at which share prices assimilate information, because they use returns over five trading days.

80. In practice, the adjustment for market imperfections is a modified version of the Dimson adjustment applied by the ACM in its previous decisions. The Dimson adjustment regresses a company's daily returns using the market index returns one day before and one day after as additional repressors. If the market is perfectly efficient, all information should be dealt with on the same day. The adjustment for market imperfections considers that if the lag or the lead coefficient are either significantly different from zero or jointly significantly different from zero, this suggests that information about the true beta may be lost by considering only the simple regression. This problem can be largely resolved using weekly data to estimate the equity beta.

81. We have performed this adjustment for the firms in our peer groups. The adjustment is significant for three firms out of the total sample. Hence for these firms we take the weekly beta.[22] For the remaining firms we take the daily beta. Table 8 shows our results. Overall, the equity betas range between 0.76 (Edp Renovaveis Sa) and 0.96 (Verbung Ag) for electricity

[21] We test for autocorrelation up to three lags. Note that the OLS estimator of the beta is unbiased (not systematically too high or too low) and consistent (converges to the correct value) even in the presence of autocorrelation.

[22] The weekly beta was lower than the daily beta for all the companies. In particular: the weekly beta of SJW Group (0.89) compares to a daily beta of 0.98; the weekly beta of Sse Plc (0.93) compares to a daily beta of 0.97; the weekly beta of Terna (0.69) compares to a daily beta of 0.75.

production, between 0.51 (Red Electrica Corporacion Sa) and 0.97 (Cpfl Energia Sa) for electricity distribution, and between 0.52 (Pennon Group) and 1.07 (Cia Sacramento Minas Gerais) for water production and distribution.

TABLE 8: EQUITY BETAS

	Region	Results		Beta chosen
		Beta	Robust standard error	
		[A]	[B]	[C]
Electricity Production				
Albioma Sa	Europe	0.78	0.08	Daily
Edp Renovaveis Sa	Europe	0.76	0.07	Daily
Endesa Sa	Europe	0.82	0.09	Daily
Falck Renewables Spa	Europe	0.85	0.16	Daily
Iberdrola Sa	Europe	0.80	0.07	Daily
Verbund Ag	Europe	0.96	0.11	Daily
Engie Brasil Energia Sa	Latin America	0.83	0.06	Daily
Edison International	United States	0.86	0.07	Daily
Electricity Distribution				
Elia Group Sa/Nv	Europe	0.69	0.10	Daily
Hera Spa	Europe	0.85	0.12	Daily
National Grid Plc	Europe	0.61	0.06	Daily
Red Electrica Corporacion Sa	Europe	0.51	0.10	Daily
Snam Spa	Europe	0.86	0.13	Daily
Sse Plc	Europe	0.93	0.10	Weekly
Terna-Rete Elettrica Naziona	Europe	0.69	0.10	Weekly
Cpfl Energia Sa	Latin America	0.97	0.04	Daily
Enel Americas Sa	Latin America	0.59	0.07	Daily
Water				
Athens Water Supply & Sewage	Europe	0.62	0.11	Daily
Pennon Group Plc	Europe	0.52	0.05	Daily
Severn Trent Plc	Europe	0.55	0.05	Daily
United Utilities Group Plc	Europe	0.58	0.06	Daily
Cia Saneamento Do Parana-Prf	Latin America	1.04	0.06	Daily
Cia Saneamento Minas Gerais	Latin America	1.07	0.07	Daily
American Water Works Co Inc	United States	0.74	0.07	Daily
California Water Service Grp	United States	0.77	0.11	Daily
Essential Utilities Inc	United States	0.92	0.08	Daily
Middlesex Water Co	United States	0.83	0.09	Daily
Sjw Group	United States	0.89	0.09	Weekly

Source: Brattle elaboration on Bloomberg data.

B. Peer Groups Gearing and Asset Betas

82. As well as reflecting the systematic risk of the underlying business, equity betas also reflect the risk of debt or financial leverage. As debt is added to the company, the equity will become riskier as more cash from profits goes towards paying debt in each year before dividends can be distributed to equity. With more debt, increases or decreases in a firm's profit will have a larger effect on the value of equity. Hence if two firms engage in exactly the same activity, but one firm has more debt, that firm will have a higher equity beta than the firm with less debt.

83. To measure the relative risk of the underlying asset on a like-for-like basis it is necessary to 'unlever' the betas, imagining that the firm is funded entirely by equity. The resulting beta is referred to as an asset beta or an unlevered beta. To accomplish the un-levering, the methodology specifies the use of the Modigliani and Miller formula.[23]

84. Consistent with the three-year reference period used to estimate the beta, we calculate the gearing of each comparator as the three-year average of quarterly gearing ratios obtained dividing quarterly net debt over quarterly market capitalization.

85. Table 9 reports the equity beta, the gearing and the resulting asset betas for each firm. Overall, we find that:

    a. Electricity production: the asset beta ranges between 0.51 and 0.90, with a median asset beta of 0.64. The gearing ranges between 8% and 97%, with a median gearing of 38%.

    b. Electricity distribution: the asset beta ranges between 0.34 and 0.75, with a median asset beta of 0.46. The gearing ranges between 38% and 95%, with a median gearing of 68%.

    c. Water production and distribution: the median asset beta ranges between 0.29 and 0.84, with a median asset beta of 0.62. The gearing ranges between 0% and 123%, with a median gearing of 40%.

[23] The specific construction of this equation was suggested by Hamada (1972) and has three underlying assumptions: A constant value of debt; a debt beta of zero; that the tax shield has the same risk as the debt.

TABLE 9: EQUITY AND ASSET BETAS

	Region	Equity Beta [A]	Gearing (D/E) [B]	Tax Rate [C]	Asset Beta [D]	Chosen Beta [E]
		See note	See note	See note	See note	
Electricity Production						
Albioma Sa	Europe	0.78	72.17%	28.50%	0.51	Daily
Edp Renovaveis Sa	Europe	0.76	29.00%	25.00%	0.63	Daily
Endesa Sa	Europe	0.82	26.92%	25.00%	0.68	Daily
Falck Renewables Spa	Europe	0.85	40.43%	24.00%	0.65	Daily
Iberdrola Sa	Europe	0.80	67.23%	25.00%	0.53	Daily
Verbund Ag	Europe	0.96	8.07%	25.00%	0.90	Daily
Engie Brasil Energia Sa	Latin America	0.83	34.65%	34.00%	0.67	Daily
Edison International	United States	0.86	96.93%	27.00%	0.51	Daily
Median		**0.82**	**37.54%**	**25.00%**	**0.64**	
Electricity Distribution						
Elia Group Sa/Nv	Europe	0.69	94.97%	27.67%	0.41	Daily
Hera Spa	Europe	0.85	61.35%	24.00%	0.58	Daily
National Grid Plc	Europe	0.61	87.74%	19.00%	0.36	Daily
Red Electrica Corporacion Sa	Europe	0.51	68.33%	25.00%	0.34	Daily
Snam Spa	Europe	0.86	81.31%	24.00%	0.53	Daily
Sse Plc	Europe	0.93	62.91%	19.00%	0.62	Weekly
Terna-Rete Elettrica Naziona	Europe	0.69	70.70%	24.00%	0.45	Weekly
Cpfl Energia Sa	Latin America	0.97	45.36%	34.00%	0.75	Daily
Enel Americas Sa	Latin America	0.59	37.75%	27.00%	0.46	Daily
Median		**0.69**	**68.33%**	**24.00%**	**0.46**	
Water Production and Distribution						
Athens Water Supply & Sewage	Europe	0.62	0.00%	25.33%	0.62	Daily
Pennon Group Plc	Europe	0.52	43.53%	19.00%	0.38	Daily
Severn Trent Plc	Europe	0.55	107.92%	19.00%	0.29	Daily
United Utilities Group Plc	Europe	0.58	122.98%	19.00%	0.29	Daily
Cia Saneamento Do Parana-Prf	Latin America	1.04	36.17%	34.00%	0.84	Daily
Cia Saneamento Minas Gerais	Latin America	1.07	41.08%	34.00%	0.84	Daily
American Water Works Co Inc	United States	0.74	39.23%	27.00%	0.58	Daily
California Water Service Grp	United States	0.77	37.60%	27.00%	0.60	Daily
Essential Utilities Inc	United States	0.92	40.00%	27.00%	0.71	Daily
Middlesex Water Co	United States	0.83	20.13%	27.00%	0.73	Daily
Sjw Group	United States	0.89	56.86%	27.00%	0.63	Weekly
Median		**0.77**	**40.00%**	**27.00%**	**0.62**	

Notes:

[A], [B]: Brattle elaboration on Bloomberg data.
[C]: KPMG.
[D]: [A]/(1+(1-[C])*[B]).

C. Gearing and Asset Beta for the Regulated Activities in the Caribbean Netherlands

86. We calculate the WACC for the three standalone activities using the median asset beta and median gearing of peer groups. Table 10 summarizes the results.

TABLE 10: ASSET BETA AND GEARING FOR REGULATED COMPANIES IN THE CARIBBEAN NETHERLANDS

Sector		Asset Beta [A]	Gearing (D/E) [B]
EP	[1]	0.64	37.54%
ED	[2]	0.46	68.33%
WPD	[3]	0.62	40.00%

Notes:
[A], [B]: See Table 9.

VI. Cost of Debt

87. ACM's methodology for calculating the cost of debt makes a distinction between existing capital and new capital.

88. With respect to the existing capital, the methodology requires to calculate an "embedded" cost of debt based on the 'staircase model'. The staircase model assumes that network operators finance their existing investment with ten-year loans, and refinance 10% of their invested capital every year. Accordingly, the model calculates the embedded cost of debt of a hypothetical loan portfolio, 10% of which was issued in every one of the past 10 years. We find this method reasonable, because it recognises that the regulated companies in the Caribbean Netherlands finance existing infrastructure with a mix of legacy debt and more recently issued debt, and that the cost of the debt varies over time.

89. While the cost of debt will always be based on an average of 10-years, the methodology will apply different numbers of 'historical' years and 'future' years, depending on when the WACC will apply. For example, we calculate the cost of debt for the 2023 WACC based on eight historical years (2014-2021) and two future years (2022-2023). We calculate the cost of debt for the 2025 WACC based on six historical years (2016-2021) and four future years (2022-2025).

90. For historical years, the methodology takes the average daily yield to maturity of comparable debt in any given year. For future years, the methodology takes the average daily yield to maturity of comparable debt over the three years prior to the measurement date.

91. With respect to new capital, the methodology requires to calculate the cost of debt based on the forward looking estimate of the cost of debt, thus taking the average daily yield to maturity of comparable debt over the three years prior to the measurement date. Again, this recognises that new capital will be financed with newly issued debt, and that recent debt yields are likely to be a good estimate of future debt costs.

92. We also note that there is no need for the tenor of the loans used for the cost of debt calculation – which in this case is ten-years – to coincide with the tenor of the bonds used to measure the RFR in the cost of equity calculation. The cost of debt should reflect efficient

debt financing decisions by the regulated companies. In contrast, as explained in section II.B, the bonds used to measure the RFR must be consistent with the measured ERP. Moreover, there is only long-run data available for 20-year bond yields, and so that is the bond maturity we use for the RFR.

93. Below, we first describe how we identify the comparable debt and then calculate the cost of debt for the Dutch Caribbean companies based on the staircase model.

A. Comparable Debt

94. As a measure of comparable debt we consider the yields of BBB-rated corporate bonds issued by companies operating in the Caribbean region issued in US dollars. This is reasonable, because the Dutch Caribbean companies operate in US dollars. Also, these companies operate in the Caribbean region, so that the use of US corporate bonds may not be appropriate. Finally, the use of BBB-rated bonds is consistent with the approach used by the ACM in 2019.

95. More specifically, we first identify a 'long-list' of bonds from companies in the Caribbean region whose bonds are traded and issued in US Dollars. We then screen this long-list to select bonds rated BBB- to BBB+ by Standard & Poors (S&P) with a remaining maturity of between 9 to 13 years at any point in time during the 10-year period 1 March 2014 to 28 February 2022.[24] Applying these criteria we select 44 bond issuers and 69 bond issues. Appendix A provides additional details on the bonds considered.

96. We only consider yields during the period when bonds have a 9 to 13 years maturity. For each day during the 10-year period 1 March 2014 to 28 February 2022, we compute the average daily yield for the bonds considered. We then compute yearly averages of the bond yields as the simple average of the average daily yields for the relevant year.[25]

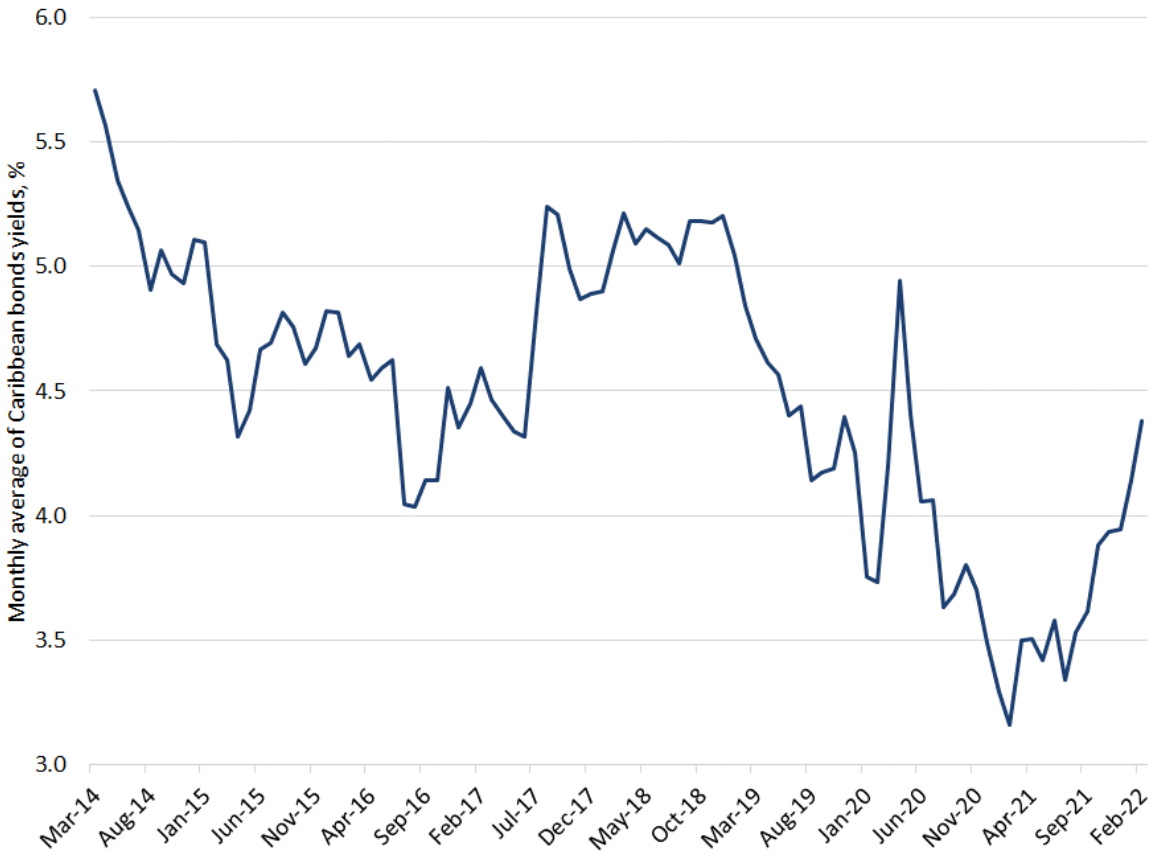
97. Figure 3 illustrates the evolution of the yields of USD-denominated Caribbean bonds over the period March 2014-February 2022. Over 2014-2019 Caribbean bond yields have fluctuated

[24] Note that selecting bonds between 9 and 13 years of remaining maturity ensures in the present case that the average maturity of the bonds is about 10 years. The asymmetry is due to the fact that relatively more bonds have a shorter maturity that 10 years.

[25] The yearly averages are based on the specific year period ranging from March and February of the next year

significantly, decreasing from about 5.7% in early 2014, to just over 3.7% during the first wave of the Covid-19 pandemic. Since then, yields have gradually increased to over 4.4% in February 2022

FIGURE 3: EVOLUTION OF YIELDS OF THE BBB-RATED USD-DENOMINATED CARIBBEAN BONDS



Source: Bloomberg.

98. Table 11 illustrates the average number of traded bonds, the related average maturity and yields for the bonds considered in each year. The Table shows that the average maturity of the bonds is about 10 years for each year of the analysis, and that at least 3.5 bonds were considered on average in year, with the number increasing significantly in later years. Table 11 further reports the three-year average yield prior to the measurement day, which we will apply for the calculation of the cost of debt for future years and new capital, as described above.

TABLE 11: SUMMARY OF CARIBBEAN BONDS

	Number of Traded Bonds [A]	Average Maturity [B]	Caribbean Bonds Yields [C]
2014	4.08	10.92	5.15
2015	3.55	10.36	4.65
2016	6.20	9.68	4.39
2017	5.22	10.14	4.79
2018	7.37	9.85	5.11
2019	7.65	9.66	4.29
2020	13.67	9.62	3.88
2021	16.97	10.06	3.72
2022	12.75	9.78	3.96
2023	12.75	9.78	3.96
2024	12.75	9.78	3.96
2025	12.75	9.78	3.96

Source: Bloomberg.

B. The Cost of Debt of the Dutch Caribbean Companies

99. In Table 12 below, we summarise our calculation for Dutch Caribbean Companies. For each year between 2014 and 2021, the table reports the average annual yield for the Caribbean bonds. The Table further reports the average yield for historical and future years (rows [9] and [10]) and the share of existing and new capital (rows [11] and [12]). Overall, we estimate a debt yield for 2023, 2024 and 2025 of 4.39%, 4.27% and 4.20% respectively.

TABLE 12: STEP MODEL

			Caribbean Bonds Yields		
Year ending 28 February			2023	2024	2025
2014	[1]		5.15%		
2015	[2]		4.65%	4.65%	
2016	[3]		4.39%	4.39%	4.39%
2017	[4]		4.79%	4.79%	4.79%
2018	[5]		5.11%	5.11%	5.11%
2019	[6]		4.29%	4.29%	4.29%
2020	[7]		3.88%	3.88%	3.88%
2021	[8]		3.72%	3.72%	3.72%
Historical Years' Average	[9]	Average([1]-[8])	4.50%	4.40%	4.36%
March 2019-February 2022 Average	[10]	Average([6]-[8])	3.96%	3.96%	3.96%
Share of loans					
Historical	[11]	Share of historical years	80%	70%	60%
New (estimated)	[12]	Share of future years	20%	30%	40%
Total	[13]	[11]+[12]	100%	100%	100%
Debt Yields	[14]	[9]x[11]+[10]x[12]	4.39%	4.27%	4.20%

100. ACM's methodology calculates the cost of debt by adding 15 basis points to the yield on comparable debt to account for the cost of issuing debt. This results in a cost of debt for 2023, 2024 and 2025 of 4.54%, 4.42% and 4.35% respectively for Dutch Caribbean Companies.

TABLE 13: COST OF DEBT

			Cost of Debt		
			2023	2024	2025
[1]	Debt Yield	See note	4.39%	4.27%	4.20%
[2]	Non-interest fees	See note	0.15%	0.15%	0.15%
[3]	Cost of debt	[1]+[2]	4.54%	4.42%	4.35%

Notes:

[1]: See Table 12.

[2]: ACM, fixed at 15bp.

VII. WACC

101. Based on the preceding calculations and discussions, Table 14, Table 15 and Table 16 detail our calculation of the nominal pre-tax WACC for the three regulated activities of electricity production, electricity distribution and water production and distribution in the Caribbean Netherlands. In calculating the nominal pre-tax WACC the ACM has informed us that a tax rate of zero should be applied.

TABLE 14: WACC FOR ELECTRICITY PRODUCTION IN THE CARIBBEAN NETHERLANDS (2023-2025)

			Electricity Production		
			2023	2024	2025
			[A]	[B]	[C]
Gearing (D/A)	[1]	[2]/(1+[2])	27.29%	27.29%	27.29%
Gearing (D/E)	[2]	See note	37.54%	37.54%	37.54%
Tax rate	[3]	ACM	0.00%	0.00%	0.00%
Risk free rate	[4]	See note	1.87%	1.87%	1.87%
Asset beta	[5]	See note	0.64	0.64	0.64
Equity beta	[6]	[5]x(1+(1-[3])x[2])	0.88	0.88	0.88
Equity Risk Premium	[7]	See note	6.11%	6.11%	6.11%
After-tax cost of equity	[8]	[4]+[6]x[7]	7.23%	7.23%	7.23%
Pre-tax cost of debt	[9]	See note	4.54%	4.42%	4.35%
Nominal after-tax WACC	[10]	((1-[1])x[8])+([1]x(1-[3])x[9])	6.50%	6.46%	6.45%
Nominal pre-tax WACC	[11]	[10]/(1-[3])	6.50%	6.46%	6.45%

Notes:
[2]: Table 10.
[4]: 3-Year average of 20-Year USD Government Bond Yield, as reported by the orange line in Figure 1.
[5]: Table 10.
[7]: Section III.
[9]: Table 13.

TABLE 15: WACC FOR ELECTRICITY DISTRIBUTION IN THE CARIBBEAN NETHERLANDS (2023-2025)

			Electricity Distribution		
			2023	2024	2025
			[A]	[B]	[C]
Gearing (D/A)	[1]	[2]/(1+[2])	40.59%	40.59%	40.59%
Gearing (D/E)	[2]	See note	68.33%	68.33%	68.33%
Tax rate	[3]	ACM	0.00%	0.00%	0.00%
Risk free rate	[4]	See note	1.87%	1.87%	1.87%
Asset beta	[5]	See note	0.46	0.46	0.46
Equity beta	[6]	[5]x(1+(1-[3])x[2])	0.77	0.77	0.77
Equity Risk Premium	[7]	See note	6.11%	6.11%	6.11%
After-tax cost of equity	[8]	[4]+[6]x[7]	6.60%	6.60%	6.60%
Pre-tax cost of debt	[9]	See note	4.54%	4.42%	4.35%
Nominal after-tax WACC	[10]	((1-[1])x[8])+([1]x(1-[3])x[9])	5.77%	5.72%	5.69%
Nominal pre-tax WACC	[11]	[10]/(1-[3])	5.77%	5.72%	5.69%

Notes:

[2]: Table 10.

[4]: 3-Year average of 20-Year USD Government Bond Yield, as reported by the orange line in Figure 1.

[5]: Table 10.

[7]: Section III.

[9]: Table 13.

TABLE 16: WACC FOR WATER PRODUCTION AND DISTRIBUTION IN THE CARIBBEAN NETHERLANDS (2023-2025)

			Water Production and Distribution		
			2023	2024	2025
			[A]	[B]	[C]
Gearing (D/A)	[1]	[2]/(1+[2])	28.57%	28.57%	28.57%
Gearing (D/E)	[2]	See note	40.00%	40.00%	40.00%
Tax rate	[3]	ACM	0.00%	0.00%	0.00%
Risk free rate	[4]	See note	1.87%	1.87%	1.87%
Asset beta	[5]	See note	0.62	0.62	0.62
Equity beta	[6]	[5]x(1+(1-[3])x[2])	0.87	0.87	0.87
Equity Risk Premium	[7]	See note	6.11%	6.11%	6.11%
After-tax cost of equity	[8]	[4]+[6]x[7]	7.16%	7.16%	7.16%
Pre-tax cost of debt	[9]	See note	4.54%	4.42%	4.35%
Nominal after-tax WACC	[10]	((1-[1])x[8])+([1]x(1-[3])x[9])	6.41%	6.38%	6.36%
Nominal pre-tax WACC	[11]	[10]/(1-[3])	6.41%	6.38%	6.36%

Notes:

[2]: Table 10.

[4]: 3-Year average of 20-Year USD Government Bond Yield, as reported by the orange line in Figure 1.

[5]: Table 10.

[7]: Section III.

[9]: Table 13.

Appendix A. USD-Denominated BBB-Rated Bonds Issued in the Caribbean

TABLE 17: USD-DENOMINATED BBB-RATED BONDS ISSUED IN THE CARIBBEANS

Company	Ticker [A]	Maturity date [B]	Currency [C]	S&P Rating [D]	Amount outstanding [E]
Meituan	BM0568766 Corp [1]	28/10/2030	USD	BBB-	1,250,000,000
Vale Overseas Limited	BK4047837 Corp [2]	08/07/2030	USD	BBB-	1,500,000,000
Vale Overseas Limited	QZ1332233 Corp [3]	10/08/2026	USD	BBB-	1,705,706,000
Huarong Finance Ii	EK6884242 Corp [4]	16/01/2025	USD	BBB	1,400,000,000
Fibria Overseas Finance	AM0375346 Corp [5]	17/01/2027	USD	BBB-	700,000,000
Longfor Holdings Ltd	ZR5207512 Corp [6]	16/09/2029	USD	BBB-	850,000,000
Vale Overseas Limited	ED2864079 Corp [7]	17/01/2034	USD	BBB-	681,486,000
Braskem Finance Ltd	EK0324393 Corp [8]	03/02/2024	USD	BBB-	596,623,000
Longfor Holdings Ltd	ZP2926464 Corp [9]	13/01/2032	USD	BBB-	400,000,000
Weibo Corp	BK3037409 Corp [10]	08/07/2030	USD	BBB	750,000,000
Sirius International Grp	QZ8576410 Corp [11]	01/11/2026	USD	BBB	400,000,000
Gerdau Trade Inc	AP5642594 Corp [12]	24/10/2027	USD	BBB-	498,994,000
Lima Metro Line 2 Fin Lt	EK9717506 Corp [13]	05/07/2034	USD	BBB	570,091,391
Intercorp Peru Ltd	AZ7913496 Corp [14]	15/08/2029	USD	BBB-	325,000,000
Tengizchevroil Fin Co In	BK5401421 Corp [15]	15/08/2030	USD	BBB-	750,000,000
Huarong Finance Ii	LW2396007 Corp [16]	03/06/2026	USD	BBB	900,000,000
Jd.Com Inc	ZP2924436 Corp [17]	14/01/2030	USD	BBB+	700,000,000
Triton Container/Tal Int	BT4697715 Corp [18]	15/03/2032	USD	BBB-	600,000,000
Great Wall Intl V	BK9063870 Corp [19]	18/08/2030	USD	BBB+	500,000,000
Contempry Ruidng Develop	ZO3880895 Corp [20]	17/09/2030	USD	BBB+	500,000,000
Nan Fung Treasury Ltd	ZO0965715 Corp [21]	27/08/2030	USD	BBB-	500,000,000
Enstar Group Ltd	BR0773753 Corp [22]	01/09/2031	USD	BBB-	500,000,000
Hkt Capital No 4 Ltd	LW7947036 Corp [23]	14/07/2026	USD	BBB	750,000,000
Poinsettia Finance Ltd	LW4208697 Corp [24]	17/06/2031	USD	BBB	508,904,500
Enstar Group Ltd	ZS8125016 Corp [25]	01/06/2029	USD	BBB	500,000,000
Maf Sukuk Ltd	ZQ2590680 Corp [26]	28/02/2030	USD	BBB	600,000,000
China Resources Land Ltd	AX3066401 Corp [27]	26/02/2029	USD	BBB+	500,000,000
Bbva Global Finance Ltd.	DD1040169 Corp [28]	01/12/2025	USD	BBB	200,000,000
Marvell Technology Group	AT2281232 Corp [29]	22/06/2028	USD	BBB-	20,521,000

Enn Energy Holdings Ltd	ZO4254744 Corp	[30]	17/09/2030	USD	BBB	750,000,000
Jd.Com Inc	JK8897981 Corp	[31]	29/04/2026	USD	BBB+	500,000,000
Maf Sukuk Ltd	ZS5181574 Corp	[32]	14/05/2029	USD	BBB	600,000,000
Goodman Hk Finance	BK5362433 Corp	[33]	22/07/2030	USD	BBB+	300,000,000
Talent Yield Intntnl	BP2866435 Corp	[34]	06/05/2031	USD	BBB+	400,000,000
Joy Trsr Assets Hld	BM3419421 Corp	[35]	17/11/2030	USD	BBB+	300,000,000
Joy Trsr Assets Hld	ZR6543899 Corp	[36]	24/09/2029	USD	BBB+	500,000,000
Hkt Capital No 5 Ltd	ZR7659678 Corp	[37]	30/09/2029	USD	BBB	500,000,000
Triton Container	BP8032602 Corp	[38]	15/06/2031	USD	BBB-	600,000,000
China Oversea Fin Ky Iii	EJ9002621 Corp	[39]	29/10/2023	USD	BBB+	500,000,000
Lima Metro Line 2 Fin Lt	EK9711731 Corp	[40]	05/07/2034	USD	BBB	570,091,391
Nan Fung Treasury Ltd	AP2853343 Corp	[41]	03/10/2027	USD	BBB-	410,000,000
Bacardi Ltd	AS3750997 Corp	[42]	15/05/2028	USD	BBB-	800,000,000
Cn Overseas Fin Ky Viii	AZ5654738 Corp	[43]	15/07/2029	USD	BBB+	450,000,000
Nan Fung Treasury Ltd	AU2697798 Corp	[44]	05/09/2028	USD	BBB-	500,000,000
Ascot Group Ltd	BN0032357 Corp	[45]	15/12/2030	USD	BBB-	400,000,000
Sirius International Grp	QZ8578572 Corp	[46]	01/11/2026	USD	BBB	400,000,000
China Grt Wall Intl Iii	AO8886308 Corp	[47]	31/08/2027	USD	BBB+	500,000,000
Meituan	BM0542910 Corp	[48]	28/10/2030	USD	BBB-	1,250,000,000
Allied World Assurance	QJ3838449 Corp	[49]	29/10/2025	USD	BBB-	500,000,000
Cmhi Finance Bvi Co Ltd	AT8075117 Corp	[50]	06/08/2028	USD	BBB	600,000,000
Bacardi Ltd	LW8107382 Corp	[51]	15/07/2026	USD	BBB-	500,000,000
China Overseas Fin	AS3025309 Corp	[52]	26/04/2028	USD	BBB+	750,000,000
Bacardi Ltd	LW8056910 Corp	[53]	15/07/2026	USD	BBB-	500,000,000
Fidelis Insur Hld Ltd	BJ9881399 Corp	[54]	30/06/2030	USD	BBB-	330,000,000
Poinsettia Finance Ltd	LW4193444 Corp	[55]	17/06/2031	USD	BBB	508,904,500
Intercorp Peru Ltd	AZ7913488 Corp	[56]	15/08/2029	USD	BBB-	325,000,000
Bank Nt Butterfield&Son	AS7481920 Corp	[57]	01/06/2028	USD	BBB	75,000,000
Joy Trsr Assets Hld	AX6786625 Corp	[58]	20/03/2029	USD	BBB+	300,000,000
China Overseas Fin. Vi	EK3172450 Corp	[59]	11/06/2034	USD	BBB+	500,000,000
Tengizchevroil Fin Co In	BK5401413 Corp	[60]	15/08/2030	USD	BBB-	750,000,000
Bacardi Ltd	AS3752332 Corp	[61]	15/05/2028	USD	BBB-	800,000,000
Bank Nt Butterfield&Son	BJ8835727 Corp	[62]	15/06/2030	USD	BBB	100,000,000
Hkt Capital No 1 Ltd	EK6836143 Corp	[63]	15/01/2030	USD	BBB	300,000,000
Gerdau Trade Inc	AP5646330 Corp	[64]	24/10/2027	USD	BBB-	498,994,000
Ascot Group Ltd	BN0032373 Corp	[65]	15/12/2030	USD	BBB-	400,000,000
Enn Energy Holdings Ltd	ZO4254736 Corp	[66]	17/09/2030	USD	BBB	750,000,000
Peru Enhanced Pass-Thru	EG0367540 Corp	[67]	02/06/2025	USD	BBB	175,945,770
Triton Container	BP8032610 Corp	[68]	15/06/2031	USD	BBB-	600,000,000
Fidelis Insur Hld Ltd	BK0212765 Corp	[69]	30/06/2030	USD	BBB-	330,000,000