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MEMO

TO: ContourGlobal Bonaire

DATE: 19 August 2019

FROM: ███████, ████████, ████████ (NERA Economic Consulting)

SUBJECT: **Review of EER's WACC estimate for ContourGlobal Bonaire**

COPY: ████████ (Loyens and Loeff)

1.   Introduction

ContourGlobal commissioned NERA to review ACM's draft determination on the WACC for ContourGlobal Bonaire (CGB) for the period 2020 to 2022 and the supporting report by Europe Economics Research Limited (EER).[1]

The approach taken by ACM and EER contains several flaws, which can be separated into three categories:

1. Flaws in the methodology behind ACM's determination that have not previously been discussed;

2. Flaws that ACM has previously made, but which have materially larger impacts to the previous determination and are therefore more important to get right; and

3. Flaws that ACM has made previously, with similar magnitude.

The principal new flaws in ACM's WACC determination are:

▪   EER includes too few comparators in CGB's peer group. Having a smaller number of comparators for estimating increases the risk that the analyst may incorrectly estimate the beta because each comparator has a larger impact on the average. EER states that the minimum requirement for a peer group is ten firms. However, EER only uses eight firms to estimate CGB's beta once it removes illiquid comparators. This contradicts its own rule.

▪   EER's peer group for estimating the asset beta for CGB is biased towards European companies, with too little representation from Latin and South America. Out of eight comparator firms in the peer group, the majority (five) are based in continental Europe, with only one based in Latin America. This approach fails to reflect the regional risk involved in investing in the Caribbean Netherlands, which is located nearest to the USA and Latin America. In addition, it is inconsistent with EER's approach elsewhere in its WACC estimate, such as its equity risk premium (ERP) and risk-free rate, both of which it calculates by giving equal weight to Europe, the USA and Latin America.

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[1]   ACM (July 2019), Calculating the WACC for energy and water companies in the Caribbean Netherlands for the year 2020-2022 - Draft Decision. Europe Economics (June 2019), WACC Calculation for the Caribbean Netherlands.

- EER fails to reflect the risk of investing in the Caribbean Netherlands in its cost of debt estimate for CGB. EER uses BBB rated peers as a benchmark for CGB's cost of debt estimate in Europe, the USA and Latin America as reference markets.. CGB does not have a credit rating issued by a ratings agency. EER therefore has insufficient data to conclude that this approach accurately reflects CGB's cost of debt. Moreover, Europe and the USA are mature, developed markets, and are more attractive to debt investors than a relatively small and obscure jurisdiction such as Bonaire. In addition, the US dollar is the currency of Bonaire, which suggests that investors' opportunity cost is likely to more closely reflect US risk-free rate than European risk-free rates. EER's inclusion of a European risk-free rate in CGB's cost of debt biases the cost of debt downwards and below the levels that investors comparing investments on Bonaire with other US-dollar-denominated investors. EER's cost of debt estimate should therefore include a debt premium that accurately reflects the risk of investing in Bonaire, which is at least as high as investing in other equivalent investments in the United States.

- EER exclusively uses BBB-rated debt indices to estimate CGB's cost of debt. EER's comparator group for CGB includes firms that are not rated BBB or higher. In other words, the comparator group identified by EER implies that CGB is comparable with firms that are not investment-grade. EER's exclusion of these firms from CGB's cost of debt estimate is therefore inconsistent, and biases its estimate of the cost of debt downwards.

- More generally, EER's analysis is heavily reliant on both the ACM method for WACC calculation and ACM's previous WACC determination for CGB. EER's WACC estimate is therefore not based on its own economic rationale, but on the guidance of ACM. As a result, the ACM's WACC determination is lacking a second opinion from independent economic experts, as well as insight into the most recent trends in regulatory finance from other mature energy regulators throughout Europe.

There is are at least two errors ACM has previously made, but which have materially larger impacts on the WACC for CGB than that estimated by the ACM in 2016:

- EER's gearing estimate for CGB is lower than ACM's previous determination. This is inconsistent with EER's lower cost of debt estimate for CGB since 2016, which would imply that the most efficient gearing structure for CGB would be to take up higher levels of debt than in 2016. The same is true regarding EER's cost of equity estimate for CGB, which is higher than in 2016. At the least, EER should revert to the 2016 WACC determination for CGB's gearing rather than adopt a new lower level. This gearing level is still low for an efficient estimate (as it implies no change in capital structure despite debt becoming more cost effective than equity) but would more accurately reflect the true efficient level of gearing for CGB.

- To calculate the cost of equity, the ACM relies on a long-run average to calculate the equity risk premium (ERP) relative to contemporaneous risk-free rates. This ERP estimate is consistent with long-run risk-free rates. The ACM adds this long-term ERP estimate to a short-run measure of the risk-free rate which reflects the current low interest rate environment in Europe in particular. The inconsistency between adopting a short-run

averaging period for the risk-free rate and a long-run averaging period for the ERP results in an estimate for the required returns for equity holders which is not borne out by the historical evidence. International regulators recognise this problem and adopt a long-run average for both the risk-free rate and ERP, a short-run or forward-looking average for both, or estimate the long-run total returns required by equity holders directly (rather than the premium over risk-free rates).

ACM's WACC determination also includes material flaws that are unchanged from the 2016 determination and have a similar effect, which are as follows:

▪ EER includes peers with biased stock betas due to government intervention. As outlined in our previous reports, there is strong academic support behind a negative bias in the stocks of markets experiencing government intervention.

▪ EER fails to incorporate a regional risk premium into its WACC estimate. ACM's WACC determination therefore fails to reflect the risk of Bonaire's specific geopolitical context.

▪ EER's choice of peer group for CGB is not tailored to the Caribbean Netherlands. Instead, EER uses a list of comparators from Europe, USA and Latin America, two of which are developed, mature economies.

▪ EER does not include a small firm premium. EER's approach therefore does not account for the asymmetric risks involved with investing in smaller firms.

By correcting for the flaws set out above, we estimate a WACC of 8.61 per cent for CGB – see Table 1.1.

Table 1.1: EER and NERA WACC estimates for CGB

Parameters	EER	NERA	Difference (NERA – EER)
Tax	0	0	0
Gearing (D/A)	38%	42%	4%
Gearing (D/E)	61%	72%	11%
Asset beta	0.46	0.50	0.04
Equity beta	0.74	0.78	0.04
Risk free rate (equity)	2.37%	3.80%	1.43%
Equity risk premium	6.92%	6.50%	-0.42%
Regional risk premium	0.00%	2.18%	2.18%
Cost of Equity	7.50%	11.58%	4.08%
Cost of debt (pre-tax)	4.07%	4.51%	0.44%
Nominal WACC (after tax)	6.20%	8.61%	2.41%
Nominal WACC (pre-tax)	6.20%	8.61%	2.41%

Source: EER Report Table 7.1, NERA Analysis

This memorandum proceeds as follows:

- Section 2 explains flaws in EER's approach that are carried forward from ACM's 2016 WACC determination;

- Section 3 explains EER's lack of independence in its approach to estimating the WACC;

- Section 4 explains flaws in EER's approach to estimating cost of equity;

- Section 5 explains flaws in EER's approach to estimating cost of debt;

- Section 6 explains flaws in EER's approach to calculating CGB's gearing level;

- Section 7 explains EER's approach to estimating the tax level; and

- Section 8 concludes, giving our own estimate of that CGB's WACC.

2.   General Problems with EER's Approach

In addition to the new errors in CGB's WACC determination outlined above, there are several problems with EER's approach to estimating the WACC for CGB which have either been the subject of CGB's previous appeals or NERA's previous reports on ACM's methodology. In each case, the methodological errors have either been upheld by ACM or excluded from CGB's appeal in order to focus on other flaws. Regardless, as these steps remain methodological failings in calculation of the WACC, we mention them briefly in this section.

EER uses the median of comparator groups rather than the mean to calculate average beta and gearing[2]

In order to calculate the asset beta and efficient gearing level for CGB, EER calculates these parameters for a comparator group, and takes the average using the median value rather than the mean.

Using a median is a less accurate method of assessing the returns required by investors in CGB because it fails to incorporate all information within the peer group. For a skewed or highly-varied dataset, which is common with few datapoints such as EER's peer group for CGB (only eight comparators), the median will not reflect the distribution of the data.

In the case of EER's comparator group for CGB, the median is also more sensitive to outliers than the mean. When a sample is small and irregularly distributed, the large difference between observations near the median firm can result in the median being more sensitive to outliers than the mean. We illustrate this concept by removing Zespol from EER's comparator group, which changes the median by a greater margin than the mean, as shown in Table 2.1.

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[2]   NERA Economic Consulting (March 2017): "Review of the ACM's Final Determination on the WACC for Electricity Production in the Caribbean Netherlands", p.17-19.

Table 2.1: The Median Beta of EER's Comparator Group Changes More than the Mean when Zespol is Removed

Parameter	Mean	Median
[A] EER Comparator Group Betas	0.454	0.455
[B] EER Comparator Group Betas (without Zespol)	0.477	0.49
Difference [A]-[B]	0.023	0.035

Source: EER Report, Table 5.8, NERA Analysis.

At least partly for this reason, the ACM's peers in mature regulatory regimes rely on the mean. For instance, energy regulators in Germany, the UK, Sweden, Austria, Ireland and Luxembourg all take the mean of comparator sets to calculate an average, as outlined in previous NERA reports.[3]

EER includes peers with biased stock betas due to government intervention[4]

EER includes Zespol as one of CGB's European peers. As discussed in previous NERA reports, Zespol's beta is likely to be materially understated due to the well-documented intervention by the Polish government in corporate transactions in the electricity market.[5]

There is strong academic support for the idea that government intervention biases a firm's beta downwards and neither has the ACM disputed this in previous reports. Instead, the ACM defended the use of Zespol because it estimated Zespol's beta before any intervention occurred. The ACM argued that Zespol's beta was not biased downward during the estimation window it used.[6]

As stated in our previous reports, that the government intervention occurred outside the estimation window is not sufficient for assessing whether to include Zespol as a comparator. That Zespol operated in a market in which government intervention occurs close to the time of estimation, particularly given the low beta estimated for Zespol, is sufficient to exclude Zespol from the ACM's analysis.

The ACM should exclude Zespol by its own standards from its current set of comparators due to the impact of government intervention on the estimated beta: in its latest report EER updated the estimation window to incorporate the period in which government intervention occurred. As a result, Zespol's beta is even more likely to be unreliable now than in 2016 and is highly

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[3]   NERA Economic Consulting (March 2017): "Review of the ACM's Final Determination on the WACC for Electricity Production in the Caribbean Netherlands", Table 3.4.

[4]   NERA Economic Consulting (March 2017): "Review of the ACM's Final Determination on the WACC for Electricity Production in the Caribbean Netherlands", p.16-17.

[5]   NERA Economic Consulting (January 2018), The Weighted Average Cost of Capital for Electricity Production in the Caribbean Netherlands", p.22-23

[6]   The Polish government's intervention in the sale of EDF Polska occurred on December 2016, while ACM's beta estimate was calculated in November 2016. As EER estimates Zespol's beta using a 3-year estimation window which overlaps with the period after the Polish government's intervention, ACM's argument is no longer valid. EER does not specify the beta estimation period, but estimates other factors (such as the risk-free rate) over 2016-2018.

likely to be understated, all else equal, relative to a firm operating in similar conditions without that intervention.[7]

EER uses BBB rated peers as a benchmark for CGB's cost of debt estimate[8]

This approach does not reflect CGB's cost of debt as CGB is not rated by credit rating agencies, and EER and ACM provide insufficient data to conclude on the correct credit rating for debt issuance in the Caribbean Netherlands electricity production market.

EER fails to incorporate a regional risk premium[9]

The standard approach when estimating cost of capital is to reflect the risk involved in investing in the target's location, as well as local political and demographic factors. We have estimated a Caribbean Netherlands risk premium (compared to the USA, which is a common approach given that it has the most liquid interest rates market) of 2.18 per cent, using country risk premiums for Aruba, Curacao and Sint Maarten. See Table 4.1 for the full calculation.

EER's choice of peer group for CGB is not tailored to the Caribbean Netherlands[10]

In order to estimate a beta and gearing level for CGB, EER takes the average of a comparator group composed of a geographically disparate list of peers. This includes electricity producers from Europe, USA and Latin and South America, the former two of which are developed, mature markets. These regions are therefore not an accurate group with which to compare an electricity producer from a small Caribbean island. In particular, EER does not rely on peers from emerging markets other than Latin America (from which it only considers one after adjusting for liquidity requirements).

EER does not include a small firm premium[11]

EER does not reflect the asymmetric risks involved with smaller firms. Our previous reports demonstrate how the academic literature supports the addition of a small company premium to adjust for the fact that investors require a risk premium to invest in small firms relative to equivalent large firms.[12] This remains the case, and is commonly seen in regulatory decisions

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[7]   We acknowledge that Zespol's beta has risen – this may be due to any external or internal factors, and not just the nature of Polish government intervention. That Zespol's beta has risen since the 2016 WACC determination does not rule out the possibility that its beta would be higher had the Polish government never intervened in transactions concerning the company.

[8]   NERA Economic Consulting (March 2017): "Review of the ACM's Final Determination on the WACC for Electricity Production in the Caribbean Netherlands", p.21-22/

[9]   NERA Economic Consulting (9 September 2016): "WACC for electricity production in the Caribbean Netherlands", p.6-9.

[10]   NERA Economic Consulting (March 2017): "Review of the ACM's Final Determination on the WACC for Electricity Production in the Caribbean Netherlands", p.13-14.

[11]   NERA Economic Consulting (9 September 2016): "WACC for electricity production in the Caribbean Netherlands", p.16-18.

[12]   NERA Economic Consulting (March 2017): "Review of the ACM's Final Determination on the WACC for Electricity Production in the Caribbean Netherlands", p.6.

by many other mature energy regulators in Europe when setting price controls for small firms.[13]

3. EER Relies Upon the ACM's Method to Estimate the WACC

ACM hired EER to determine a peer group for several parameters in its WACC estimate for CGB, and to calculate the parameters of the WACC. In several parts of its method, EER either adopts ACM's standard WACC approach (the "ACM method") or ACM's previous approach to estimating the WACC for the Caribbean Netherlands, such as:

▪ The cost of equity calculation (including the ERP approach, the estimation method for betas, and the estimation method for the risk free rate);

▪ the cost of debt calculation (including the use of the 'debt premium approach', the weights given to existing and future debt and the method of adding a non-interest fee);

▪ the construction of peers groups (for which EER uses the same size, liquidity and financial health criteria and ACM); and

▪ gearing level (which is based on the peer group average).

EER's approach therefore demonstrates a lack of independence and a high reliance on ACM's own approach.

In total, EER refers to the ACM method or the ACM's approach in previous determinations for 20 different factors and inputs.[14] EER is also transparent about the extent to which it relies upon ACM's method. For instance, EER states that *all calculations [of parameters] use the guidelines provided by the ACM*.[15]

When constructing its peer groups, EER refers to ACM for not only its list of comparators (which is based on the 2016 determination), but also its list of exclusions. In particular, EER decides to exclude one Group 3 comparator (American States Water Co) solely because ACM excludes it:[16]

> *"During the course of our research, the ACM brought to our attention that "American States Water Co" due to its activity in military activities (providing drinking water services to military bases) will be excluded as a comparator in the WACC determination for Dutch drinking water companies. For consistency across studies we decided to exclude such comparator."*

As a result of following the method which ACM (and its previous consultants) applied in its 2016 decision, EER's after-tax WACC estimate for CGB is very close to ACM's estimate in

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[13] NERA Economic Consulting (March 2017): "Review of the ACM's Final Determination on the WACC for Electricity Production in the Caribbean Netherlands", Table 4.2.

[14] See Appendix A for a full list of EER references to the ACM method and ACM's previous determinations.

[15] EER Report, page 4.

[16] EER Report, page 8.

2016 (6.20 per cent, compared to ACM's estimate of 6.16 per cent in the 2016 WACC determination).[17]

EER's WACC estimate therefore cannot be deemed an independent expert opinion. It has - for the most part - simply gathered and processed data in line with the ACM guidelines, with no commentary on the economic rationale behind any of the assumptions supporting the calculations. ACM's determination therefore has none of the credibility gained from receiving a second opinion from independent economic experts, such as:

1. The economic rationale behind the WACC parameters (and alternative approaches for estimating them); and

2. Trends in new regulation methods which other, mature regulators have begun to adopt.

For instance, ACM's decision fails to acknowledge the Total Market Return approach to cost of equity calculation and the use of a longer historical risk-free rate (see Section 4).

4. EER's Cost of Equity Estimate Includes a Number of Errors

4.1. Asset Beta

In addition to including comparators influenced by government intervention, as mentioned in Section 2 of this memo, there are further flaws with EER's beta estimate for CGB. In particular:

1. EER uses too few comparators in its peer group for CGB; and

2. CGB's peer group consists of many European companies, with too little representation from Latin and South America.

EER uses too few comparators in its peer group for CGB by its own standards

EER sets out several requirements for the regulated entities' comparator groups, one of which is that a minimum of ten comparators is preferred. This criterion is taken directly from the ACM method.[18] In CGB's peer group, however (Group 2), EER uses only eight comparators to estimate the asset beta, after removing illiquid comparators.[19]

As well as being inconsistent with EER's own methodology, a beta estimate calculated from a small sample of comparators is at risk of estimation error: all betas are estimated with some degree of error, but constructing as large a portfolio as possible mitigates this error, because

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[17] ACM (November 2016), Calculating the WACC for energy and water companies in the Caribbean Netherlands (Final Determination), Table 3a. There is a slightly larger gap between pre-tax WACC estimates (6.20 per cent for Europe Economics, compared to 6.48 per cent for ACM) because EER adopts the new effective tax rate applicable to the Caribbean Netherlands, which is zero per cent. See ACM (July 2019), Calculating the WACC for energy and water companies in the Caribbean Netherlands for the year 2020 – 2022, section 5.2. For ACM's 2016-2019 pre-tax WACC see ACM (November 2016), Calculating the WACC for energy and water companies in the Caribbean Netherlands (Final Determination), Table 3a.

[18] EER Report, page 5.

[19] EER Report, Table 5.8.

outliers and measurement error are less able to bias the average of a large sample. However, increasing the sample size may run the risk of introducing less comparable peers in the group. There is therefore a trade-off between group size and peer relevance, but EER was able to include additional comparators that operate solely within electricity production. We explain this addition and discuss its implications below.

CGB's peer group is biased towards European comparators, with too little representation from Latin and South America

As mentioned above, EER estimates CGB's asset beta using a comparator group of eight firms. Of these eight peers, five are based in Europe, with only one based in Latin and South America. While the group originally had three Latin and South American peers, EER removed two (CPFL Energias Renovaveis S.A. and Renova Energia) for failing to meet liquidity criteria.[20]

This heavy weighting of the final peer group towards Europe and away from Latin and South America is incorrect for two reasons.

Firstly, it misrepresents the risk profile of investing in the Caribbean Netherlands. By weighting the comparator group over 50 per cent towards Europe, EER is implying that the Caribbean Netherlands is a more similar investment destination to Europe than to the USA or Latin America, and that firms from Europe are therefore the most important comparison group for assessing the riskiness of investing in the Caribbean Netherlands. This is simply not the case - the risks involving the Caribbean Netherlands are highly unlikely to be exactly the same as those involving continental Europe. This is owing to the regions specific geopolitical context, including the risk of greater autonomy in the future leading to expropriation of assets, and an economy significantly more dependent on tourism.[21]

Secondly, EER's approach is inconsistent with its methodology elsewhere in its WACC estimation. EER estimates other parameters, such as the risk-free rate and equity risk premium, using an equal-weighted average between Europe, the USA and Latin and South America.[22] Using this equal-weighted approach for some parameters, but a peer group weighted 50% towards Europe and less than 10% towards Latin and South America for the gearing and beta is inconsistent and illogical.

We have calculated an amended beta estimate by adding a further comparator to EER's peer group for CGB. We find that including these comparators raises the beta to 0.50.[23] As this estimate issues a more equal weighting to the three different regions (Europe, USA and Latin

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[20] These companies exhibit bid-ask spreads of 3.4 per cent (CPFL Energias Renovaveis S.A) and 1.8 per cent (Renova Energia S.A.) on their stocks – both above the 1 per cent maximum. See Table 5.2 of the EER Report.

[21] Previous NERA reports have elaborated on the Caribbean Netherlands' special geopolitical context. See, for example, NERA Economic Consulting (9 September 2016): "WACC for electricity production in the Caribbean Netherlands", Section 3.

[22] EER Report, Tables 5.1 and 5.12.

[23] See Appendix B for how this is calculated.

and South America), it is more consistent with other components of the WACC determination than EER's own beta estimate for calculating CGB's WACC.

4.2. Equity Risk Premium

EER calculates the equity risk premium ("ERP") by estimating the risk premium of Europe, the USA and Latin America directly, and then taking the average of the three regions. This method is known as the "ERP approach" to estimating cost of equity, as opposed to the total market return ("TMR") approach, in which a regulator estimates the total return to the equity market and deducts the risk-free rate to find the market risk premium. EER's approach is problematic for two reasons:

1. EER estimates the ERP and the risk-free rate over different time period lengths; and

2. ERP data exhibits greater volatility than TMR data.

EER estimates the ERP and the risk-free rate over different time period lengths

EER estimates the cost of equity using the CAPM equation, which requires estimating both an ERP and a risk-free rate. EER, however, is not consistent in its estimation method for these two inputs. In particular, it measures ERP using an estimation window since from 1900 to 2018, and the risk-free rate using an estimation window from 2016 to 2018. EER's CAPM calculation therefore uses two parameters estimated over significantly different estimation windows. This is inconsistent, and implies that a risk-free rate is more accurately estimated over a shorter window but an ERP is more accurately estimated over a longer window. This assumption is not substantiated by any economic evidence or rationale.[24]

Furthermore, this approach yields inaccurate cost of equity estimates because the ERP may be negatively correlated with the risk-free rate in the short term.[25] Government bond yields have been lower in recent years following quantitative easing attempts in large economies, meaning the ERP is likely to currently be higher than its historical long-run average. More recent estimates of ERP are likely to be higher than longer term ones. EER's inconsistent approach therefore combines a short-term risk-free rate estimate (which is lower than the long-run average) with a long-term ERP estimate (which is lower than the short-term average), meaning it essentially chooses the estimation windows yielding the lowest possible cost of equity estimate.

We find that the risk-free rate increases to 3.80 per cent in nominal terms when using a long estimation window (1900 – 2018), which is consistent with EER's choice of estimation

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[24] EER mentions Harton van Banda, M. & Mulder, M. (2013), Forecasting the yield on 10-year State bonds as part of the WACC for regulated industries. This paper compares four different reference periods – one day, one year, three years and five years. It does not compare these estimation windows to a significantly longer one, such as the 118-year window used for EER's ERP estimate.

[25] UK Competition Commission (2014), Northern Ireland Electricity final price determination, page 13-16, para 13.82. The German Bundesbank has also published evidence on this – see Deutsche Bundesbank, (November 2007), Monthly Report, p.42

window for the ERP. See Table 4.1 for how we calculate this, as well as how this affects CGB's estimated cost of equity.

ERP data exhibits greater volatility than TMR data

Academic evidence supports the notion that, in equity markets, total returns are historically more stable than the equity premium.[26] This is partly because the ERP is unobservable (it requires deducting a risk-free rate from the TMR), whereas the TMR is directly observable.[27]

The volatile estimates of risk premium mean that the ERP used in EER's cost of equity estimate is less precise. The ERP is one of only three inputs into the CAPM equation used by EER to calculate CGB's cost of equity (the others being the risk-free rate and beta estimate), and using an imprecise measure for ERP therefore brings the cost of equity (and hence WACC) estimate into question.

Other regulatory bodies in mature markets have begun to adapt their approach in light of this evidence on the volatility of ERP estimates. The UK's Ofgem, for example, expressed its preference for the TMR approach in its approach-document for the upcoming RIIO-T2/GD2 price control.[28] The UK Competition Commission also adopted the TMR approach in its Northern Ireland Electricity determination, stating that the ERP approach is flawed because:

i)   direct estimates of ERP depend on the risk-free rate chosen; and

ii)   there is evidence of the ERP being negatively correlated with Treasury bill rates (commonly used for risk-free rate calculation) over the short term.[29]

We find that, when using the TMR approach, the Equity Risk Premium changes from 6.92 per cent to 6.50 per cent. However, this is partly due to the higher risk-free rate estimate of 3.80 per cent - the overall effect of both proposed changes is an increase in the cost of equity to 11.58 per cent. See Table 4.1 for our estimation of CGB's cost of equity.

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[26]   Mason, R. et al (2003), "A Study into Certain Aspects of the Cost of Capital for Regulated Utilities in the U.K.", page 4.

[27]   Duarte, F. & Rosa, C. (2015), "The Equity Risk Premium: A Review of Models", page 2.

[28]   Ofgem (May 2019), RIIO-2 Sector Specific Methodology Decision – Finance, para 3.45.

[29]   UK Competition Commission (2014), Northern Ireland Electricity final price determination, page 13-16, para 13.82.

Table 4.1: NERA Cost of Equity Estimate

Parameter	Average	Source
[A] Inflation (USA)	2.95%	DMS 2019, Table 2
[B] Real risk-free rate (USA)	0.85%	DMS 2019, Table 3
[C]Real Total Market Return (USA)	7.35%	DMS 2019, Table 1
[D] Nominal risk-free rate (USA)	3.80%	[A]+[B]
[E] Equity Risk Premium (USA)	6.50%	[C]-[B]
Country Risk Premium		
[F] Aruba	2.22%	Damodaran Risk Premium Database, Jan 2019
[G] Curacao	1.67%	Damodaran Risk Premium Database, Jan 2019
[H] Sint Maarten	2.64%	Damodaran Risk Premium Database, Jan 2019
[I] Country Risk Premium (Caribbean Netherlands)	2.18%	([F]+[G]+[H])/3
Cost of equity estimate		
[J] Asset beta	0.50	NERA calculation (see Appendix B)
[K] CGB gearing	72%	ACM 2016 WACC Determination
[L] Tax	0%	EER Report
[M] Equity beta	0.86	[J]*(1+(1-[L])*[K])
[N] Cost of equity	**11.58%**	[D]+[M]*[E]+[I]

Note: DMS 2019 refers to Dimson, E., Marsh, P. & Staunton, M. (February 2019), Credit Suisse Global Investment Returns Yearbook 2019

5.   EER's Cost of Debt Estimate is Unreliable and is Lower than ACM's Previous Determination

EER estimates a cost of debt for CGB of 4.06 per cent using the "debt premium" method. The EER's approach is flawed as:

1. it fails to reflect the specific cost of debt for the Caribbean Netherlands; and

2. it uses a reference market of BBB-rated firms, although not all of CGB's peers are BBB-rated

EER fails to reflect the specific cost of debt for the Caribbean Netherlands

EER bases its cost of debt estimate on the average cost of debt for Europe, the USA and Latin America. While the USA and Latin America make sense to include on the basis of geography (although the USA is still relatively more attractive to debt investors, given Bonaire's status as a small and relatively obscure jurisdiction), it is hard to justify giving Europe the same weight as these two regions.

In addition, CGB's asset base is valued in US Dollars as Bonaire is a US dollar-based economy. As a result, the risk-free rate relevant to investing in CGB is the US 10-year Treasury bill, and not a European or Latin American reference bond (as the US Treasury bill is the lowest risk investment in USD terms). EER's incorrect inclusion of a Euro-denominated risk-free rate understates the cost of debt estimate due to the significantly lower yields on German 10-year government bonds compared to US Treasury bills.

ACM defended the inclusion of Europe as a reference market in 2016 because fixed income investors "benefit from the institutional, judicial, and governmental framework of the Netherlands" when investing in the Caribbean Netherlands.[30] NERA explained why this assumption was unreasonable in its 2016 report, due to the greater maturity of the continental European market compared to the Caribbean Netherlands.[31] That the cost of debt estimate has fallen, driven by far lower premiums in Europe, further supports the notion that ACM should not place such a high weight on European debt.

EER's cost of debt estimate for Europe is 96 basis points lower than that used in ACM's previous determination (2.20 per cent, compared to 3.25 per cent). While this decrease follows from recent market conditions in Europe, these same market conditions do not necessarily prevail in Bonaire. This is clear for several reasons:

1. Its geographical location (as mentioned above);
2. the make-up of its economy (which is USD-based and tourism-dependent, unlike the majority of continental Europe); and
3. its special municipality status, which means it is not a country in its own right and cannot directly pass laws and statutes to the benefit of its citizens or businesses.

EER incorrectly estimates CGB's debt premium using a reference market of BBB-rated firms

EER's cost of debt estimate for CGB consists of a risk-free rate and a debt premium. It estimates the debt premium using an index of BBB-rated corporate debt for each region (Europe, USA and Latin America). In constructing a comparator group for CGB, however, EER added firms that were not BBB-rated or higher. These include:

▪   Albioma SA;

▪   Clearway Energy Inc;

▪   Falck Renewables SpA; and

▪   Pattern Energy Group Inc.

By incorporating these lower-rated firms in CGB's peer group, EER is implying that CGB is comparable with some firms that do not have investment-grade credit score. By excluding

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[30]   ACM (November 2016), Calculating the WACC for energy and water companies in the Caribbean Netherlands (Final Determination), page 42

[31]   NERA Economic Consulting (September 2016), WACC for electricity production in the Caribbean Netherlands, page 6

these comparators from the cost of debt estimate for CGB, EER therefore underestimates CGB's cost of debt.

We compare EER's debt premium estimates to indices that reflect all corporate debt (not just BBB-rated debt and higher), and find that EER underestimates the debt premium by a further 26 basis points – see Table 5.2.

Table 5.1: Debt Premium – BBB-Rated Debt vs All Debt

Region	EER (%)	NERA (%)	Difference (NERA - EER)
Europe	1.36	1.38	0.02
USA	1.49	1.41	-0.08
Latin America	0.83	1.68	0.85
Average	1.23	1.49	0.26

Source: EER Report, Table 6.1, Bloomberg Barclays US Corporate Aggregate Debt Index, Bloomberg Barclays Europe Corporate Aggregate Deb Index, Barclays Emerging Markets LatAm Corporate Debt Index.
Note: the Barclays Emerging Markets LatAm Corporate Debt Index reports spreads on a USD-denominated risk-free rate, so we have adjusted the premium downwards to reflect a LatAm risk-free rate.

EER's current methodology suggests that CGB's debt is not only on par with that of investment-grade firms in the USA, but will in fact be more attractive than USA corporate debt to investors in 2021 and 2022.[32] This conclusion would imply that investors were more willing make US-dollar-denominated investments in Bonaire than the continental US market. This conclusion is not tenable given the risks that investors are likely to face in small and more obscure jurisdictions such as the Caribbean Netherlands.

EER would need to estimate CGB's cost of debt by including a regional debt premium for the Caribbean Netherlands in order to accurately reflect CGB's likely debt costs. We estimate CGB's cost of debt using this method by adding an average default spread (based on data for the Caribbean Netherlands's closest peers – Aruba, Curaçao and Sint Maarten) to a risk-free rate. We retrieve default spread data from a regularly updated database of country risk premiums from Professor Damodaran of Stern School of Business at New York University. As Professor Damodaran calculates these default spreads in comparison to the US 10-year government bond rate, we use this as the reference for our risk-free rate estimate. Given that the US 10-year Treasury bill is the most liquid AAA-rated government bond, it is a valid source for estimating a risk-free rate.

We therefore estimate a cost of debt for CGB of 4.51 per cent – see Table 5.2 for the full calculation.

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[32]   See EER Report, Table 6.1

Table 5.2: NERA Cost of Debt Estimate for CGB

Parameter	NERA estimate	Source
Risk-free rate	2.33%	EER Report, Table 6.1, US 2020 risk-free rate
Debt premium		
Aruba default spread	1.80%	Damodaran database (January 2019)
Curaçao default spread	1.35%	Damodaran database (January 2019)
Sint Maarten default spread	2.15%	Damodaran database (January 2019)
Regional debt premium	1.77%	Average of above default spreads
Non-investment grade premium	0.26%	Table 5.1
Non-interest fees	0.15%	EER Report, page 28
Cost of debt (pre-tax)	**4.51%**	Risk-free rate + Regional debt premium + Non-investment grade premium + Non-interest fee

This debt index only accurately reflects the cost of debt for a market participant that was able to refinance its activities under current conditions. We understand that CGB has repaid its embedded loan from Rabobank, which was its only third-party debt. In doing so, the company has incurred a breakage fee of USD 1.3 million. Incurring this one-off cost has resulted in a more efficient capital structure. Accordingly, even allowing the higher cost of debt identified in Table 5.2 above would only allow CGB to recover its full, efficient debt costs if ACM added the breakage fee to CGB's RAB or provided it with an expenditure allowance to cover it.

6. Gearing

EER's report suggests that the efficient gearing level for CGB has fallen since ACM's previous determination. It has estimated a debt:asset ratio of 0.38 for electricity production, in comparison to 0.42 in 2016. This is partly driven by a different approach – EER now estimates CGB's gearing using an 'electricity production only' peer group, rather than taking the average of other groups as in 2016.

The implication that CGB's efficient gearing level has fallen is incorrect, as it is not compatible with EER's estimate of a lower cost of debt and higher cost of equity since 2016. EER's efficient cost of debt estimate for CGB is 4.06 per cent, 58 basis points lower than ACM's previous determination of 4.64 per cent. In addition, EER's cost of equity estimate for CGB is 7.50 per cent, 8 basis points above the ACM's 2016 estimate of 7.42 per cent. This movement in opposite directions suggests that it would be efficient for CGB to increase its debt level and reduce its equity, because firms are able to adjust capital structure to minimise cost of capital in efficient capital markets. In CGB's case, it would therefore respond to a lower cost of debt (or higher cost of equity) by raising its level of debt and reducing equity, thereby reducing its overall cost of capital.

EER's gearing estimate for CGB, on the other hand, suggests the exact opposite is true and that it would be efficient for CGB to reduce gearing. This approach is inconsistent, and is not compatible with ACM's duty to set efficient costs for companies or ACM's approach of assuming that a company is efficiently financed.[33] EER should rectify this by adopting a similar gearing level to ACM's 2016 WACC determination of 0.42. This approach would still understate EER's efficient gearing level, as it implies no change in capital structure in response to debt capital becoming cheaper relative to equity. Nevertheless, an unchanged capital structure more accurately reflects CGB's efficient gearing level than EER's new determination of 0.38.

7. Tax

ACM has reduced the corporate tax rate to zero per cent but maintained a low estimate of efficient gearing. As a result, EER's resultant pre-tax WACC is lower than it would be with the reinstated effective tax rate of five per cent. This is because higher tax rates result in a higher WACC at low levels of gearing.[34] Therefore a return to the five per cent tax rate would result in a higher pre-tax WACC of 6.38 per cent for CGB, all else being equal.

8. Conclusion

By making our proposed changes to the WACC, CGB's WACC estimate increases to 8.61 per cent. See Table 8.1 for the full calculation.

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[33] See EER Report, page 1, and ACM (November 2016), Calculating the WACC for energy and water companies in the Caribbean Netherlands (Final Determination), para 114

[34] This is due to the tax rate entering the WACC formula three times. In two of these instances, the WACC decreases with a higher tax rate (through the equity beta and the calculation of nominal WACC after-tax), while in one instance the WACC increases with a higher tax rate (calculation of nominal pre-tax WACC). With a lower gearing level, the former instances of tax have a smaller effect, meaning that the latter effect (in which the WACC increases with the tax rates) dominates.

Table 8.1: EER and NERA WACC Estimates for CGB

Parameters	EER	NERA	Difference (NERA – EER)
Tax	0	0	0
Gearing (D/A)	38%	42%	4%
Gearing (D/E)	61%	72%	11%
Asset beta	0.46	0.50	0.04
Equity beta	0.74	0.78	0.04
Risk free rate (equity)	2.37%	3.80%	1.43%
Equity risk premium	6.92%	6.50%	-0.42%
Regional risk premium	0.00%	2.18%	2.18%
Cost of Equity	7.50%	11.58%	4.08%
Cost of debt (pre-tax)	4.07%	4.51%	0.44%
Nominal WACC (after tax)	6.20%	8.61%	2.41%
Nominal WACC (pre-tax)	6.20%	8.61%	2.41%

Source: EER Report Table 7.1, NERA Analysis

Appendix A. EER Refers to the ACM Method and 2016 WACC Determination

As noted in Section 3 above, EER refers to the ACM Method and ACM's methodology in its 2016 WACC determination 20 times in total. These are listed below.

In its report, EER refers to the ACM method when:[35]

1. Using the capital asset pricing model (CAPM) to calculate cost of equity;

2. Using a debt premium approach to calculate cost of debt;

3. Imposing a minimum requirement of ten comparators in a peer group;

4. Imposing requirements for the liquidity of the stocks in a peer group;

5. Calculating efficient gearing based on a peer group;

6. Choosing the relevant tax rate for each comparator;

7. Testing for autocorrelation in beta estimates;

8. Testing for heteroscedasticity in beta estimates;

9. Using Dimson-corrected betas;

10. Combining the existing cost of debt with the future cost of debt; and

11. Allowing non-interest fees in the cost of debt.

In addition, EER refers to ACM's 2016 WACC determination for:[36]

1. The minimum requirements for credit ratings of comparators;

2. The choice of reference bonds for the risk-free rate;

3. The choice of reference bond maturity;

4. The risk-free rate estimation period length;

5. The choice of market data frequency when calculating company betas;

6. The choice of estimation period length when calculating company betas;

7. The use of the ERP approach to calculate cost of equity; and

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[35] EER Report, pages 4, 5, 11, 12

[36] EER Report, pages 11, 12, 14

8. The use of the average of geometric and arithmetic means to calculate equity risk premiums.

EER also states that "ACM provided the relevant tax rate [for Bonaire], which is 0%".[37] This suggests that every parameter in EER's WACC estimate is based on ACM's own methodology, including CGB's gearing, effective tax rate, cost of equity and cost of debt.

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[37] EER Report, page 12

Appendix B.   Additional Latin America Comparators

NERA has, in past reports, suggested additional comparators for CGB from Latin and South America.[38] We have analysed the liquidity of these comparators over a 3-year period based on the most recent market data - see Table B.1 below.

Table B.1: List of Additional Comparators

Comparator	Country	Bid-ask spread
Central Puerto S.A.	Argentina	6.64%
Companhia Energetica De Sao Paulo	**Brazil**	**0.44%**
Enel Generacion Chile Sa	Chile	1.20%
Celsia Sa Esp	Colombia	1.24%

Source: NERA Analysis

As can be seen, only Companhia Energetica De Sao Paulo meets the liquidity conditions set by ACM. By adding this company to CGB's comparator group, the beta estimate for CGB increases from 0.46 to 0.49 – see Table B.2 for the full list of comparators.

Table B.2: NERA Asset Beta Estimate for CGB

Company name	Asset beta
Eolus Vind AB (publ)	0.55
Albioma SA	0.36
Clearway Energy Inc	0.39
Falck Renewables SpA	0.42
Engie Brasil Energia SA	0.49
EDP Renovaveis SA	0.51
Pattern Energy Group Inc	0.62
Companhia Energética de São Paulo	0.62
Mean	**0.49**
Median	**0.50**

Note: we have removed Zespol from the comparator group owing to the potential downward bias on its stock beta because of Polish government intervention. See Section 1 for more information.

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[38]   See, for example, NERA Economic Consulting (January 2018) - The Weighted Average Cost of Capital for Electricity Production in the Caribbean Netherlands, Table 3.1. Note Table B.1 excludes Electrobras, which was cited in our previous report but which it transpired on further research had material investments in transmission/distribution.