Beta, ERP and Gearing for the Dutch Network Operators

PREPARED BY

Dan Harris
Lucrezio Figurelli

PREPARED FOR

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I. Introduction and Summary

1. The Dutch Authority for Consumers and Markets (ACM) has commissioned The Brattle Group (Brattle) to advise on the calculation of several parameters of the Weighted Average Cost of Capital (WACC) for the Dutch electricity and gas transmission operators (TSOs) and distribution operators (DSOs) for the next regulatory period starting in January 2027. Throughout this report, we refer to the Dutch TSOs and DSOs (for both electricity and gas sector) as the "Dutch Energy Networks".

2. In 2021, the ACM adopted the 2022-2026 method decision for the Dutch Energy Networks. In that occasion, the ACM commissioned Brattle to prepare two reports, one on the WACC for the gas TSO,[1] and one for the WACC for the electricity TSO and the gas and electricity DSOs.[2] In 2023, the ACM revised its method decisions for Dutch Energy Networks after the Trade and Industry Appeals Tribunal (CBb) annulled its 2022-2026 decisions.[3] Regarding the WACC calculation, the CBb ruling ordered to determine the risk-free rate parameter based on government bonds with twenty-year maturity and to set it to a value not lower than 0.5%.

3. Unlike previous WACC assignments, the ACM no longer asks us to calculate all relevant WACC parameters. This is because the ACM has decided to recalculate annually the risk-free rate and the cost of debt parameters on its own.

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[1] Dan Harris, Lucrezio Figurelli and Massimiliano Cologgi, "The WACC for the Dutch Gas TSO", 27 July 2020 (available at: https://www.acm.nl/sites/default/files/documents/rapport-the-brattle-group-the-wacc-for-the-dutch-gas-tso_0.pdf), the "2020 Brattle Gas TSO Report".

[2] Dan Harris and Lucrezio Figurelli, "The WACC for the Dutch Electricity TSO and Electricity and Gas DSOs", 7 April 2021 (available at: The WACC for the Dutch Electricity TSO and Electricity and Gas DSOs), the "2021 Brattle Energy Networks Report".

[3] See ACM, "ACM revises method decisions for system operators", 21 December 2023 (available at: https://www.acm.nl/en/publications/acm-revises-method-decisions-system-operators); ACM, "Gewijzigd methodebesluit RNB's elektriciteit 2022-2026" (available at: https://www.acm.nl/nl/publicaties/gewijzigd-methodebesluit-rnbs-elektriciteit-2022-2026); ACM, "Gewijzigd methodebesluit RNB's gas 2022-2026", (available at: https://www.acm.nl/nl/publicaties/gewijzigd-methodebesluit-rnbs-gas-2022-2026); ACM, "Gewijzigd methodebesluit GTS 2022-2026", (available at: https://www.acm.nl/nl/publicaties/gewijzigd-methodebesluit-gts-2022-2026); ACM, "Gewijzigd methodebesluit TenneT Net op zee 2022-2026", (available at: https://www.acm.nl/nl/publicaties/gewijzigd-methodebesluit-tennet-net-op-zee-2022-2026); ACM, "Gewijzigd methodebesluit TenneT Transport 2022-2026", (available at: Gewijzigd methodebesluit TenneT Transport 2022-2026 | ACM.nl); ACM, "Gewijzigd methodebesluit TenneT Systeem 2022-2026", (available at: Gewijzigd methodebesluit TenneT Systeem 2022-2026 | ACM.nl).

4. Consequently, the ACM has commissioned The Brattle Group (Brattle) to:
    a. Select a peer group of comparable companies that are sufficiently liquid to allow a reliable beta estimate.
    b. Estimate the asset beta and gearing for Dutch Energy Networks.
    c. Estimate the equity risk premium (ERP).
5. In doing so, the ACM has instructed us to apply the general ACM method,[4] considering recent market developments and other relevant information to perform sanity checks on the method and results. Moreover, the ACM has asked us to advice in case changes or corrections to the method are warranted or the method results in unfair outcomes.
6. The ACM has further asked us to provide responses to two additional questions.
    a. **Impact of energy transition on the WACC**: The Dutch government has set out its policy goals for the energy transition, with net emission of greenhouse gasses to be reduced by 55% by 2030 compared to 1990 and carbon neutrality to be reached by 2050. Gas usage will decline, with part of current gas networks employed for hydrogen. Electricity networks are expected to increase capacity by 3-4 times the current size to accommodate the growth in electricity demand and the diffusion of renewable sources. The ACM asked us to assess the impact of energy transition on the WACC, and in particular on the beta of the Dutch energy networks.
    b. **Impact of regulatory changes on the WACC**: from 2027 onwards, the ACM will implement a new regulatory method motivated by the challenges posed by the energy transition. This new approach is designed to move away from a focus on incentivizing cost efficiency towards a focus on investments, with efficiency to be promoted by safeguards and ex-post checks. In this regard, the ACM asked us to provide our opinion about the effect of the new regulatory method on the WACC for the Dutch Energy Networks.
7. In preparing this report, we use data up to and including 28 February 2025, being the most recent date available at the time of our analysis.

[4] ACM, "ACM revises method decisions for system operators", 21 December 2023 (available at: https://www.acm.nl/en/publications/acm-revises-method-decisions-system-operators).

A. Selection of the Peer Group

8. The Dutch Energy Networks are not publicly traded. Therefore, we estimate the relevant betas and gearing for the Dutch Energy Networks based on the asset betas and gearing of a 'peer group' of regulated energy networks that have similar systematic risk. To select our peer group of comparable companies, we start with the energy networks considered by the ACM in its latest determinations for the energy sector.[5] We exclude companies that are no longer listed and check that the shares of the candidate peers are sufficiently liquid to provide a reliable beta estimate. After application of these criteria, we end up with seven energy networks: Elia, Enagas, Redeia Corporación, REN, Snam, Transgaz and Terna.

B. Equity Beta, Asset Beta and Gearing

9. In line with the ACM methodology, we estimate equity betas for the peer group by regressing the daily returns of individual stocks on market returns over sample periods of three years as of the relevant measurement dates. We calculate market returns using a broad Eurozone index. We calculate the gearing of each comparator as of the measurement date as the three-year average of quarterly gearing ratios obtained dividing quarterly net debt over quarterly market capitalization. We then un-lever the equity betas using the Hamada formula. Finally, we calculate the median asset beta and the median gearing of energy networks. The methodology results in an asset beta of 0.36 and a gearing (D/E) of 85.9%,[6] corresponding to a debt to asset gearing (D/A) of 46.2%.

[5] See 2021 Brattle Energy Networks Report.

[6] In the 2021 Brattle Energy Networks Report, we estimated a gearing of 82.6% and an asset beta of 0.39 for the onshore segment of the Dutch electricity TSO (TenneT) as well as for the Dutch DSOs for both the gas and electricity sectors. For TenneT's offshore segment, we applied an additional uplift of 0.09—equivalent to one standard deviation of the asset beta—to reflect the significant investment requirements driven by the energy transition. In the 2020 Brattle Gas TSO Report, we estimated a gearing of 80.6% and an asset beta of 0.39 for the Dutch gas TSO (Gasunie Transport System).

C. Equity Risk Premium

10. We calculate the Equity Risk Premium (ERP) using long-term historical data on the excess return of shares over long-term bonds, using data from European markets. Specifically, the methodology requires that the projected ERP should be based on the average of the arithmetic and geometric realized ERP for the Eurozone, using the market capitalization of each country's stock market as weights. The methodology also requires considering whether adjustments to the final ERP need to be made based on considerations of the historical average ERP, and ERP estimates based on dividend-growth models.

11. In our 2021 report for the ACM, we selected an ERP of 5.0%. This was in line with the average ERP over the 2015-2019 period. More recently, in our 2024 report on the WACC for the Dutch drinking water companies (the 2024 Brattle Drinking Water Report),[7] we recommended the ACM to increase the ERP to 5.10%, to reflect the higher estimates of the realized ERP in 2022 (5.20%) and 2023 (5.23%). 2025 DMS data on the realized ERP based on data from 1900 up to and including 2024 now indicates that the weighted average ERP for the Eurozone has increased further to 5.27%. The question is then whether the further increase in the realized ERP warrants a further increase in the ERP for regulated companies in the Netherlands.

12. Based on the available evidence, we now recommend the ACM to apply a further increase in the ERP and to select a value of 5.20% to reflect the higher economic uncertainty driven by the continued military conflict in Ukraine and in the Middle East and the increased uncertainty about the direction of global trade policy after the 2024 US elections.

D. Impact of the Energy Transition

13. In previous reports, we assessed the impact of energy transition on the WACC. There are broadly two ways that the energy transition could affect the beta of energy networks in the Netherlands and Europe:

[7] See Dan Harris, Lucrezio Figurelli and Gleb Kolotvin, "The WACC for Drinking Water Companies in the Netherlands", October 2024 (available at: https://www.acm.nl/system/files/documents/bijlage-1-brattle-drinking-water-report.pdf).

a. **Volumes**: expected changes in volumes (and particularly expected declines in natural gas volumes) could directly affect the systematic risk faced by energy networks, and hence affect the energy networks' beta;

b. **Investments**: the commitment to make 'large' investments on the electricity networks towards the goals of energy transition could affect the electricity network's beta in a way that the betas of the peers do not capture.

14. For the Dutch electricity TSO and DSOs, we explained that because electricity volumes were expected to increase, the issue of volume risk and asset stranding was only relevant for the Dutch Gas TSO and DSOs.

15. For the Dutch gas TSOs and DSOs, we concluded that there was no need to adjust the beta to account for volume risk resulting from the energy transition. This was because of limited volume risk, and energy regulation that seems to largely eliminate systematic risk associated with the energy transition. These factors implied that even in the case of large disconnections requiring the divestment of parts of the network, the gas networks were likely to be fully compensated.

16. We understand that all the regulatory provisions to account for energy transition were ultimately implemented in the 2022-2026 method decision and that the ACM intends to maintain these provisions in the next regulatory period as well. These measures include, for all gas networks, accelerated depreciation and the possibility to charge the remaining asset value of divested assets to the tariff with an ex-post correction; for gas DSOs only, the recovery of connection removal and transport removal costs with an ex-post tariff correction; for the gas TSO only, a 10% incentive on the sale of parts of the network.

17. In preparing this report, however, the ACM has explained us that the tariff structure for the gas DSO's did have a tariff component which increased with consumption. Effectively, the ACM has informed us that the utilization of gas networks has declined more rapidly than anticipated and that the reduction in consumption experienced in 2023 resulted in a reduction in revenues for the gas DSOs. We understand however that this situation was not foreseen, and that the ACM is evaluating whether to correct for this lost revenue. Furthermore, the regulatory changes that will be implemented in the next regulatory period will eliminate the possibility of a further reduction in revenues as a result of a decline in

consumption, as any lost or excess revenue will be accounted for in the next regulatory period.

18. We further understand that the main driver of the reduction in consumption was a decline in household consumption of gas and not large-scale disconnections and that there have been no instances of parts of the distribution networks being divested.

19. Based on the considerations above and considering that with the new regulatory method all operational costs (except the ones deemed inefficient by the ACM) will be reimbursed by the tariffs, we confirm our past conclusions. The expected changes in volumes are unlikely to affect the beta of either the Dutch energy networks or the peers used to estimate the beta.

20. In terms of investments, in prior reports for the ACM we have explained that commitments to make 'large' investments may affect the cost of capital – and specifically a firm's beta. The Dutch electricity networks are expected to make significant investments over the next few years to accommodate the growth in electricity demand and the diffusion of renewable sources. The relevant question is whether and to what extent these required investments warrant an adjustment to their beta.

21. If the firms that we use to estimate beta have similar future investment commitments to the Dutch electricity networks, then the beta of the comparable firms will already reflect the effect of future investments on beta, and no adjustment to beta is needed. Conversely, if the firms that we use to estimate beta have lower future investment commitments to the Dutch electricity networks, then using these firms could result in an underestimation of beta, which could merit an adjustment to the beta calculated from the peer group.

22. Consistent with the considerations above, in our 2021 report on the WACC for the Dutch energy networks we analysed the size of the investment plans of the Dutch Energy Networks relative to their 2019 RAB and calculated the expected compound annual growth rate (CAGR) in the RAB over the 2019-2022 period (2019-2024 for TenneT). We determined that TenneT's offshore transmission business warranted a beta uplift because of its extraordinary increase in the RAB. Increases in the RAB of the other network businesses were not out of the ordinary and required no adjustment to the beta.

23. We have updated our analysis using updated investment plans and expected growth rates of the RAB over the 2023-2026 period for the Dutch DSOs and over the 2023-2028 period for

the Dutch TSOs. We have also compared the planned investment levels of the Dutch electricity networks to the planned investment levels of the peers used to estimate beta.

24. Similarly to 2021, we find that TenneT offshore transmission business shows the highest RAB growth rate and the highest projected investment levels for the coming years, both of which appear extraordinary compared to the peer group. Based on this data, we confirm the approach adopted in the 2021 Brattle Energy Networks Report to be appropriate and recommend applying one standard deviation uplift over the median beta of the peer group.

25. The expected level of investments for TenneT onshore exceeds the peer group average, although it remains considerably below the level observed for TenneT offshore. On the other hand, the average level of investments planned by Dutch electricity DSOs is in line with that of the peers. However, we observe a high degree of variation across the DSOs, with Coteq and Rendo exhibiting the highest ratios, higher than the peers' average and closer to the ratio of TenneT onshore. These investment levels suggest that a case could be made for applying some uplift to the betas for TenneT onshore and possibly also Coteq and Rendo. However, albeit higher than the average investment levels of the peers, their investment levels do not appear extraordinary and any uplift would therefore require some judgement as to its size, which should certainly be smaller than the uplift applied to TenneT offshore.

26. On the other hand, the negative growth rates of the RAB for the gas networks imply that the beta for the gas TSO and DSOs could be overstated, because the gas DSOs plan to make significantly lower investments than the electricity networks. However, due to a shrinking RAB the gas DSOs will earn an increasing portion of their revenue from operating expenses, which will increase their exposure to revenues shortfalls that may be caused, for example, by delays, fines, or network disruptions which may result in under-compensation of operating expenses. The gas DSOs also face non-systematic risks associated with the energy transition which may be difficult to fully compensate.

E. Impact of Regulatory Changes on the WACC

27. From 2027 onwards, the ACM will implement a new regulatory method motivated by the challenges posed by the energy transition. This new approach is designed to move away from a focus on incentivizing cost efficiency towards a focus on investments, with efficiency to be promoted by safeguards and ex-post checks. In this regard, the ACM has asked us to provide

our opinion about the effect of the new regulatory method on the WACC for the Dutch Energy Networks.

28. Broadly speaking, the new regulatory method will reduce risks for the networks. However, it is not clear whether and to what extent shifting from the current regime to the new regulatory regime will affect the systematic risks of Dutch Energy Networks and, consequently, the cost of equity. To the extent that the risks mitigated by the new regime are not systematic, there will be little or no effect on the networks' beta. Even if the new regulatory method would somewhat reduce systematic risks for networks, it seems that the effect would be difficult to identify in the data or adjust for.

29. It seems that the change in the systematic risk caused by the new regulatory method is likely to be similar to, or smaller than, differences across regulations within the sample of networks. We also note that in the past the ACM has implemented other regulatory changes which have arguably affected risk, without changing the measurement of the cost of equity. We conclude that while the new regulatory method will likely reduce risks for networks, the reduction in the systematic risks is likely to be small, and of a similar order of magnitude as the differences in systematic risks of the benchmark networks due to slightly different regulatory regimes. Hence, we do not recommend a change the method for estimating the cost of equity to account for the new regulatory method.

30. To assess whether the new regulatory method could warrant a change in the method to calculate the cost of debt for the Dutch energy networks, we have analysed whether and how credit rating agencies have assessed the likely impact of the new regulatory method on default risk. Taken together, the rating decisions seem to suggest that the new regulatory method is likely to allow for a better recovery of operational costs and capital expenditures, therefore implying lower default risk than under the current framework. On the other hand, however, the increasing capex needs for the next regulatory period largely offset this reduction in default risk, so that the credit rating of the Dutch Energy Networks is likely to remain unaltered.

31. Based on the considerations above we conclude that the new regulatory method is unlikely to reduce the cost of debt of the Dutch Energy Networks. The reduction in default risk attributable to the better recovery of operational costs and capex under the new regulatory method is offset by an increase in default risk attributable to the larger capex plans and the

uncertainty associated with the energy transition more generally. We conclude that the new regulatory method does not warrant a change in the method to estimate the cost of debt for the Dutch energy networks.

II. Selection of the Peer Group

32. The Dutch Energy Networks are not publicly traded. Therefore, to estimate their beta and gearing we need to find publicly traded firms with similar systematic risk. We can then estimate the beta and gearing value from these firms, which we call 'comparators' or 'peers'.

33. 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 Dutch Energy Networks 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.

34. To select a sample of peers, we start considering the peer group of energy networks considered by the ACM in its latest determinations for the energy sector.[8] From this group we exclude TC Pipelines because the company was delisted in 2021.[9] All of the candidate peers are revenue-regulated European energy networks. We note that Red Eléctrica Corporación recently changed its registered name into Redeia Corporación.[10]

35. In line with the ACM methodology, we test that the firms' shares are sufficiently liquid to obtain a reliable beta estimate. Illiquid stocks tend to underestimate the beta.[11] Hence, for each of the potential peers in the initial sample, we test to see if the firms' shares are sufficiently liquid.

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[8] See 2021 Brattle Energy Networks Report.

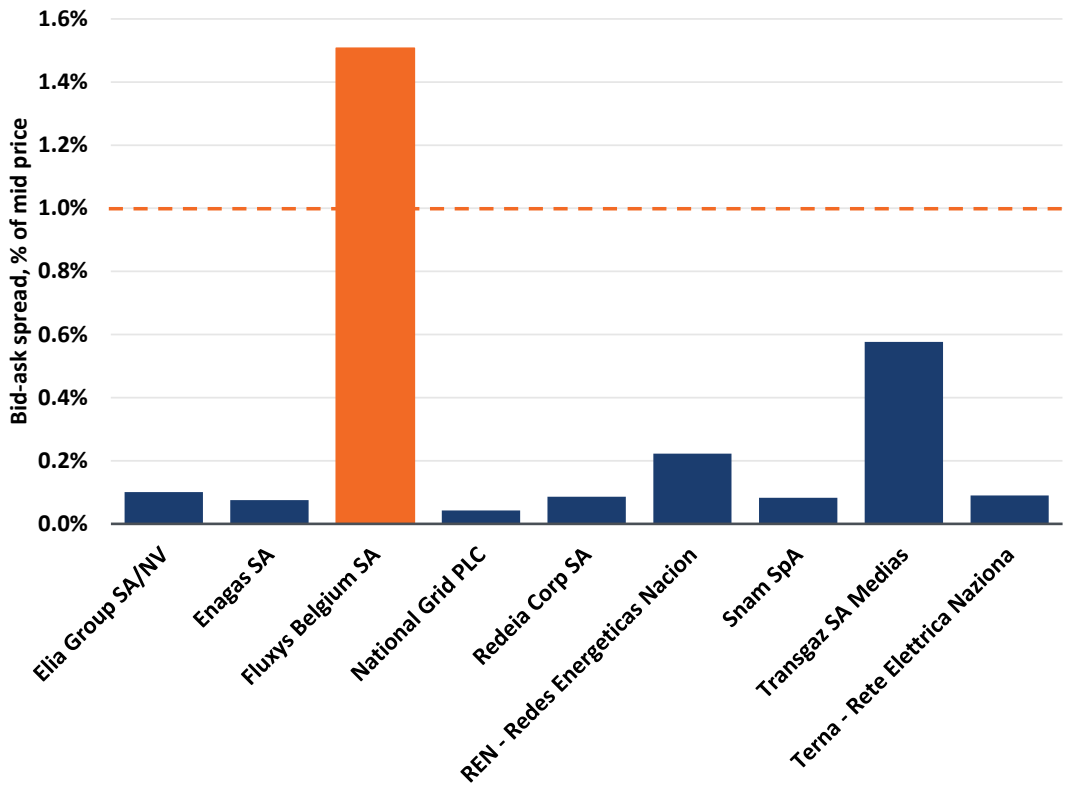
[9] TC Pipelines was delisted in March 2021 following its acquisition by TC Energy (https://www.tcenergy.com/announcements/2021/2021-03-03-tc-energy-and-tc-pipelines-lp-complete-merger/).

[10] See Redeia Corporación 2024 annual account (available at: https://www.redeia.com/sites/default/files/publication/2025/02/downloadable/Consolidated_Annual_Accounts_2024.pdf, p.8).

[11] 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 the 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.

36. Since 2021, the ACM methodology requires to apply a bid-ask spread threshold of 1% as the primary liquidity criterion.[12] Accordingly, we calculate the average bid-ask spread as a percentage of the stock price over the reference period 1 March 2022 – 28 February 2025.[13] As illustrated in Figure 1, the 1% cut-off leads to the exclusion of Fluxys Belgium, which recorded an average bid-ask spread of 1.5%.[14]

FIGURE 1: BID-ASK SPREAD



[12] 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 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. Later, in response to a court ruling, the ACM commissioned a study to provide a recommendation on the appropriate criteria to select peers for efficient beta estimation. The study determined that a bid-ask spread threshold of 1% should be applied as the primary liquidity criterion. We have applied this criterion in all recent reports for the ACM.

[13] More specifically, we calculate the daily value of the bid-ask spread as the difference between bid price and ask price at closing divided by the average between the bid price and the ask price. We then calculate the simple average of the daily bid ask spreads over the relevant period.

[14] We acknowledge a trade-off in using a lower cut-off point, which would potentially lead to exclude companies otherwise considered as sufficiently liquid. A cut-off of 0.5% would only lead to the exclusion of Transgaz.

37. We 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 mergers and acquisitions (M&A) activity.[15] All of the candidate peers considered have an investment grade rating and were not recently involved in substantial M&A activity having a noticeable effect on the daily returns of the stock price.[16]

38. Ideally, the firms we select as peers should earn most of their revenues from regulated activities similar to the Dutch Energy Networks. Accordingly, we have checked the portion of revenues that the candidate peers earn from regulated energy transmission and distribution. As reported in Table 1 below, we find that all candidate peers derive the vast majority of their revenues from regulated energy transmission and distribution activities, with the exception of National Grid.[17]

TABLE 1: REVENUE FROM REGULATED ENERGY TRANSMISSION AND DISTRIBUTION

		Country [A]	Share of regulated revenue [B]
Elia Group SA/NV	[1]	Belgium	98%
Enagas	[2]	Spain	98%
National Grid PLC	[3]	United Kingdom	n.a.
Redeia Corp SA	[4]	Spain	86%

[15] 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 Energy Networks. 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' M&A during the period for which data is used to calculate the beta.

[16] We note that Transgaz has been rated BBB- since 2019. In 2021 we excluded it from the peer group because the company did not have an investment-grade rating throughout the entire measurement period. We now include the company in the peer group because the rating has been investment grade for more than three years.

[17] Note that we do not apply a strict criterion for the minimum percentage of revenues that a peer must derive from regulated activities. In practise, decisions regarding which peers to include always involve a trade-off between the comparability of the individual peers and the final number of peers. In some cases, we may accept a lower percentage of revenues from regulated revenues to expand the peer group, and vice versa.

REN - Redes Energeticas Nacionais	[5]	Portugal	95%
Snam SpA	[6]	Italy	90%
Transgaz SA Medias	[7]	Romania	91%
Terna-Rete Elettrica Nazionale	[8]	Italy	84%

Source: Brattle elaboration of data from 2024 annual reports of the peers.

39. In Table 2, we provide the breakdown of National Grid's revenues as reported in its annual accounts. On average, between 2022 and 2024 National Grid earned about 60% of its revenues from activities in the US and from businesses grouped under National Grid Ventures. However, for such activities we cannot distinguish between regulated revenues related to energy transmission and distribution and revenues related to the sale of energy. Accordingly, we exclude National Grid from the final sample.

TABLE 2: NATIONAL GRID REVENUES

			GBP mln			% of total revenues			
									Average
			2022	2023	2024	2022	2023	2024	2022-24
UK revenues									
Electricity Transmission	[1]	See note	2,028	1,946	2,695	11%	9%	14%	11%
Electricity Distribution	[2]	See note	1,468	2,033	1,790	8%	9%	9%	9%
Electricity SO	[3]	See note	3,437	4,659	3,753	19%	22%	19%	20%
Total UK revenues	**[4]**	**[1]+[2]+[3]**	**6,933**	**8,638**	**8,238**	**38%**	**40%**	**42%**	**40%**
US revenues									
New England	[5]	See note	4,550	4,427	3,948	25%	20%	20%	22%
New York	[6]	See note	5,561	6,994	6,094	30%	32%	31%	31%
Total US revenues	**[7]**	**[5]+[6]**	**10,111**	**11,421**	**10,042**	**55%**	**53%**	**51%**	**53%**
Other revenues									
National Grid Ventures	[8]	See note	1,024	1,283	1,332	6%	6%	7%	6%
Other	[9]	See note	381	317	238	2%	1%	1%	2%
Total other revenues	**[10]**	**[8]+[9]**	**1,405**	**1,600**	**1,570**	**8%**	**7%**	**8%**	**8%**
Total revenues	**[11]**	**See note**	**18,449**	**21,659**	**19,850**	**100%**	**100%**	**100%**	**100%**

Source: National Grid Annual Report and Accounts 2023/2024, p.137.

40. Table 3, below, reports the list of peer energy networks we consider to estimate the beta for the Dutch Energy Networks.

TABLE 3: THE FINAL SAMPLE OF PEERS

		Country	Traded	Rating	Bid-ask spread	M&A test	Regulated revenues
Elia Group SA/NV	[1]	Belgium	✓	BBB	✓	✓	✓
Enagas	[2]	Spain	✓	BBB+	✓	✓	✓
Fluxys Belgium	[3]	Belgium	✓	n.a.	×		
National Grid PLC	[4]	UK	✓	BBB+	✓	✓	×
Redeia Corp SA	[5]	Spain	✓	A-	✓	✓	✓
REN - Redes Energeticas Nacionais	[6]	Portugal	✓	BBB	✓	✓	✓
Snam SpA	[7]	Italy	✓	BBB+	✓	✓	✓
TC Pipelines LP	[8]	US	×				
Transgaz SA Medias	[9]	Romania	✓	BBB-	✓	✓	✓
Terna-Rete Elettrica Nazionale	[10]	Italy	✓	BBB+	✓	✓	✓

Source: Brattle elaboration on Bloomberg data. Ratings are from S&P and Fitch for Transgaz SA Medias.

III. Beta

A. Peer Group Equity Betas

41. 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 three-year period 1 March 2022-28 February 2025.[18]

42. The systematic risk of each peer, as summarised in its beta parameter, must be measured against an index representing the overall market. A hypothetical investor in a Dutch network operator would likely diversify its portfolio within a single currency zone so as to avoid exchange rate risk. Using indices from the relevant country or currency zone avoids exchange rate movements depressing the betas, and should result in a higher beta estimate than if we estimated betas against an index derived in a different currency. Accordingly, because all peers operate in Eurozone countries, we calculate market returns using a broad Eurozone index (the Stoxx Europe 600 (SXXP)).[19]

43. We perform a series of diagnostic tests to assess if the beta estimates satisfy the standard conditions underlying Ordinary Least Squares regression (OLS). We test for autocorrelation using the Breusch-Godfrey test but rely on the OLS estimate of the beta parameter even in

[18] We measure daily returns based on dividend adjusted prices for both the peers and the market index using Bloomberg's "TOT_RETURN_INDEX_GROSS_DVDS" function. This function returns stock prices adjusted to account for the issuance of dividends, gross of any applicable withholding tax. Dividend adjusted prices provides a more comprehensive view of the performance of a company than prices movements alone, enabling a consistent comparison of returns across stocks and indices, regardless of their specific dividend policy.

[19] The Stoxx Europe 600 (SXXP) is the most commonly followed stock market index for the Eurozone. The Stoxx is a broad equity index considered to be representative of the Eurozone stock markets. The Stoxx Europe 600 qualifies as a 'broad Eurozone index for companies operating in the Eurozone' even though it includes countries outside of the Eurozone, namely the UK, Denmark, Norway, Sweden and Switzerland. This is because the economy in these countries is connected tightly to the economy of Eurozone countries. Furthermore, companies traded in the UK, Denmark, Norway Sweden and Switzerland included in the index earn large portions of their revenues and profits in Euros, so that stock returns for these companies are more correlated to returns in the Eurozone than to their local stock market.

the presence of autocorrelation.[20] We test for the presence of heteroscedasticity using the White's test and use White's-Huber robust standard errors.

44. In addition to the above diagnostic tools and adjustment procedures, we apply a test for market imperfections. This test 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.

45. If the market is perfectly efficient, all information should be dealt with on the same day. The test for market imperfections requires to regress a company's daily returns using the market index returns one day before and one day after as additional regressors. If the lag or the lead coefficients 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 is addressed using weekly data to estimate the equity beta.

46. We have performed this test for the firms in our peer group. The test is significant for two of the seven firms in the final sample, Elia and Transgaz. Hence for these two firms we take the weekly beta.[21] For the remaining firms we take the daily beta. Table 4 reports the equity betas of the peers. Overall, the equity betas of energy networks range between 0.21 (REN - Redes Energeticas Nacionais) and 0.94 (Elia Group SA/NV).

[20] 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.

[21] The daily and weekly betas for Elias Group SA/NV were 0.58 and 0.94 respectively. The daily and weekly betas for Transgaz SA Medias are 0.32 and 0.51 respectively.

TABLE 4: EQUITY BETAS

		Daily		Weekly		
		Beta	Robust Standard Error	Beta	Robust Standard Error	Beta Chosen
Elia Group SA/NV	[1]	0.58	0.17	0.94	0.17	Weekly
Enagas	[2]	0.46	0.05	0.56	0.10	Daily
Redeia Corp SA	[3]	0.40	0.05	0.54	0.09	Daily
REN - Redes Energeticas Nacionais	[4]	0.21	0.04	0.29	0.07	Daily
Snam SpA	[5]	0.64	0.04	0.65	0.09	Daily
Transgaz SA Medias	[6]	0.32	0.15	0.51	0.15	Weekly
Terna-Rete Elettrica Nazionale	[7]	0.56	0.05	0.69	0.10	Daily

Source: Brattle elaboration on Bloomberg data.

B. Asset Beta and Gearing

47. 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.

48. 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 Hamada formula.[22]

49. Consistent with the three-year reference period used to estimate the beta, we calculate the gearing of each comparator as of each measurement date as the three-year average of

[22] 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. Note that in past decisions the ACM referred to this formula as the Modigliani and Miller formula. Effectively, when we assume a debt beta of zero the Modigliani and Miller formula coincides with the Hamada formula.

quarterly gearing ratios obtained dividing quarterly net debt over quarterly market capitalization.

50. Table 5 reports the equity beta, the gearing and the resulting asset betas for each peer. Overall, the gearings range between 51% (Transgaz SA Medias) and 139% (REN - Redes Energeticas Nacionais). The asset betas range between 0.11 (REN - Redes Energeticas Nacionais) and 0.56 (Elia Group SA/NV). The median gearing (D/E) of the peer energy networks is 86%, corresponding to a debt to asset gearing (D/A) of 46.2%.[23] The median asset beta is 0.36. We select these values to calculate the gearing and the asset beta for the Dutch Energy Networks.

TABLE 5: EQUITY AND ASSET BETAS

		Equity beta [A]	Gearing (D/E) [B]	Tax rate [C]	Asset beta [D]
Elia Group SA/NV	[1]	0.94	92%	25%	0.56
Enagas	[2]	0.46	86%	25%	0.28
Redeia Corp SA	[3]	0.40	66%	25%	0.27
REN - Redes Energeticas Nacionais	[4]	0.21	139%	32%	0.11
Snam SpA	[5]	0.64	92%	28%	0.39
Transgaz SA Medias	[6]	0.51	51%	16%	0.36
Terna-Rete Elettrica Nazionale	[7]	0.56	63%	28%	0.38
Median	[8]	0.51	86%		0.36

Notes:
[A], [B]: Brattle elaboration on Bloomberg data.
[C]: Damodaran, Corporate Marginal Tax Rates - By country, January 2025 Update.
[D]: [A]/(1+(1-[C])x[B]).

[23] We compute the debt to asset gearing as 85.9%/(1+85.9%) = 46.2%.

IV. The Equity Risk Premium

51. ACM's methodology specifies that the ERP should be based on a historical time-series of the excess return of stocks over long-term bonds for the Eurozone economies. Specifically, ACM has determined to use the simple average of the long-term arithmetic and geometric ERP for the Eurozone as the anchor for the ERP estimate. The ERP for individual countries in the Eurozone should be weighted using the 2024 value of each country's stock market.[24] The methodology reflects an estimate of the ERP in the very long run, and notably excludes countries outside of the Eurozone. This is reasonable, because a Dutch investor is more likely to be diversified over the same currency zone, rather than to incur additional currency risks by diversifying within Europe but outside of the Eurozone.

52. In our 2021 report for ACM on the WACC for the Dutch energy networks, we selected an ERP of 5.0%. This was in line with the average ERP over the 2015-2019 period. More recently, in the 2024 Brattle Drinking Water Report,[25] which used historical ERP data up to and including 2023, we recommended the ACM to increase the ERP to 5.10%, to reflect the higher estimates of the realized ERP. The question that we address in this section is whether new data from 2024 warrants a further change in the ERP.

53. Table 6 shows the historical long-run ERP derived from one of the most widely used sources, the data published by Dimson, Marsh and Staunton (the "2025 DMS report").[26] The 2025 DMS report contains ERP estimates for different countries based on data from 1900 up to and including 2024. Columns [A] and [B] show the geometric and arithmetic means of the ERP for the Eurozone countries considered in the 2025 DMS report, while column [C] reports the simple average of the two. We find that the Eurozone simple average ERP is 5.84% (see cell

[24] Weighting based on the current market-capitalization reflects the idea that a typical investor would invest a larger share of his portfolio in countries with more investment opportunities.

[25] See Dan Harris, Lucrezio Figurelli and Gleb Kolotvin, "The WACC for Drinking Water Companies in the Netherlands", October 2024 (available at: https://www.acm.nl/system/files/documents/bijlage-1-brattle-drinking-water-report.pdf).

[26] UBS Global Investment Returns Sourcebook 2025, Table 12.

[11][C]), while the average ERP weighted by each country's stock market capitalization is 5.27% (see cell [12][C]).[27]

TABLE 6: HISTORIC EQUITY RISK PREMIUM RELATIVE TO BONDS (1900 – 2024)

		Risk premiums relative to bonds, 1900 - 2024			
		Geometric mean % [A]	Arithmetic mean % [B]	Average % [C]	Country Market Cap (2024) USD mln [D]
Austria	[1]	3.30	21.20	12.25	142,485
Belgium	[2]	2.60	4.60	3.60	372,061
Finland	[3]	5.50	9.00	7.25	259,757
France	[4]	3.50	5.70	4.60	2,927,979
Germany	[5]	5.20	8.30	6.75	2,400,751
Ireland	[6]	3.00	5.00	4.00	81,690
Italy	[7]	3.30	6.60	4.95	721,221
Netherlands	[8]	3.70	5.90	4.80	959,196
Portugal	[9]	5.20	9.20	7.20	71,896
Spain	[10]	2.00	3.90	2.95	788,853
Average Eurozone	[11]	3.73	7.94	5.84	
Value-weighted average Eurozone	[12]	3.86	6.68	5.27	

Sources and notes:
[A][1]-[B][10]: Elroy Dimson, Paul Marsh, and Mike Staunton, Credit Suisse Global Investment Returns Sourcebook 2025, Table 12.
[C]: Average [A]:[B].
[D]: Bloomberg.
[11]: Average [1]:[10].
[12]: Average [1]:[10], weighted by [D].

54. Table 7 further illustrates the recent evolution of the ERP estimates for the Eurozone based on data published by DMS in previous years. Columns [A] and [B] show the weighted average of the geometric and arithmetic means of the realized ERPs for Eurozone countries, while column [C] reports the simple average of the two. All three columns rely on the ERP data for the Eurozone countries in the DMS studies weighted by their stock market value. The average of the geometric and arithmetic means for the Eurozone has steadily increased from 4.85% in 2020 to 5.27% in 2024. We note that the true ERP is unobservable, as it reflects the

[27] Note that in calculating the Eurozone averages, at the request of ACM, we include Austria, for which DMS reports an arithmetic average ERP of 21.2%. Excluding Austria would reduce the value of the weighted Eurozone average of the arithmetic mean from 6.68% to 6.43%, and the average between the values of the weighted arithmetic and geometric means from 5.27% to 5.15%.

expected return required by investors as a compensation for market risk. The question is then whether the increase over time represents an increase in the true long-term ERP or is simply a short-lived phenomenon.

TABLE 7: DMS ERP, WEIGHTED AVERAGE OF THE ARITHMETIC AND GEOMETRIC MEANS FOR THE EUROZONE, 2020 – 2024

%	Geometric Mean [A]	Arithmetic Mean [B]	Average [C] Average([A]:[B])
2020	3.38	6.31	4.85
2021	3.60	6.51	5.06
2022	3.79	6.62	5.20
2023	3.82	6.65	5.23
2024	3.86	6.68	5.27
Average	3.69	6.55	5.12

Sources and notes:
Brattle calculation using data from Credit Suisse Global Investment Returns Sourcebook, 2021-2023, and UBS Global Investment Returns Sourcebook, 2024-2025.
[A], [B]: Value-weighted average for the Eurozone.

55. From a theoretical standpoint, an increase in the historical ERP may reflect a short-term impact due to a *decrease* in the true ERP or a medium-term impact due to an *increase* in the true ERP:

    a. In the short term, a decrease in the true ERP will drive stock returns up, as investors re-evaluate existing investment, thus leading to an increase of historical averages.[28]

    b. In the medium term, an increase in the true ERP will gradually lead to an increase in the historical averages as investors will only undertake new investments with higher returns.

56. However, because changes in the true ERP are unobservable, it is generally difficult to determine whether observed changes in the historical ERP reflect a short-term or a medium-term effect.

[28] The increase in the historical averages will be relatively small when the realized ERP is measured using a long-term average.

57. In the 2024 Brattle Drinking Water Report, we attributed the increase in historical ERPs for the Eurozone to an increase in the underlying "market" ERP due to higher market volatility and a temporary increase in the realized historical ERP due to higher inflation.

58. As regards market volatility, both the Covid-19 pandemic and the war in Ukraine triggered a significant increase in the volatility of stock markets.[29] In general, higher market volatility implies higher risk and, therefore, the need for a higher risk premium. It is important to stress that what is relevant here is not necessarily an ex-post measure of realized volatility of stock prices. Rather, it is the volatility of stock prices expected by investors, which is likely linked to the degree of uncertainty about future economic conditions. Arguably, economic uncertainty has increased since the drafting of the 2024 Brattle Drinking Water Report, as a result of continued military conflict in Ukraine and in the Middle East and increased uncertainty about the direction of global trade policy after the 2024 US elections.

59. As regards inflation, the significant and unexpected increase in inflation in the past few years likely resulted in a temporary increase in the measured ERP. In general, real returns on investments tend to have some negative correlation with the rate of inflation, meaning that real returns will decrease when inflation increases. However, the correlation of real equity returns with inflation tends to be smaller in absolute terms than the correlation between real bond returns and inflation.[30] This implies that when inflation increases, real returns to equity will decrease less than real returns to bonds, causing an increase in the difference between the return on equity and the return on bonds. In other words, when inflation increases the realized ERP tends to increase. Since the drafting of the 2024 Brattle Drinking Water Report, inflation has continued to decrease compared to the 2022-23 levels, and the ECB currently expects European inflation to settle at its 2% target by 2026-27, which suggests that the difference between real returns on equity and real returns on bonds is no longer driven by higher inflation rates.[31]

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[29] The volatility index for the S&P 500 (VIX), for example, increased from values of about 100 at the end of 2019 to values exceeding 600 in March 2020 and then remained relatively high until the beginning of 2023. The volatility index for the Euro Stoxx 50 (VSTOXX Index) followed a similar pattern.

[30] The relation between the ERP and the inflation rate has been clearly identified as one of the drivers of the recent increase in the historical ERP by the Body of European Regulators of electronic Communications (BEREC). BEREC cites DMS' finding of a correlation of -0.21 between real equity returns and inflation and a correlation of -0.42 between real bond returns and inflation. See BEREC, WACC parameters Report 2024, BoR (24) 102, p. 60.

[31] ECB, Monetary policy decisions, Press release dated 5 March 2025.

60. In our recommendation in the 2024 Brattle Drinking Water Report we explained that increasing the ERP from 5.0% to 5.10% was reasonable, to account for a more uncertain economic environment. However, increasing it to as much as 5.23%, equal to the weighted average ERP for the Eurozone as of 2023, would have been too high, because the effect of inflation on the realized ERP was likely temporary. But new data now seems to support a further increase to the ERP.

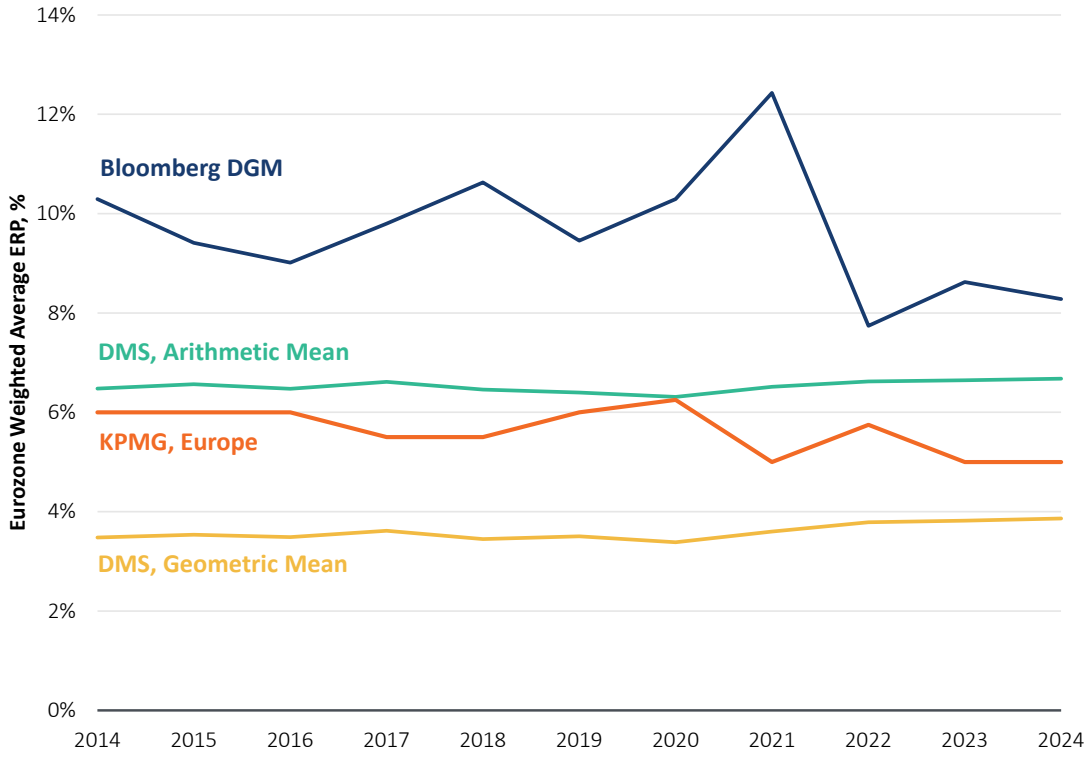
61. ACM's methodology further requires us to look at evidence on the ERP from the dividend-growth model ("DGM") as a "sanity check" to determine whether other market data suggests an increase or decrease in the "market" ERP.[32] In the 2024 Brattle Drinking Water Report we noted that the evidence from the DGMs was highly mixed – with the ERP estimates from KPMG and Bloomberg going in opposite directions – and did not provide us any indication as to whether the market ERP had actually increased.

62. Figure 2 updates Figure 3 from the 2024 Brattle Drinking Water Report to include Bloomberg's and KPMG's DGM-based ERP estimates for 2024. The figure compares the DMS estimates of the arithmetic and geometric means of the historical ERP for the Eurozone to the forward looking DGM estimates from Bloomberg and KPMG since 2014.[33] The DGM estimates for 2024 continue showing mixed results on the market ERP. KPMG's estimate for 2024 remained stable at its 2023 value of 5% and Bloomberg's estimate decreased from 8.62% in 2023 to 8.28% in 2024. On balance, the DGM estimates do not provide a clear conclusion on the direction of the unobservable market ERP.

[32] For example, after the 2009 financial crisis, historical data indicated a decrease in the ERP, because realized returns of stocks over bonds were very low. But the DGM indicated that the ERP had if anything increased after the crisis. The DGM result made sense, since investors would likely have perceived more risk and demanded higher returns immediately after the crisis. Hence, the results of the DGM indicated that, for this period, a downward reduction in the ERP was not justified, even though this is what the unadjusted historical data indicated.

[33] KPMG provides a DGM-based estimate of the ERP for Europe based on the implied equity returns of European indices. See "Equity Market Risk Premium - Research Summary", KPMG, 31 December 2024. Bloomberg provides daily DGM-based estimates of the ERP for individual European countries under the 'Country Risk Premium' function. We use Bloomberg's DGM-based ERP estimates for individual Eurozone countries as of 31 December of each year to calculate a weighted average DGM-based ERP for the Eurozone.

FIGURE 2: EUROZONE EQUITY RISK PREMIUMS, BY YEAR



Source: Bloomberg, various DMS reports, KPMG Netherlands and Brattle calculations.

63. Based on the available evidence, we now recommend the ACM to apply a further increase in the ERP and to select a value of 5.20%. Several reasons support this recommendation. First, economic uncertainty has likely increased. Second, the further increase in the DMS ERP as of 2024 can no longer be attributed to extraordinary inflation levels, as inflation levels in 2024 were significantly lower than in prior years. Finally, the DGM estimates of the ERP do not provide any conclusive evidence of a decline or increase in the ERP. The proposed value of 5.2% is slightly lower than the 5.27% ERP based on the 2025 DMS report, reflecting higher market uncertainty, lower inflation and the lack of conclusive evidence from the DGM.

V. Impact of Energy Transition on the WACC

64. The Dutch government has set out its policy goals for the energy transition, with net emissions of greenhouse gasses to be reduced by 55% by 2030 compared to 1990 and carbon neutrality to be reached by 2050. Achieving these goals will involve substituting the use of natural gas for electricity generated from renewable sources. As a result, gas usage will decline, with current gas networks either dismantled or re-purposed for hydrogen and green gas. Electricity networks are expected to increase their capacity by three to four times the current capacity to accommodate the growth in electricity demand and the diffusion of renewable sources. We refer to this change as the 'energy transition'. The ACM has asked us to re-assess the impact of energy transition on the WACC of the Dutch energy networks, and in particular on beta, in ways that the current methodology does not reflect.

65. We assessed the impact of energy transition on the WACC in our reports on the WACC for the Dutch Gas TSO[34] and for the Dutch energy networks.[35] In these reports, we explained that there are broadly two ways that the energy transition could affect the beta of energy networks in the Netherlands and Europe:

    a. **Volumes**: expected changes in volumes (and particularly expected declines in natural gas volumes) could directly affect the systematic risk faced by energy networks, and hence affect the energy networks' beta;

    b. **Investments**: the commitment to make 'large' investments on the electricity networks towards the goals of energy transition could affect the electricity network's beta in a way that the betas of the peers do not capture.

66. We discuss the likely impact of the expected declines in gas volume and of the large investments required for the electricity networks in the next sections.

[34] See 2020 Brattle Gas TSO Report, p. 23-28.

[35] See the 2021 Brattle Energy Networks Report, pp. 21-29.

A. Impact of the Expected Gas Volume Declines

67. In prior reports for the ACM,[36] we explained that expected changes in volumes were unlikely to affect the beta of either the Dutch energy networks or the peers we used to estimate the beta, for several reasons.

68. For the Dutch electricity TSO and DSOs, we explained that because electricity volumes were expected to increase, the issue of volume risk and asset stranding was only relevant for the Dutch Gas TSO and DSOs.

69. For the Dutch Gas TSO and DSOs we explained that:

    a. Similar to the peers, the gas networks faced limited volume risk.[37]

    b. Current regulatory provisions limited the risk of asset stranding.

    c. Even if there was a risk of assets stranding, this risk is likely to be non-systematic, because it is related to policy decisions that are independent of the performance the financial market or the wider economy.[38]

    d. The ACM was planning to implement new regulatory provisions to more directly account for the decreasing utilization of the gas networks, including accelerated depreciation, tariff increases to cover the costs of divested assets, and reimbursement of removal costs.

70. Taken together, these factors implied that even in the case of large disconnections requiring the divestment of parts of the network, the gas networks were likely to be fully compensated. Hence, we concluded that there was no need to adjust the beta of the gas networks to account for volume risk resulting from the energy transition.

71. We understand that all the regulatory provisions to account for energy transition were ultimately implemented in the 2022-2026 method decision. In particular, the ACM has

[36] See 2020 Brattle Gas TSO Report pp. 23-25 and the 2021 Brattle Energy Networks Report, pp. 21-23.

[37] This is because both the Dutch gas TSO and all of the European peers are subject to revenue regulation. If gas volumes fall, then tariffs will adjust to compensate. We acknowledge in paragraph 72 that the Dutch gas DSOs effectively face some volume risk under the current tariff methodology. However, this risk was limited and will be removed in the next regulatory period.

[38] The transition to alternative energy sources is likely to lead to a steady decline in the volume of gas consumed. But this is different from a decrease in gas demand due to a downturn in the economy. The first is a long-term trend, while the second is a short-term effect that is related to the wider economy. Similarly, asset stranding, which may result from asset divestitures (see footnote above), is not related to the overall performance of the economy and of financial markets.

introduced accelerated depreciation for the gas networks, applying an acceleration factor of 1,3 for the TSO and 1,2 for the DSOs. The ACM further provided that the remaining asset value of divested assets are charged to the tariffs using an ex-post tariff correction, and that if a network part of the gas TSO is sold, 90% of the revenue is used to reduce the tariffs, with the TSO keeping the remaining 10%. Connection and transport removal costs for the gas DSOs will also be charged to the tariffs through an ex-post tariff correction. We understand that the ACM intends to maintain these measures in the next regulatory period.

72. In preparing this report, however, the ACM has explained us that the tariff structure for the gas DSO's did have a gas volume component with increasing charges if household consumed less than 500 cubic meters, between 500 and 4000 cubic meters, or more than 4000 cubic meters. Effectively, the ACM has informed us that the utilization of gas networks has declined more rapidly than anticipated and the reduction in consumption experienced in 2023 resulted in a reduction in revenues for the gas DSOs. We understand however that this situation was not foreseen and that the ACM is evaluating whether to correct for this lost revenue. Furthermore, the regulatory changes that will be implemented in the next regulatory period will eliminate the possibility of a further reduction in revenues as a result of a decline in consumption, as any lost or excess revenue will be accounted for in the next regulatory period.

73. We further understand that that the main driver of the reduction is consumption was a decline in household consumption of gas and not large-scale disconnections and that there have been no instances of parts of the distribution networks being divested.

74. Based on the considerations above and considering that with the new regulatory method all operational costs (except the ones deemed inefficient by the ACM) will be reimbursed by the tariffs, we confirm our past conclusions. The expected changes in volumes are unlikely to affect the beta of either the Dutch Energy Networks or the peers used to estimate the beta.

B. Impact of the Commitment to Make Large Investments

75. In prior reports for the ACM [39] we have explained that commitments to make 'large' investments may affect the cost of capital – and specifically a firm's beta. The issue is analogous to what financial analysts refer to with the notion of operating leverage. Operating leverage broadly refers to the ratio of fixed to variable costs. All else equal, high fixed costs mean that a variation in revenues will have a larger impact on profits. This is because only a smaller fraction of variable costs can be reduced in a case of a reduction in quantities or increased in case of an increase. Hence, firms with higher operating leverage will have profits that are more volatile and, therefore, tend to have higher betas.

76. For example, consider two firms in the same line of business. The two firms use different technologies. One firm has high fixed costs that do not vary with output and revenue and low variable costs. The other firm has high variable costs that do vary with output and revenue, and low fixed costs. Suppose that both firms experience a drop in revenue and output. The firm with the high variable costs will also experience a drop in its costs, which will help maintain its profits. The firm with the high fixed costs will not be able to reduce its costs, so that as output falls profits will be 'squeezed' between falling revenues and the high fixed costs. The firm with the high fixed costs will experience a much larger drop in profits than the firm with high variable costs. Conversely, the firm with the high fixed costs will experience a larger increase in profits if output and revenue increase. This means that the profits of the firm with the high fixed costs will be more sensitive to changes in output and revenue.

77. The firm with the higher fixed costs will also have a higher beta. This is because, in essence, beta measures the relationship between changes in the value of the firm and changes in the value of the market index. The value of the firm is the present value of the future cash flows. Hence, as revenues decrease, assuming that the decrease is not short-lived, the value of the firm will also decrease. As forecast revenues decrease, the firm with the high fixed costs will experience a larger drop in value than the firm with the high variable costs. Suppose that the factors that led to the decrease in the firms' revenues also decrease the value of the market

[39] See the 2021 Brattle Energy Networks Report, p. 23.

index. The value of the firm with the high fixed costs could drop by more than the market index, while the value of the firm with the high variable will increase by less than the market index. This means that the firm with the high fixed costs will have a higher beta than the firm with the high variable costs.

78. A similar effect applies when a firm commits to make large investments. This is because, from an *ex-ante* perspective, the volatility of future profits relative to current assets will increase.

79. To understand why, suppose that two regulated firms, A and B, both have a market value of 100 today, based on their current assets or RAB. Further, assume that the two firms face the same systematic risk on the assets. In a 'good state' of the economy, the firms' value will increase by 10%, and in a 'bad state' of the economy the firms' value will decrease by 10%. Hence, the value will vary between 90 and 110.

80. Now suppose that firm B plans to increase its assets by 100, and the new assets face the same risks as the old assets. Because the new investments will be remunerated at the firm's cost of capital, the expected value of firm B is still equal to 100. This is because the firm will create additional assets with a value of 100 but needs to spend 100 to create these assets. That is, the new assets have a net present value of zero. However, the expected value of the new assets will also vary by plus or minus 10%, depending on the state of the economy. That is, the net present value of the new assets varies from -10 (in the case that the assets cost 100 but have a value of only 90) and +10 (in the case that the assets cost 100 but have a value of 110). Hence, the value of Firm B now varies between 80 (being 90 for the existing assets and -10 from the new assets) and 120 (being 110 from the existing assets and +10 from the new assets). This is a variation of ±20%. The value of firm A, which has no new investments planned, varies from 90 to 110, or ±10%. Hence, the higher investment commitment of firm B increases the volatility of the firm's value. As a result, firm B will have a higher beta than firm A.

81. As with higher operating leverage, therefore, firms with higher investment requirements will have higher betas. Hence, increased future investment requirements for the Dutch electricity networks could potentially increase their asset beta, relative to historic asset betas.

82. The effect of large investment commitments on a firm's beta is independent of how the firm finances the investments. That is, in the example above, the firm making the large investments could finance the new investments with the same mix of debt and equity as for

their existing assets, and the firm's beta would still increase. Of course, if the firm also increased its gearing at the same time, then the effects would compound and the firm's equity beta would increase even further. But that is an effect that the current cost of capital method already accounts for.

83. We note that the effect of investments on beta that we discuss above only lasts while the firm is constructing the new assets. Once the firm has completed the construction of the new assets, and assuming the new assets have the same systematic risk and operating leverage as the original assets, and no other changes have occurred, beta will return to its original value. Returning to the example above, firm B will have doubled its RAB to 200, and the variation of the asset value with different states of the economy will be ±10%.

84. As explained above, the Dutch electricity networks are expected to make significant investments over the next few years to accommodate the growth in electricity demand and the diffusion of renewable sources. The relevant question is whether and to what extent these required investments warrant an adjustment to their beta.

85. If the firms that we use to estimate beta have similar future investment commitments to the Dutch electricity networks, then the beta of the comparable firms will already reflect the effect of future investments on beta, and no adjustment to beta is needed. Conversely, if the firms that we use to estimate beta have lower future investment commitments to the Dutch electricity networks, then using these firms could result in an underestimation of beta, which could merit an adjustment to the beta calculated from the peer group.

86. Consistent with the considerations above, in our 2021 report on the WACC for the Dutch Energy Networks we analysed the size of the investment plans of the Dutch Energy Networks relative to their 2019 RAB and calculated the expected compound annual growth rate (CAGR) in the RAB over the 2019-2022 period (2019-2024 for TenneT). We found that:

    a. The RAB of TenneT's **onshore** transmission was expected to increase by 77.08% over the 2019-2024 period, with a CAGR of 12.11%.

    b. The RAB of TenneT's **offshore** transmission was expected to increase by 793.98% over the 2019-2024 period, with a CAGR of 54.98%.

    c. The RAB of the Dutch electricity DSOs was expected to increase by 20.92% over the 2019-2022 period, with a CAGR of 6.54%.

d. The RAB of the Dutch gas DSOs was expected to increase by 8.78% over the 2019-2022 period, with a CAGR of 2.84%.

87. In our 2021 report we further noted that that a beta uplift is only warranted in case of an extraordinary increase in the RAB, consistent with the regulatory precedent of Heathrow Terminal 5.[40] In our report, we determined that TenneT's offshore transmission business met this criterion, with an expected annual RAB increase of 55.0% over the period 2019-2024. In contrast, we determined that annual RAB increases between 5% and 10% a year were not out of the ordinary and required no adjustment to the beta. Accordingly, we recommended the ACM to only apply an uplift of 0.09, equal to the standard deviation of the estimated asset betas, to the asset beta of TenneT offshore.

88. The ACM has now provided us with the updated investment plans and expected growth rates of the RAB over the 2023-2026 period for the Dutch DSOs and over the 2023-2028 period for the Dutch TSOs. In Table 8, below, we report the expected evolution of the RAB for the Dutch Energy Networks and the related CAGR. The table shows that:

a. The RAB of TenneT's **onshore** transmission will increase by 198.81% over the 2023-2028 period, with a CAGR of 24.47%.

b. The RAB of TenneT's **offshore** transmission will increase by 842.43% over the 2023-2028 period, with a CAGR of 56.62%.

c. The RAB of the Dutch electricity DSOs will increase on average by 51.62% over the 2023-2026 period, with a CAGR of 14.51%. However, there is broad variation in the CAGR across the DSOs, which Coteq and Rendo showing CAGRs above 20% and close to the CAGR of

[40] See Dan Harris and Lucrezio Figurelli, "The WACC for the Dutch Electricity TSO and Electricity and Gas DSOs", 7 April 2021, Section V.B. As explained in the report, in 2003, the UK Civil Aviation Authority (CAA) selected a WACC at the top of the range selected to remunerate the BAA's investments in Heathrow Terminal 5. In that circumstance, the CAA found that BAA's investments in Heathrow Terminal 5 would increase Heathrow's RAB by over 70% over the following regulatory period, and that the construction of the new terminal would increase BAA's risks, not only with respect to regulatory and construction risk, but with respect to uncertain demand. We note that unlike the construction of Heathrow Terminal 5, the Dutch Energy Networks face limited volume risk. In the case of the Dutch Energy Networks, therefore, it is mainly the size of the investment plan relative to the current RAB that may potentially affect the beta. Accordingly, a beta uplift is only warranted in case of an extraordinary increase in the RAB, significantly higher than in the case of Heathrow.

TenneT onshore, Liander, Enexis and Stedin showing CAGRs around 13%, and Westland showing a significantly lower CAGR of only 3.68%.

d. The RAB of GTS will decrease by 10.92% over the 2023-2028 period, with a negative CAGR of -2.29%.

e. The RAB of the Dutch gas DSOs will decrease on average by -3.05% over the 2023-2026 period, with negative a CAGR of -1.08%.

TABLE 8: EXPECTED EVOLUTION OF THE RAB FOR THE DUTCH ENERGY NETWORKS

		End of year RAB						Expected change from 2023	CAGR
		2023	2024	2025	2026	2027	2028		
		[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]
		€ mln	€ mln	€ mln	€ mln	€ mln	€ mln	%	%
TenneT									
TenneT onshore	[1]	6,006	7,542	9,789	12,585	15,140	17,946	198.81%	24.47%
TenneT offshore	[2]	2,439	4,800	7,949	12,435	17,565	22,987	842.43%	56.62%
Electricity DSOs									
Liander	[3]	5,937	6,724	7,607	8,527			43.63%	12.83%
Enexis	[4]	4,644	5,206	5,926	6,830			47.07%	13.72%
Stedin	[5]	4,271	4,748	5,320	6,002			40.54%	12.01%
Coteq	[6]	54	68	81	94			75.71%	20.67%
Rendo	[7]	38	49	60	73			91.35%	24.15%
Westland	[8]	242	248	257	269			11.45%	3.68%
Average E DSOs	[9]	**2,531**	**2,840**	**3,209**	**3,633**			**51.62%**	**14.51%**
GTS									
GTS	[10]	6,060	5,882	5,792	5,650	5,518	5,398	-10.92%	-2.29%
Gas DSOs									
Liander	[11]	2,821	2,808	2,805	2,810			-0.38%	-0.13%
Enexis	[12]	2,960	2,974	2,983	2,987			0.93%	0.31%
Stedin	[13]	2,664	2,731	2,795	2,850			6.97%	2.27%
Coteq	[14]	112	111	110	107			-3.99%	-1.35%
Rendo	[15]	129	125	122	119			-8.26%	-2.83%
Westland	[16]	107	103	98	93			-13.55%	-4.74%
Average G DSOs	[17]	**1,466**	**1,475**	**1,485**	**1,494**			**-3.05%**	**-1.08%**

Source: Data and results provided by the ACM.

89. We note that the growth rates of TenneT onshore and of the Dutch electricity DSOs have roughly doubled compared to those reported in the 2021 Brattle Energy Networks Report. However, investment levels among the peer group may have increased to a similar degree. If a similar increase in investments is observed among the peers, no adjustment to the beta for the Dutch electricity networks would be necessary.

90. To test this, we have compared the investment plans of the peer companies for the coming years with the planned investments of the Dutch energy networks. However, we could not perform the same check on the growth of the peers' RABs due to the lack of detailed information on their depreciation profiles. For each Dutch electricity network and each peer,

we thus calculate the ratio between the average annual investment expected over the next few years and the 2023 RAB.

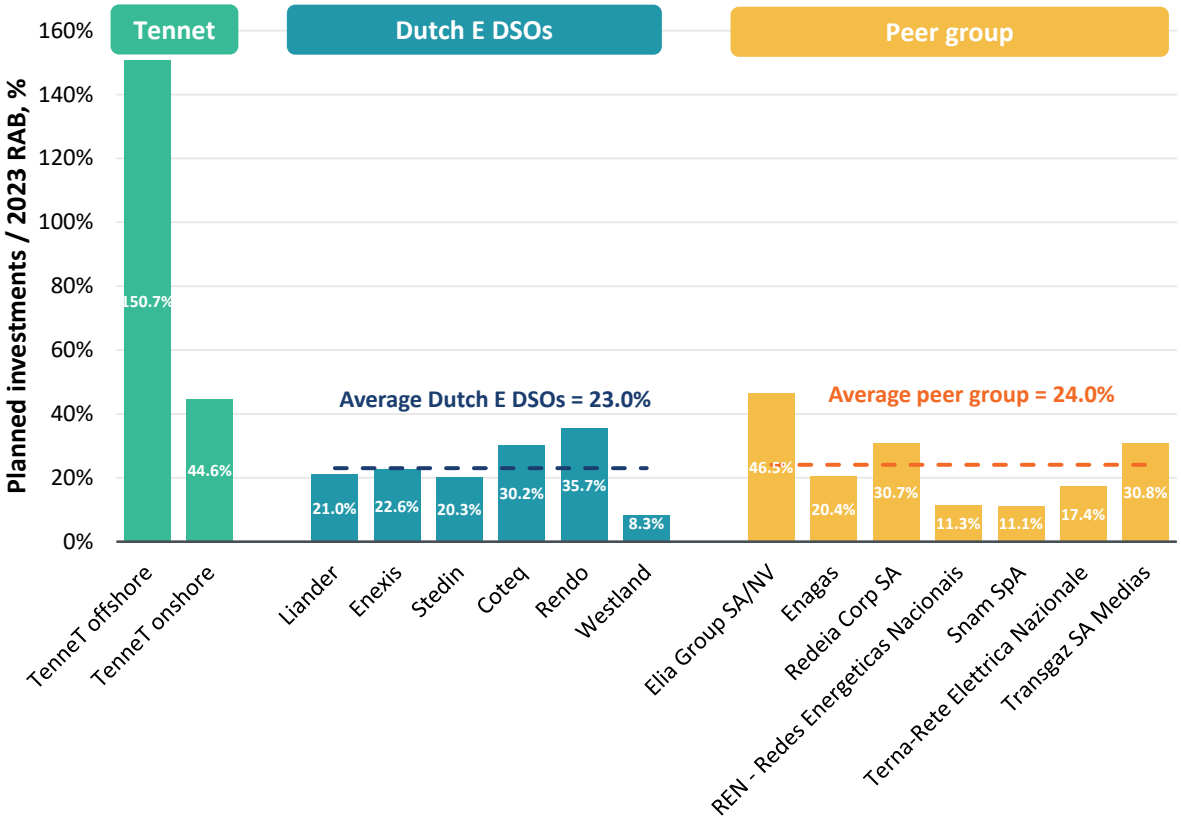
91. ACM has provided us data on the planned investments of Dutch energy networks, covering the period 2024–2033 for TSOs and 2024–2026 for DSOs. These figures include investments in meters, so to enable a like-for-like comparison with peers, whose data reflect total planned investments. Each Dutch network operator reports investments separately for electricity assets, gas assets, and general expenses. We allocate general expenses proportionally to the electricity and gas segments, except in the case of Enexis, which indicated that all general expenses are related to the electricity segment.[41] To calculate the ratio, we divide the average yearly planned investment by the 2023 RAB value presented in Table 8.

92. For the peer group, we have gathered data on total planned investments and 2023 RAB values from the most recent strategic plans, investor presentations, annual accounts, and credit rating commentaries. Depending on data availability, the investment horizon for the peers ranges from a minimum of 4 years to a maximum of 10 years, referring to the 2024–2033 period. For each peer, we compute the average annual planned investment and divide it by the respective 2023 RAB. Where 2023 RAB data is unavailable, as in the cases of Redeia Corporación and Transgaz SA Medias, we use 2023 non-current assets from their financial statements as a proxy.

93. Figure 3 below shows the results for TenneT offshore, TenneT onshore, the Dutch electricity DSOs and the peer group.

[41] Note that the CAGR shown in Table 8 for TenneT and Liander were calculated by the ACM taking into account that in 2025 Liander transferred the Randmeren network to TenneT onshore. Consistent with the RAB CAGR calculations shown in Table 8 above, we have assigned Randmeren planned investments to Liander through 2024, and to TenneT onshore from 2025 onward.

FIGURE 3: RATIO OF AVERAGE ANNUAL PLANNED INVESTMENTS OVER 2023 RAB FOR DUTCH ELECTRICITY NETWORKS AND THE PEER GROUP



94. Similarly to 2021, TenneT offshore transmission business shows the highest RAB growth rate in Table 8 and the highest projected investment levels for the coming years in Figure 3, both of which appear extraordinary compared to the peer group. We thus confirm the approach adopted in the 2021 Brattle Energy Networks Report to be appropriate and recommend applying one standard deviation uplift over the median beta of the peer group for TenneT offshore.

95. Figure 3 further shows that the expected increase in investment levels for TenneT onshore, reflected in a ratio of annual planned investments to its 2023 RAB of 44.6%, significantly exceeds the peer group average of 24.0%, although it remains considerably below the level of 150.7% observed for TenneT offshore. On the other hand, the average level of investments planned by Dutch electricity DSOs, expressed as a percentage of their 2023 RAB (23.0%), is in line with that observed in the peer group (24.0%). However, consistent with our finding on the CAGR of their RAB, we observe a high degree of variation across the DSOs, with Coteq (30.2%) and Rendo (35.7%) exhibiting the highest ratios, higher than the peers' average and closer to the ratio of TenneT onshore.

96. The above investment levels suggest that a case could be made for applying some uplift to the betas for TenneT onshore and possibly also Coteq and Rendo. However, albeit higher than the average investment levels of the peers, their investment levels do not appear extraordinary as in the case of TenneT offshore. Any uplift would therefore require some judgement as to its size, which should certainly be smaller than the uplift applied to TenneT offshore.

97. On the other hand, the negative growth rates of the RAB for the gas TSO (-2.29%) and DSOs (-1.08%) reported in Table 8 imply that the beta for the gas TSO and DSOs may be overstated, because the gas DSOs plan to make significantly lower investments than the electricity networks. However, due to a shrinking RAB the gas DSOs will earn an increasing portion of their revenue from operating expenses, which will increase their exposure to revenues shortfalls that may be caused, for example, by delays, fines, or network disruptions[42] which may result in under-compensation of operating expenses. The gas DSOs also face non-systematic risks associated with the energy transition which may be difficult to fully compensate.

98. Table 9 below shows the resulting asset beta for TenneT offshore.

TABLE 9: ASSET BETA UPLIFT FOR TENNET OFFSHORE

			Asset beta [A]
Elia Group SA/NV	[1]	Table 5	0.56
Enagas	[2]	Table 5	0.28
Redeia Corp SA	[3]	Table 5	0.27
REN - Redes Energeticas Nacionais	[4]	Table 5	0.11
Snam SpA	[5]	Table 5	0.39
Transgaz SA Medias	[6]	Table 5	0.36
Terna-Rete Elettrica Nazionale	[7]	Table 5	0.38
Median	[8]	Median([1]:[7])	0.36
Standard deviation	[9]	St.Dev.([1]:[7])	0.14
Median + 1 standard deviation	[10]	[8]+[9]	0.50

[42] See also footnote 43 below for a discussion of risks under the new regulatory regime that will be introduced in the next regulatory period.

VI. Impact of Regulatory Changes on the WACC

99. From 2027 onwards, the ACM will implement a new regulatory method motivated by the challenges posed by the energy transition. This new approach is designed to move away from a focus on incentivizing cost efficiency towards a focus on investments, with efficiency to be promoted by safeguards and ex-post checks. In this regard, the ACM has asked us to provide our opinion about the effect of the new regulatory method on the WACC for the Dutch Energy Networks.

100. Under the current system, cost efficiency is incentivized through revenue regulation and through the application of a benchmark score and a frontier shift for the Dutch electricity and gas TSOs, and through the application of a yardstick approach with a productivity improvement factor for the Dutch electricity and gas DSOs.

101. Efficiency incentives do not apply to all the networks' costs. Rather, some specific cost items are included in the allowed revenues based on ex-ante estimates and corrected ex-post to fully reimburse the networks for the costs actually incurred. These cost items include, for example, the cost of energy and power, congestion costs for the electricity TSO and transport costs of other electricity networks. As explained above, the current regulatory method also includes specific measures to deal with the declining use of the gas networks, such as the provision of accelerated depreciation and ex-post tariff corrections for asset divestitures and removal costs.

102. From 2027 onwards, the ACM will implement a new regulatory method. This change is driven by the significant challenges of the energy transition, which must be balanced with the need for energy affordability. While the current regulation is ex-post, output-oriented and TOTEX-based, we understand that the new ACM regulatory method will adopt a more ex-ante and input-oriented approach. Specifically, under the new method, all operational costs and depreciation charges will be reimbursed by the tariffs, without the application of an efficiency factor. Safeguards will be introduced to preserve an incentive to reach efficient cost levels. Furthermore, the ACM will retain the possibility to intervene in the tariffs and apply a reduction if certain costs are deemed inefficient.

103. In more detail, the new regulatory method will consist of two pillars:

    a. **Estimating and reimbursing costs**. Estimating costs in a simple way, likely based on detailed and well-substantiated cost estimates provided by the network operators. These estimates will then be corrected ex-post if the actual costs are higher or lower. In order to minimize the need for such corrections, the initial estimates should be as accurate as possible. Benchmark scores and frontier shifts will not be applied to TSOs, nor will yardstick competition and productivity enhancement be used for the DSOs.

    b. **Establishing an oversight framework with the possibility to intervene when costs are deemed inefficient.** The oversight framework will involve the ACM closely monitoring the costs and performance of the Dutch Energy Networks and more transparency on the network operators' costs. The ACM has informed us that the details of the framework are currently being developed.

104. Below, we first analyse the potential impact of the new regulation on the cost of equity and then discuss the potential impact on the cost of debt.

A. Potential Impact of the New Regulatory Method on the Cost of Equity

105. Broadly speaking, the new regulatory method will reduce risks for the networks. Under the current method, the network's profits can be reduced if their costs are higher than the average of other networks and/or they are less efficient. In contrast, under the new regulatory method, it seems that the profits of a network will be maintained, even if its costs are higher than the costs of other networks, as long as ACM judges the costs to be reasonable.

106. There seems to be two relevant questions for the setting of the cost of equity once the new regulatory method applies.

    a. First, is the reduction in risk due to the new regulatory method systematic?

b. Second, is any change in systematic risk sufficiently large to warrant an adjustment in the cost of equity? [43]

107. With regards to the first question, the new regulatory method will reduce risks for the networks. However, it is not clear whether and to what extent shifting from the current regime to the new regulatory regime will affect the systematic risks of Dutch Energy Networks and, consequently, the cost of equity. To the extent that the risks mitigated by the new regime are not systematic, there will be little or no effect on the networks' beta. For example, cost overruns on capital projects, or higher than expected operating costs are risks that would reduce profits for networks under the current regulatory regime. Such cost increases could be specific to a company (for example if there is an unexpected development in a project or a delay) or could be caused by unexpected inflation. In the former case, the cost overrun could reduce a network's profits. But the risk of an overrun is not related to the wider economy, and so is not systematic. Under the new regulatory regime, it is perhaps more likely that the ACM would allow some or all of the cost overrun to be passed through to end users. Hence, arguably the risk under the new regulatory method is lower. But if the reduced risk is not systematic, there will be little or no effect on the network's beta. For the case of a cost increase related to inflation, the cost increase will affect all networks to a similar degree, and so should, under the current regime be included in the benchmark. Under the new regulatory regime, it seems likely that the ACM would compensate firms for cost increases related to inflation.

108. As regards to the second question, and even if the new regulatory method would somewhat reduce systematic risks for networks, it seems that the effect would be difficult to identify in the data or adjust for.

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[43] We understand that, because under the new regulation all costs are reimbursed unless the ACM deems the costs to be inefficient, a legitimate question to ask is whether there is any systematic risk left. The answer is that there is. This is because the risk related to the reimbursement of operating expenses and investments is only one element of the systematic risk that the gas networks face. Similar to other regulated energy networks, the main systematic risk that the gas networks face is interest rate risk. The ACM methodology calculates a normative WACC, whereas the gas networks may have different levels of interest on debt, transaction costs and gearing than the WACC presumes. Also, the normative WACC is set ex-ante, and may not reflect current market conditions during the regulatory period. While the ACM does make an ex-post correction for the risk-free rate and the interest rate on debt, no correction mechanism applies to the other parameters. In addition to interest rate risk, the gas networks also face other types of risk, some of which will be systematic. Other risks, for example, are associated to fines that are never reimbursed, network disruptions which require the operator to compensate the end users, and time lags in the reimbursement of costs which in effect increase working capital.

109. In general, ACM and other regulators assess the beta based on a broad sample of network firms, all of which have slightly different regulatory mechanisms and risks. Typically, regulators regard these differences in risk as being within the margin of error as far as the estimate of beta and the WACC are concerned.

110. It seems that the change in the systematic risk caused by the new regulatory method is likely to be similar to, or smaller than, differences across regulations within the sample of networks. We also note that in the past the ACM has implemented other regulatory changes which have arguably affected risk, without changing the measurement of the cost of equity. For example, as explained above, in the 2022-2026 method decision the ACM has introduced accelerated depreciation, and provided that the remaining asset value of divested assets and the related connection removal costs are charged to tariffs using an ex-post tariff correction. These changes also reduced the risks of the network operators, as a way of mitigating the risk of the energy transition. However, the WACC methodology did not change. Hence these past changes set a kind of threshold level against which to judge the changes from the new system, and whether the changes may affect the WACC.

111. We conclude that while the new regulatory method will likely reduce risks for networks, the reduction in the systematic risks is likely to be small,[44] and of a similar order of magnitude as the differences in systematic risks of the benchmark networks due to slightly different regulatory regimes. Hence, we do not recommend a change the method for estimating the cost of equity to account for the new regulatory method.

112. While an argument could be made for a small reduction in the cost of equity due to the new regulatory method, it would be extremely hard to assess what any reduction should be. Moreover, reducing the cost of equity based on an uncertain theoretical reduction in risk would go against the objective of the new regulatory method to facilitate the networks' role in the energy transition. Put another way, the risk of slightly overestimating the cost of equity,

[44] For example, as mentioned above, we understand that the current tariff structure for the gas DSOs does allow for some volume risk because it includes a volume component with increasing charges (see paragraph 72) whereas the regulatory changes that will be implemented in the next regulatory period will eliminate this risk. We note, however, that although this volume risk was present, and effectively resulted in a revenue loss in 2023, the risk was relatively low and non-systematic. This is because the reduction in gas consumption is related to long term trends and climatic events that do not correlate with the economy.

given the potentially lower risk of the new regulatory method, is lower than the risk of slightly underestimating it, which could undermine the networks' role in the energy transition.

B. Potential Impact of the New Regulatory Method on the Cost of Debt

113. If the reduction in risks triggered by the new regulatory method materially reduced the default risk of the Dutch energy networks, the new regulatory method could potentially affect their cost of debt and credit rating.

114. To assess this possibility, we have analysed whether and how credit rating agencies have assessed the likely impact of the new regulatory method on default risk. In more detail, we have analysed the most rating decisions for the DSOs Liander, Enexis and Stedin and for TenneT holding:

a. S&P Global's decision of 5 March 2025 for Alliander,[45] the parent company of Liander, evaluates the uncertainty around the new regulatory framework in the 2027-31 regulatory period. The rating decision notes that the new regulatory framework "*should evolve into a cost-plus model, which would be more supportive of the company's financials. […] Compared with the current sector costs benchmarking, this should allow for a better recovery of operational costs and capex and sustain the company's cash flow generation at a time of peak investments as we approach the next decade. (…) This will be critical to assess whether the company can sustain the current rating level beyond the current regulatory period*."[46] However, another rating decision by Moody's dated 10 March 2025[47] notes that "*[a]lthough a change to a cost plus approach is a major shift compared to the current regulatory approach — and the final assessment remains subject to the actual parameters — we do not see this as a major detrimental break from the long-standing,*

[45] S&P Global Ratings, "Research Update: Dutch Energy Distributor Alliander Downgraded To 'A/A-1' On Higher Transition Investments and Costs; Outlook Stable", 5 March 2025.

[46] S&P Global Ratings, "Research Update: Dutch Energy Distributor Alliander Downgraded To 'A/A-1' On Higher Transition Investments and Costs; Outlook Stable", 5 March 2025, p.2.

[47] Moody's Ratings, "Alliander N.V., Update following rating downgrade", 10 March 2025.

transparent regulatory track record. In fact, the ACM takes into account the challenges the DSOs are facing."[48]

b. S&P Global's decision of 7 February 2024 for Enexis[49] stresses that the ACM regulatory framework is very supportive of cost recovery in the midst of volatile energy costs and high inflation[50] and that the new regulatory method "*may also support revenue in the next regulatory period starting 2027 adding to the boost from the update in the base weighted-average cost of capital (WACC) parameters*".[51]

c. S&P Global's description of Stedin dated 30 January 2025[52] takes a similar position, stressing the remaining uncertainty about the Dutch DSOs' ability to fund increasing capex needs over the next regulatory period, but noting that "*Stedin's remuneration benefits from the supportive Dutch regulatory framework*", and that "*continuity* [is expected] *for the 2027-2031 period, although a cost-plus model, which is equally credit supportive, is under consideration*".[53] S&P Global's decision of 8 February 2024 for Stedin[54] also notes that the new regulatory method "*may well also support revenue in the next regulatory period starting 2027, adding to an increase in base weighted average cost of capital (WACC) parameters*."[55]

d. Finally, S&P Global's decision of 17 April 2025 for TenneT Holding[56] notes that "*regulatory improvements alone will be insufficient to protect the TSOs' funding and overall credit quality, including those of TenneT Holding*".[57]

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48 Moody's Ratings, "Alliander N.V., Update following rating downgrade", 10 March 2025, p.4.

49 S&P Global Ratings, "Research Update: Dutch DSO Enexis Holding Upgraded To 'AA-/A-1+' On Strong Credit Metrics And Supportive Financial Policy; Outlook Stable", 7 February 2024.

50 S&P Global Ratings, "Research Update: Dutch DSO Enexis Holding Upgraded To 'AA-/A-1+' On Strong Credit Metrics And Supportive Financial Policy; Outlook Stable", 7 February 2024, p.3.

51 S&P Global Ratings, "Research Update: Dutch DSO Enexis Holding Upgraded To 'AA-/A-1+' On Strong Credit Metrics And Supportive Financial Policy; Outlook Stable", 7 February 2024, p.2.

52 S&P Global Ratings, "Tear Sheet: Stedin Holding N.V.", 30 January 2025.

53 S&P Global Ratings, "Tear Sheet: Stedin Holding N.V.", 30 January 2025, p.1.

54 S&P Global Ratings, "Research Update: Dutch DSO Stedin Holding Affirmed At 'A-/A-2' On Restored Financial Headroom Despite High Capex Plan; Outlook Stable", 8 February 2024.

55 S&P Global Ratings, "Research Update: Dutch DSO Stedin Holding Affirmed At 'A-/A-2' On Restored Financial Headroom Despite High Capex Plan; Outlook Stable", 8 February 2024, p.2.

56 S&P Global Ratings, "Research Update: TenneT Holding B.V. Downgraded To 'BBB+' On Group Reorganization And Clarification Of State Support; Outlook Stable", 17 April 2025.

57 S&P Global Ratings, "Research Update: TenneT Holding B.V. Downgraded To 'BBB+' On Group Reorganization And Clarification Of State Support; Outlook Stable", 17 April 2025, p.3.

115. Taken together, the rating decisions above seem to suggest that the new regulatory method is likely to allow for a better recovery of operational costs and capital expenditures, therefore implying lower default risk than under the current framework. On the other hand, however, the increasing capex needs for the next regulatory period largely offset this reduction in default risk, so that the credit rating of the Dutch Energy Networks is likely to remain unaltered.

116. Based on the considerations above, we conclude that the new regulatory method is unlikely to reduce the cost of debt of the Dutch Energy Networks, because the reduction in default risk attributable to the better recovery of operational costs and capital expenditures under the new regulatory method is offset by an increase in default risk attributable to the larger capex plans and the uncertainty associated with the energy transition more generally. We conclude that the new regulatory method does not warrant a change in the method to estimate the cost of debt for the Dutch energy networks.