Traded yield spreads of water and energy networks

Note prepared for Scottish Electric Power Distribution plc and Southern Electric Power Distribution plc

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1   Introduction

1.1   On behalf of Scottish and Southern Electricity Networks (SSE), in this note we have updated the analysis of traded yield spreads of water and energy companies, originally conducted as part of a wider assessment of GB energy network risks in the context of setting the RIIO-2 regulatory price control allowance for the cost of equity ('the previous report').[1]

1.2   In particular, in the previous report we assessed the risk exposure of the GB energy network companies, relative to regulated European energy networks and water networks in England and Wales (E&W). We found that the risks of Enagás, Italgas, National Grid, Red Eléctrica, Snam and Terna are broadly aligned with the risks of regulated GB energy networks, while the risks of water networks in E&W as well as those of Elia and REN are lower.

1.3   As part of that assessment, we cross-checked the results against data on traded debt yield spreads for the utility networks in our initial comparator

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[1] Oxera (2022), 'Assessing the risks of GB energy networks', 22 March, section 4.

sample (i.e. the ten companies mentioned above).[2] Wider yield spreads, when controlling for differences in gearing and maturity, indicate a higher asset risk premium and therefore a higher asset risk. As such, traded debt yield spreads can be used as a cross-check on the information about risks contained in market asset betas and on qualitative assessments of risks.

1.4   The cut-off date for the previous report was 30 September 2021. In this note, we check whether the updated market data on traded yields supports the conclusions of the original assessment. For the updated analysis, we use a cut-off date of 29 July 2022.

1.5   The rest of the note is structured as follows.

- In section 2, we outline the methodology that we follow to conduct the analysis.

- In section 3, we show the results of our analysis and how they relate to the previous report.

- In section 4, we conclude.

2   Methodology

2.1   In this assessment, we compare traded yield spreads of utility networks to inform the comparison of their corresponding operational risks. Since we would like to focus on operational rather than financial risks, we control for differences in gearing to capture a significant proportion of non-business factors affecting the credit rating (and hence the yield spread).[3]

2.2   In the rest of this section, we outline the methodology that we apply in the following areas:

- selection of bonds;

- calculation of spreads;

- ring-fencing and the measure of gearing.

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[2] The initial sample under consideration consisted of Elia, Enagás, Italgas, National Grid, Red Eléctrica, REN, Severn Trent, Snam, Terna and United Utilities. The initial sample was filtered based on sector, geography and liquidity factors, as well as additional cross-checks.

[3] Financial ratios are typically related to gearing, and they form an important evidence base for the overall credit rating—40% of the final scoring, according to the Moody's methodology. A detailed assessment of the factors that determine the credit rating would complement the analysis. See Moody's (2022), 'Rating methodology: Regulated electric and gas networks', 13 April, p. 3.

2A   Selection of bonds

2.3   Using Dealogic and Bloomberg, we searched for corporate bonds currently
outstanding for Elia, Enagás, Italgas, National Grid Electricity Transmission
(NGET), Red Eléctrica, REN, Severn Trent, Snam, Terna and United Utilities.[4]

2.4   Two filters are applied to the search results:

- no embedded options (i.e. not callable or puttable)—embedded options are
valuable to either the issuer (callable) or the investors (puttable), and these
additional values could affect the bond yields, making them less comparable
with the yields of vanilla bonds without embedded options;

- bond maturity between five and ten years—this is to minimise the impact of
any residual term premium embedded in yield spreads. Since no REN bonds
have maturities longer than five years, we make an exception for REN and
include three REN bonds with 0.84, 1.91 and 2.55 years of remaining time to
maturity respectively (as of July 2022).

In addition, we exclude index-linked bonds from our analysis because, when
considered in combination with break-even inflation,[5] they tend to show yields
that differ from those of comparable fixed-rate bonds, which we observed in the
previous report's analysis.[6]

2.5   After the filtering, we identified 29 bonds issued by ten companies (13 by UK
companies and 16 by other European companies). The individual bonds are
presented in Appendix A2.

2B   Calculating yield spreads

2.6   For all bonds, we use a one-year average traded yield to maturity (YTM) to
estimate the yield spreads. In the previous report, we used one-month average
traded YTMs. However, we have considered that one-month averages are
volatile and that one-year averages would show more robust results.

2.7   Yield spreads are calculated by subtracting the maturity-matching sovereign
yields from the traded YTMs of the corporate bonds. In addition to maturity, the

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[4] We restrict our analysis to the bonds issued by NGET rather than National Grid Group, because NGET is
representative of the GB energy networks' risks. We have checked that no bonds of Severn Trent and United
Utilities in our sample are issued by the group and not by the ring-fenced operating company.

[5] To match the maturity of nominal and real government bonds used to estimate the break-even inflation with
the maturity of the index-linked network bond under consideration.

[6] In the previous report, we observed that the yields of index-linked bonds, adjusted for breakeven inflation,
were consistently higher than the yields on fixed-rate yields. Oxera (2022), 'Assessing the risks of GB energy
networks', 22 March, Figure 4.2.

currency denomination of the sovereign yields matches those of the corporate bonds.

2.8   For EUR-denominated bonds, we calculate yield spreads using the average yields of maturity-matching German and Dutch government bonds, as Germany and the Netherlands are the only two major eurozone members with an AAA credit rating from S&P.[7]

2C   Ring-fencing and the measure of gearing

2.9   Many networks issue debt at the group level, which implies that the debt and gearing are related to both regulated and non-regulated parts of the business and it is the group rather than the regulated entity that is responsible for making the coupon payments and principal repayments of the bonds issued. To ensure the robustness of our analysis, we cross-checked whether the results hold if we limit it to 'ring-fenced' issuers—i.e. the entities that operate the underlying regulated assets. We exclude 'not ring-fenced' issuers—i.e. the holding companies, or companies whose operations are not limited to regulated assets. According to our assessment, the UK-based issuers as well as Elia Transmission Belgium are ring-fenced.

2.10   For ring-fenced issuers, we replace their market gearing with their regulated gearing, which we obtain from their regulatory accounts. The regulated gearing is defined as net debt/RAB, which more closely tracks the gearing of the ring-fenced issuers' regulated activities.

3   Comparison of the spreads

3.1   In this section, we present the findings of our updated analysis of traded yield spreads. First, we discuss the results based on using all companies and market gearing. Then, we move on to the analysis that is limited to ring-fenced issuers.

3A   Analysis of all issuers using market gearing

3.2   Figure 3.1 shows the weighted-average one-year average bond spreads, limited to fixed-rate bonds, against their market gearing ratios, calculated as the one-year average of market capitalisation/(book value of net debt + market capitalisation). A comparable figure from the previous report, presenting one-

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[7] Due to no YTM data being available for the one-year Dutch government bonds in our analysis window, the values for these yields were extrapolated through the Dutch government two- and three-year bonds.

month average credit spreads using a cut-off date of 30 September 2021, is
provided in appendix A1.

**Figure 3.1   Weighted-average yield spreads for fixed-rate bonds
against the companies' market gearing**
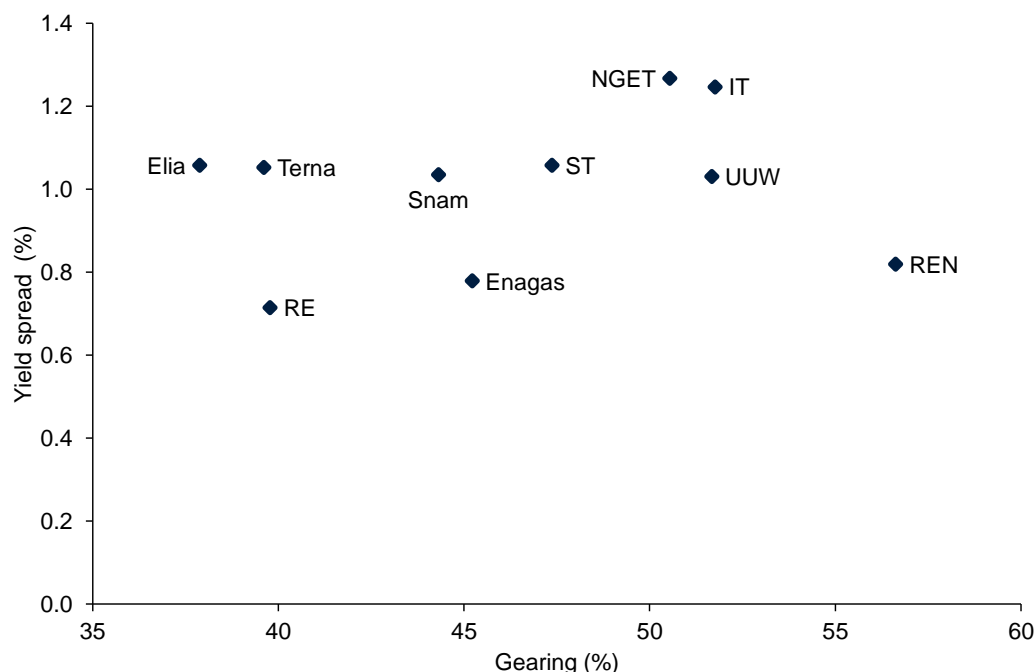
Note: Based on the traded YTMs and gearing over the year preceding 29 July 2022. IT—Italgas,
NGET—National Grid Electricity Transmission, ST—Severn Trent, RE—Red Eléctrica, UUW—
United Utilities water.

Source: Oxera analysis based on Bloomberg and Dealogic data.

3.3   Alongside a general increase in the level of yield spreads since the analysis in
the previous report, we note that Elia's gearing has declined from 51% to 24%
between the previous analysis' cut-off date, 30 September 2021, and the
updated one, 29 July 2022, resulting in a one-year average market gearing
preceding 29 July 2022 of 37%. The sharp decline in Elia's gearing is driven by
a combination of an increase in the market cap (by 54% since the cut-off date
of the previous report) and a decrease in the net debt (by 53% over the same
period). It is our understanding that the decline in net debt is caused by one-off
events, but that the current level of net debt is more aligned with pre-2020
levels.[8]

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[8] The increase in the market cap may be related to the strong financial performance in the first half of 2022,
where adjusted net profits increased by 24.1% relative to the previous year. The gearing level was at its peak
at the cut-off date of the previous report. Since then, 50Hertz, the German network within the Elia group of
companies, benefited from federal compensation payments to pay back temporarily contracted credit facilities
and from a high cash balance that resulted from high energy market prices. See Elia Group SA/NV (2022),
'Half-year results: Elia Group on track to realise the energy transition', 27 July, p. 10. Elia Group SA/NV (2021),
'Powering the decade of electrification, FINANCIAL REPORT 2021', p. 53.

3.4 On the comparison of risks, we observe the following.

- NGET has higher spreads than those of **Severn Trent** and **United Utilities**, despite having broadly similar gearing. This implies that NGET has higher credit risk (when controlling for differences in gearing) and is likely to have higher asset risk than the water networks. This result is consistent with the previous report.

- The spread for **REN** is among the lowest, while its gearing is the highest, suggesting that it is likely to have a lower credit and by extension asset risk than comparators. This result is also consistent with the previous report.

- We used to observe a similar pattern for **Elia** relative to other European comparators, but this no longer holds—Elia's gearing is now the lowest and the spread is similar to those of its peers, suggesting a higher risk. As explained above, as market and financial data for Elia shows significant volatility over the last two years we should exercise caution in drawing conclusions based on its recent data. Notably, Elia's asset beta, which is another indicator of the company's asset risk, has increased significantly since the pre-2020 period (e.g. its five-year daily asset beta was 0.15 on 31 December 2019 and increased to 0.25 on 29 July 2022).[9] Therefore, although volatile, the yield spreads and asset beta evidence show a consistent increase in Elia's risk profile.

- In terms of the comparison of the European energy networks (excluding REN and Elia) as a group and the E&W water networks as a group, we note that both **Severn Trent** and **United Utilities** are towards higher gearing levels, while their yield spreads are broadly aligned with those of their peers. Therefore, although not particularly pronounced, the evidence supports our qualitative assessment showing that the E&W water companies are associated with lower risk than GB energy networks.

3B   Analysis of ring-fenced issuances using regulated gearing

3.5 Figure 3.2 shows the ring-fenced issuers' weighted-average yield spreads, limited to fixed-rate bonds, against their regulatory gearing ratios.

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[9] Based on a debt beta of 0.05 and relative to the EuroStoxx TMI index.

Figure 3.2   Weighted-average yield spreads for fixed-rate bonds against the companies' regulatory gearing for ring-fenced issuers
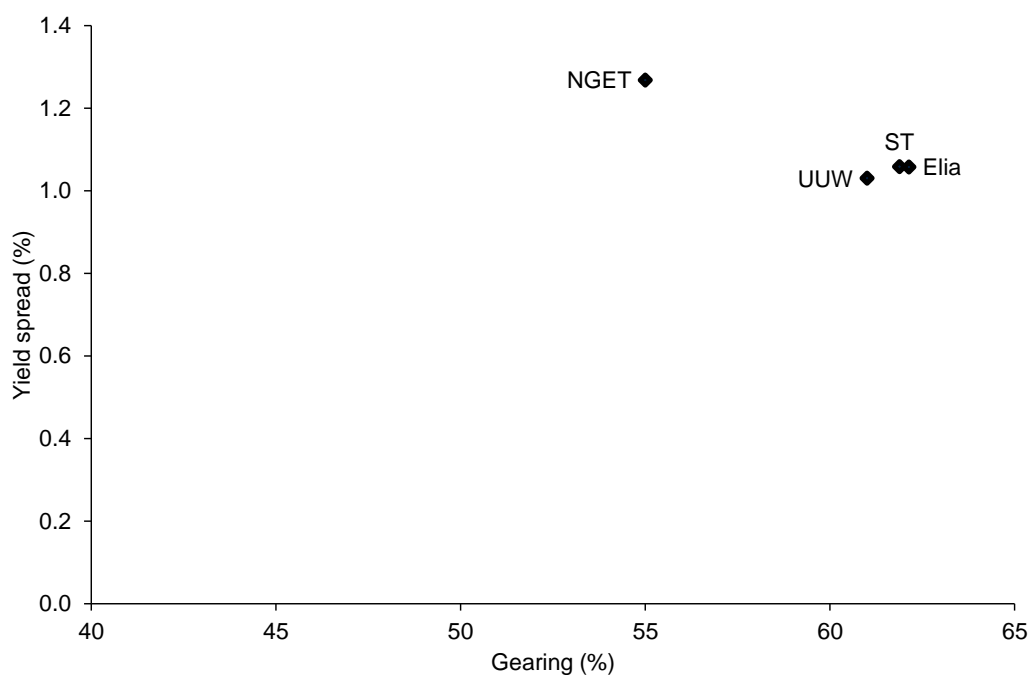
Note: Based on the traded YTMs over the year preceding 29 July 2022. Regulatory gearing is based on FY 2021/22 data for all companies. Elia refers to Elia Transmission Belgium. NGET—National Grid Electricity Transmission, ST—Severn Trent, UUW—United Utilities water.

Source: Oxera analysis based on Bloomberg and Dealogic data.

3.6   After applying regulatory gearing to ring-fenced UK issuers, National Grid Electricity Transmission still has lower gearing and wider yield spreads than those of Severn Trent and United Utilities, implying a higher credit and, by extension, asset risk. The same holds for the comparison of Elia and NGET— Elia's gearing and spreads are at the level of E&W water networks' and suggest a lower risk than that of NGET.

3.7   The regulatory gearing of Elia is remarkably different from its market gearing, putting the relevance of the market gearing data under question.[10]

4   Conclusions

4.1   The results of the analysis reported in this note can be summarised as follows.

4.2   Many of the patterns in traded yield spreads that we observed in our previous report remain unchanged. For example, the yield spreads of the E&W water networks are lower than those of NGET, while the gearing estimates are

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[10] The recent decline in the net debt relates to 50Hertz, the German network of the Elia group, while the ring-fenced issuer is Elia Transmission Belgium.

broadly similar. The yield spreads of REN are lower than those of many other comparators, controlling for the differences in gearing.

4.3   Although the comparative position of Elia's traded yield spreads with yield spreads of other networks has changed when the differences in market gearing are controlled for, the results are consistent with the previous ones when a less volatile regulatory gearing is used.

4.4   Overall, we consider that the updated market data on traded yield spreads support our conclusions about comparative risks in the previous report—i.e. that the risks of Enagás, Italgas, National Grid,[11] Red Eléctrica, Snam and Terna are broadly aligned with the risks of regulated GB energy networks, while the risks of water networks in E&W as well as those of Elia and REN are lower—although the risks of Elia need to be monitored closely.

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[11] Represented by NGET in the analysis of this note.

A1 Figures with a cut-off date of 30 September 2021

Figure A1.1 Weighted-average one-month yield spreads for fixed-rate bonds against the companies' market gearing
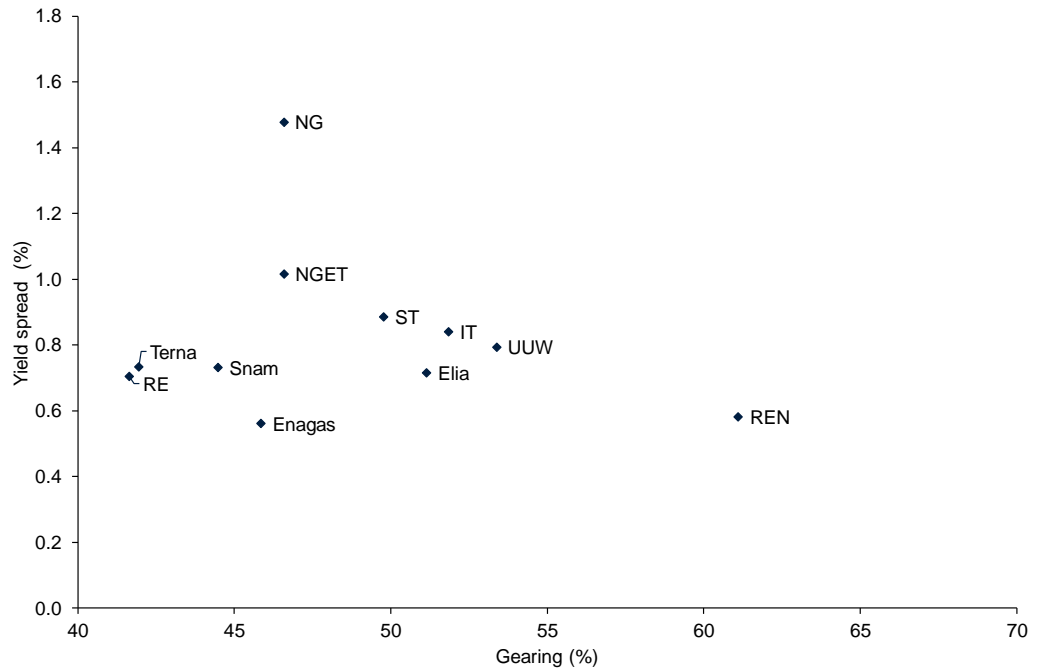
Note: Based on the traded YTMs over the month preceding 30 September 2021. UUW—United Utilities water, NG—National Grid Group (excluding NGET bonds), NGET—National Grid Electricity Transmission. The gearing is based on 2020 (or FY 2020/21).

Source: Oxera (2022), 'Assessing the risks of GB energy networks', 22 March, Figure 4.1.

Figure A1.2   Weighted-average one-month yield spreads for fixed-rate bonds against the companies' regulatory gearing for ring-fenced issuers
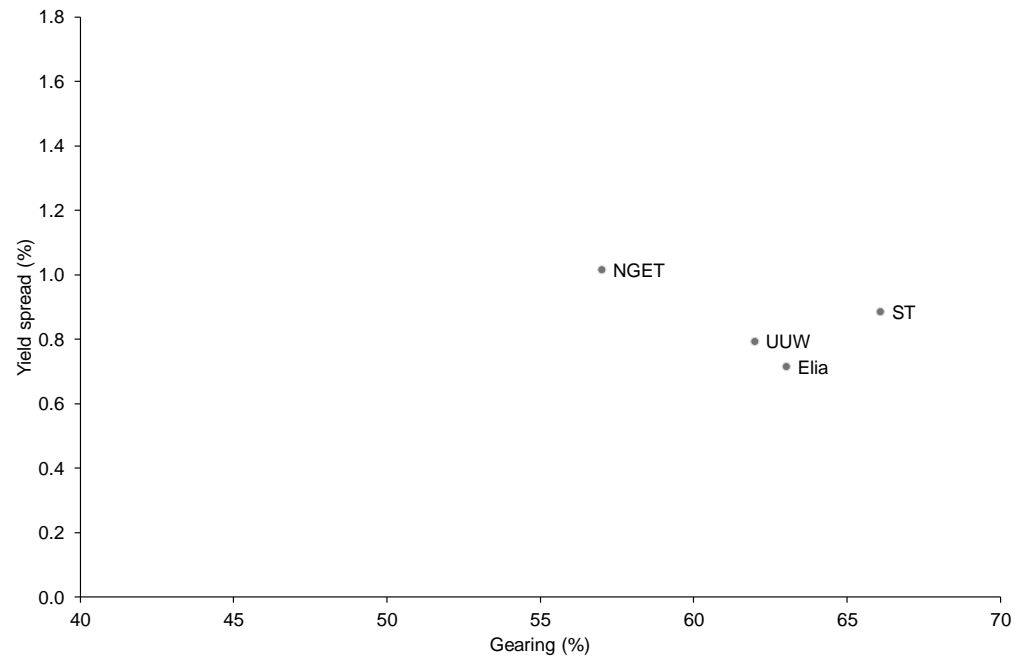
Note: Based on the traded YTMs over the month preceding 30 September 2021. Regulatory gearing is based on FY 2020/21 data for all companies but Elia, for which 2019 data is used due to data availability.

Source: Oxera (2022), 'Assessing the risks of GB energy networks', 22 March, Figure 4.3.

A2 Individual bonds used in the traded yield spreads cross-check

Figure A1.2 below shows the individual bonds selected for the traded yield spreads analysis discussed in this note.

Table A2.1   Bonds issued by companies considered in the traded yield spreads analysis

Company	ISIN	Maturity date	Time to maturity	Total face value (£m)	Index-linked	Currency	Reference rate (government bond)	One-year average spread (%)	Issuer credit rating[1]
Elia	BE0002432079	04/04/2028	5.69	466	n.a.	EUR	Dutch and German	0.988	Baa1
Elia	BE0002466416	07/04/2029	6.69	290	n.a.	EUR	Dutch and German	1.169	Baa1
Enagás	XS1403388694	05/05/2028	5.77	591	n.a.	EUR	Dutch and German	0.779	Baa2
IT	XS2090807293	11/12/2031	9.37	421	n.a.	EUR	Dutch and German	1.339	Baa2
IT	XS2032727310	24/04/2030	7.74	535	n.a.	EUR	Dutch and German	1.353	Baa2
IT	XS1685542497	18/01/2029	6.48	664	n.a.	EUR	Dutch and German	1.299	Baa2
IT	XS2299001888	16/02/2028	5.55	435	n.a.	EUR	Dutch and German	1.256	Baa2
IT	XS1551917591	19/01/2027	4.48	648	n.a.	EUR	Dutch and German	1.040	Baa2
NGET	XS0407912053	13/01/2031	8.47	379	n.a.	GBP	UK	1.457	Baa1
NGET	XS0789331948	08/06/2027	4.86	575	n.a.	GBP	UK	1.135	Baa1
NGET	XS0863543657	13/12/2027	5.38	24	n.a.	HKD	Hong Kong	1.189	Baa1
NGET	XS0884734426	07/02/2028	5.53	25	n.a.	HKD	Hong Kong	1.217	Baa1
NGET	XS2107332566	24/01/2028	5.49	42	n.a.	HKD	Hong Kong	1.199	Baa1
NGET	XS2110793044	29/01/2031	8.51	65	n.a.	USD	United States	1.622	Baa1
RE	XS1076263448	18/06/2029	6.89	12	n.a.	EUR	Dutch and German	-0.224	A3
RE	XS1190892635	24/02/2027	4.58	56	n.a.	EUR	Dutch and German	0.919	A3
REN	XS1189286286	12/02/2025	2.54	370	n.a.	EUR	Dutch and German	0.957	Baa2
REN	XS1423826798	01/06/2023	0.84	426	n.a.	EUR	Dutch and German	0.683	Baa2
REN	PTRELDOM0007	26/06/2024	1.91	64	n.a.	JPY	Japanese	0.929	Baa2
Snam	XS1505573482	25/10/2026	4.24	1,126	n.a.	EUR	Dutch and German	1.036	Baa2
ST	XS0296066680	26/04/2029	6.75	9	n.a.	JPY	Japanese	1.058	Baa2
Terna	XS1503131713	11/10/2028	6.21	891	n.a.	EUR	Dutch and German	1.060	Baa2

Company	ISIN	Maturity date	Time to maturity	Total face value (£m)	Index-linked	Currency	Reference rate (government bond)	One-year average spread (%)	Issuer credit rating[1]
Terna	XS1652866002	26/07/2027	4.99	129	n.a.	EUR	Dutch and German	1.004	Baa2
UUW	XS1223999316	27/04/2027	7.75	38	n.a.	EUR	Dutch and German	1.338	A3
UUW	XS1309718572	26/10/2030	8.25	22	n.a.	EUR	Dutch and German	1.413	A3
UUW	XS1429528315	09/06/2031	8.87	23	n.a.	EUR	Dutch and German	1.426	A3
UUW	XS0159728236	20/12/2027	5.40	300	n.a.	GBP	UK	0.876	A3
UUW	XS1692878991	04/10/2027	5.18	79	n.a.	HKD	Hong Kong	1.187	A3
UUW	XS2217307805	24/08/2031	9.07	27	n.a.	USD	USA	1.223	A3
Excluded[2]									
NG	XS0132734483	27/07/2030	8.00	1,000	RPI	GBP	UK	n.a.	Baa2
NG	XS0132735373	27/07/2028	6.00	600	n.a.	GBP	UK	1.543	Baa2
NGET	XS2208310271	27/07/2028	6.00	100	n.a.	GBP	UK	n.a.	Baa1
ST	XS0129965942	30/05/2028	5.84	70	RPI	GBP	UK	1.269	Baa2
UUW	XS1222727965	23/04/2030	7.74	60	RPI	GBP	UK	1.259	A3
UUW	XS1497735412	30/09/2028	6.18	47	RPI	GBP	UK	1.372	A3

Note: [1] Issuer credit rating by one of the credit rating agencies as of 29 July 2022. [2] These bonds were included in the sample in the previous report. Two of them are excluded from the sample used in this note due to data availability. One of the NG bonds was excluded in order to limit the analysis to NGET. In addition, consistent with the previous report's analysis, the sample was limited to fixed-rate bonds. IT—Italgas, NG—National Grid Group (excluding NGET bonds), NGET—National Grid Electricity Transmission, ST—Severn Trent, RE—Red Eléctrica, UUW—United Utilities water.

Source: Oxera analysis based on Bloomberg, Dealogic data and credit rating agencies' websites