

The Voice of the Networks



Energy Networks Association

Investor views of risk for Gas Distribution Networks under RII O-GD2

September 2020

This survey was exclusively commissioned by the four GB gas distribution networks

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Executive Summary

Ofgem published its RII0-2 Draft Determinations (DD) for the GB energy transmission and gas distribution businesses on 9 July 2020. In response to Ofgem's DD, the Energy Networks Association (ENA), on behalf of the Gas Distribution Networks (GDNs), have surveyed a range of investors and infrastructure capital market participants on their views on Ofgem's proposals with respect to the risks-reward trade-off facing UK utilities with a focus on GDNs.

A total of 73 market participants ranging from infrastructure equity investors, infrastructure debt investors, pension funds, market analysts, and credit rating agencies were contacted to take part in the survey over a period of eight weeks in August-September 2020. Of the market participants contacted, 15 survey responses were received (indicating a response rate of c. 20%).¹ Some of the potential investors who did not respond to the survey indicated that they no longer tracked UK GDNs as part of their investment outlook. The distribution list of market participants represented equity and debt investors in regulated UK energy and networks, non-regulated UK infrastructure and credit rating agencies. The total global investments of the survey respondents exceeds £5trillion.

The survey incorporated a range of questions relating to:

- The risk landscape facing regulated UK energy networks and GDNs;
- The relative risks and returns of regulated UK energy networks and GDNs in relation to the UK water sector;
- Two specific issues relating to the regulation of UK GDNs.

There were a range of views and opinions expressed by the respondents given the diversity in the respondent group. However, there were some key common themes that emerged across the respondent group which are set out below.

1) Risk has increased over the last decade

In relation to the overall risks facing energy networks, 14 of the 15 stakeholders interviewed identified that there has been an increase in the risks associated with investing in regulated UK energy networks over the past decade. One of the key factors commonly cited by the respondents was an increase in risk associated with the energy transition to 'Net Zero', macro-economic risks such as Brexit, COVID-19, political risk (in particular, nationalisation), and regulatory risk. **In particular, there was a unanimous view that the risks relating to decarbonisation are greater for GDNs relative to the other energy networks.**

2) The regulatory framework does not reflect the risk landscape

Respondents suggested these risks were not being captured within the regulatory framework and this was affecting the overall balance of risk and reward. In addition, a significant majority of the respondents noted that the relationship between the regulator and the companies had deteriorated significantly and there was an urgent need to rebuild trust in the short to medium term to enable investor confidence to fund the transition to net zero.

3) Ofgem is unduly focused on tariffs at the expense of investment and inter-generational equity

Another frequently cited opinion by respondents was that in setting returns, Ofgem was unduly focussed on the tariffs over RII0-2 and had ignored the long-term investment needs of the sector. **Two-thirds of all respondents indicated that level of allowed returns being set for GDNs was inadequate.** They indicated that the investment proposition presented by UK regulated energy networks was now considerably weaker and the UK markets presented a less attractive opportunity

¹ In comparison, the response rate to Ofwat's 2019 and 2018 surveys was 16% and 13% respectively.

to investors seeking long-term stable cash flows. Given the emerging competition for infrastructure capital globally, there was a concern that investors in UK infrastructure were being forced to explore alternative geographies. One aspect of the allowed returns, i.e. **the outperformance wedge, drew unanimous criticism from respondents**. There was common consensus that there was no valid theoretical or practical justification for implementing such a mechanism. Additionally, **no respondent considered the level of baseline returns set by Ofgem to be adequate**.

4) *GDNs have higher systematic risk than water companies*

On the matter relative risk for GDNs against the UK water companies, the majority of respondents considered gas networks to have higher systematic risk than water companies. **The most commonly cited factor supporting this view was the decarbonisation risks facing gas networks which are not faced by water companies to the same extent.**

5) *Reduced appetite to invest in UK gas networks*

Finally, on issues specifically relating to GDNs, respondents raised some concern regarding the forecast decline in future gas volumes. In particular, the majority of the respondents identified these issues as raising risks of asset stranding in the long term and the associated uncertainties relating to alternative uses for the gas networks with respect to advent of hydrogen and biofuels meant that their overall appetite to invest in GDNs was decreased.

Introduction and summary of approach

This survey was exclusively commissioned by the four gas distribution owners (comprising of eight networks) regulated by Ofgem (under the auspices of the ENA).

The survey programme consisted of three phases of work:

- Phase 1 – Development: preparing a list of interview questions and identifying a target list of stakeholders to approach;
- Phase 2 – Engagement: undertaking the interviews; and
- Phase 3 – Reporting: aggregating and reporting our findings.

The work undertaken under each of the three phases is set out in detail in Appendix 1.

To ensure the integrity and independence of this survey, the ENA commissioned an independent FCA-regulated firm with a large audit and accounting practice. The ENA's partner has been involved with:

- developing the survey questions and compiling a list of investors to interview (ensuring an appropriate spread of GDN and non-GDN investors, including credit rating agencies and investors in water companies);
- conducting the investor interviews;
- compiling and analysing the survey responses.

Additionally, prior to distributing the questionnaire to survey participants, an additional peer review was conducted with another independent consultant (who has over two decades of experience in advising regulators and regulated utilities) to ensure the questionnaire was factual, and represented a balanced view of Ofgem's draft determinations and the emerging issues. Almost all of the suggestions indicated by the independent consultant were incorporated into the final draft of the survey.

This document presents the results of the ENA's survey. The survey included a mix of multiple choice and free-text questions with eleven main questions (24 questions in total including sub-parts to the main questions). For 14 of the 24 of the questions, respondents were required to answer from a multiple choice of responses.

A list of respondents who participated in the survey and their relevant investment interests is provided in the table below. The total investments under management of the respondent group exceeds £5trillion.

Respondent	Category	Invested in UK energy networks?	Invested in UK water networks?	Invested in other infrastructure?
Investor 1	Debt capital provider	✓	✓	✓
Investor 2	Equity capital provider	✗	✓	✗
Investor 3	Equity capital provider	✗	✓	✓
Investor 4	Equity capital provider	✓	✓	✓
Investor 5	Equity capital provider	✓	✗	✓
Investor 6	Equity capital provider	✓	✗	✓
Investor 7	Equity capital provider	✓	✗	✓
Investor 8	Equity capital provider	✓	✓	✗
Investor 9	Equity capital provider	✓	✓	✗
Investor 10	Debt capital provider	✓	✗	✓
Investor 11	Equity capital provider	✓	✗	✗
Investor 12	Equity capital provider	✗	✓	✓
Investor 13	Equity capital provider	✓	✗	✓
Rating agency 1	Credit rating agency	n/a	n/a	n/a
Rating agency 2	Credit rating agency	n/a	n/a	n/a

This report is structured as follows:

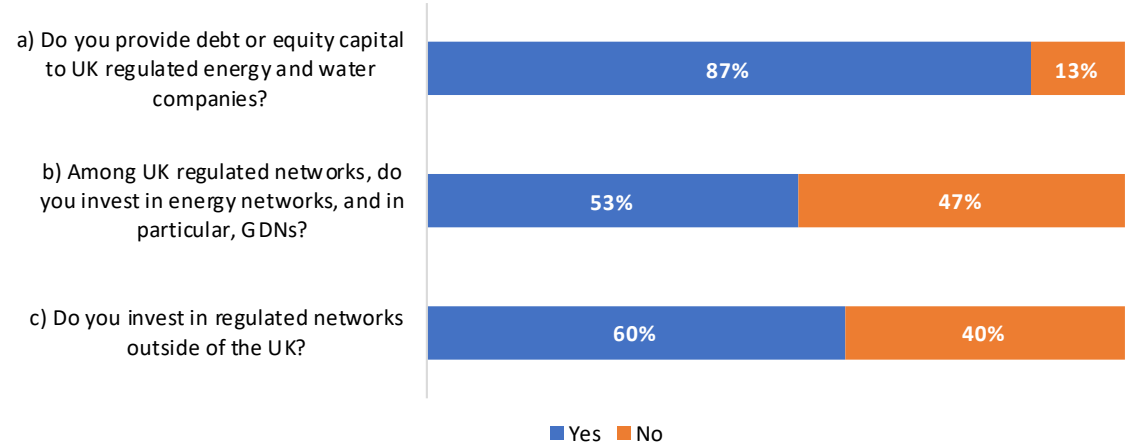
- The next section sets out the key findings from the survey;
- Appendix 1 sets out the details of the approach to conducting this survey;
- Appendix 2 provides a detailed compilation of the responses received as part of the survey;
- Appendix 3 contains the survey questionnaire sent out to survey participants.

Key findings

This chapter sets out the results of the survey and provides a summary of the key findings. A more detailed exposition of the responses is set out in Appendix 2 – Further detail on survey responses.

Question 1 – Experience with investing in regulated markets

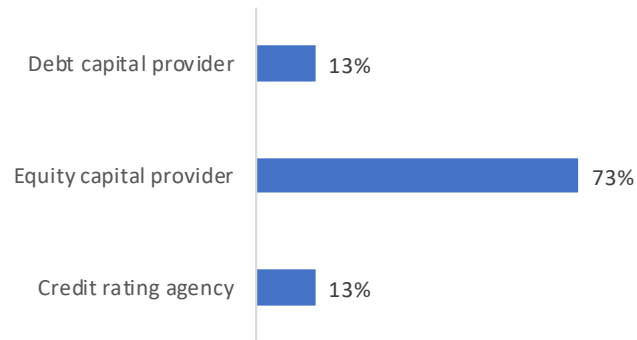
The survey targeted investors and market observers in regulated infrastructure assets in the UK.



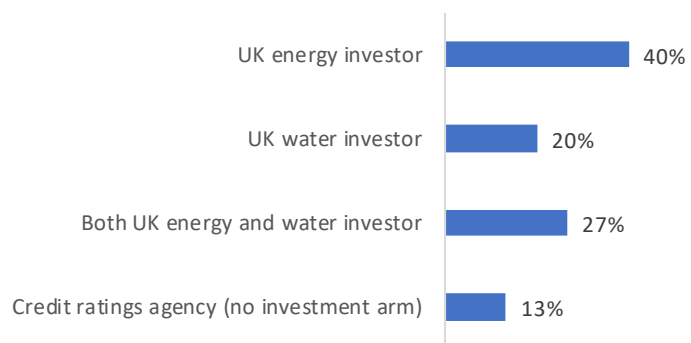
The chart below sets out the breakdown of survey respondents.

Investor views of risk for Gas Distribution Networks under RIIO-GD2

Percentage of respondents by category

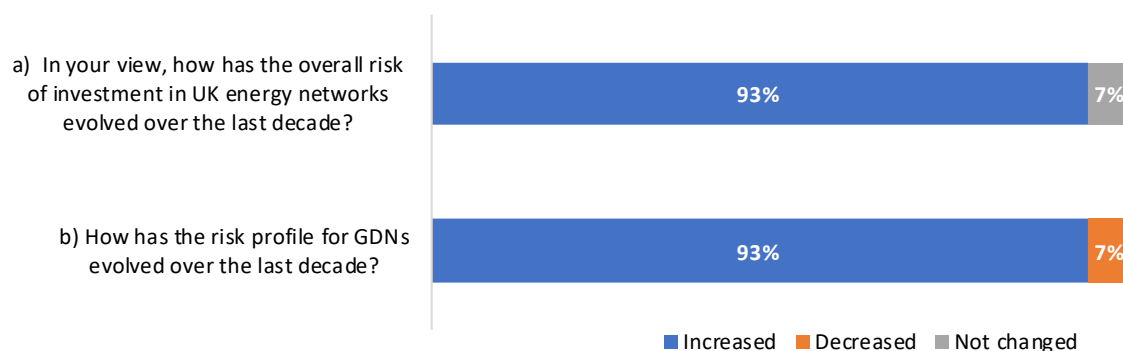


Percentage of respondents by investment sector



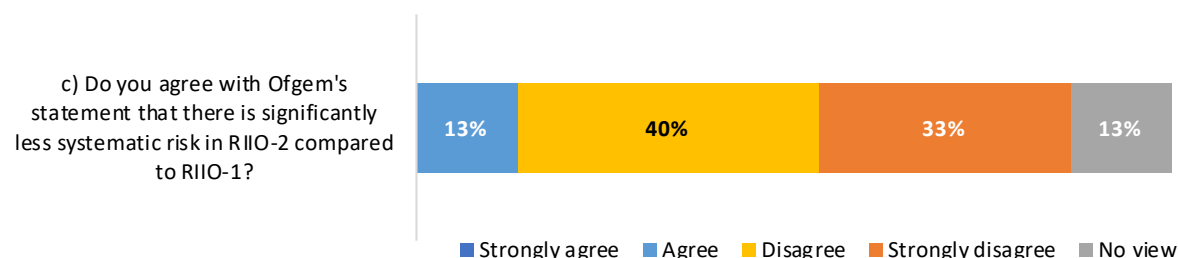
Investor perception of overall and relative risks relating to the gas distribution sector

Question 2 – Overall risk of investing in UK energy networks



c) Ofgem's draft determination from July 2020 states:

*"Given our analysis of the reduced RORE range compared to RIIO-1, combined with both debt and equity indexation which reduces exposure to macro-economic shocks, we consider there to be **significantly less systematic risk**² in the RIIO-2 price control compared to the RIIO-1 price control. This is partly driven by lower incentive strengths, such that companies that overspend on totex allowances bear less of the cost of that overspend."* [emphasis added]³



With respect to systematic risk of the RIIO-2 price controls, 73% of the respondents either disagreed or strongly disagreed with Ofgem's argument. In particular, investors did not consider that the regulator's framework accommodated for macroeconomic risks facing the sector. Only 13% of the respondents agreed with Ofgem's statement that systematic risk was significantly less in RIIO-2 stating that the economic principles cited by Ofgem were consistent with the intended outcome.

All but one of the respondents interviewed considered that the overall risk of investment has increased in UK energy networks and gas distribution networks over the last decade. The most frequently cited factors supporting this response were uncertainties around transition to decarbonisation and low-carbon fuel alternatives, political risk (such as Brexit, and nationalisation of utilities), increased regulatory risk stemming from their view of the RIIO-2 DDs, and more contemporary risks of economic downturn due to the pandemic.

² Systematic risk: non-diversifiable risk inherent to the entire market/market segment.

³ Ofgem (2020), 'RIIO-2 Draft Determinations – Finance Annex', 9 July, para.5.59.

Question 3 – Key issues and challenges for GDNs across time horizons and whether the regulator should reflect any resulting risks in the financial package

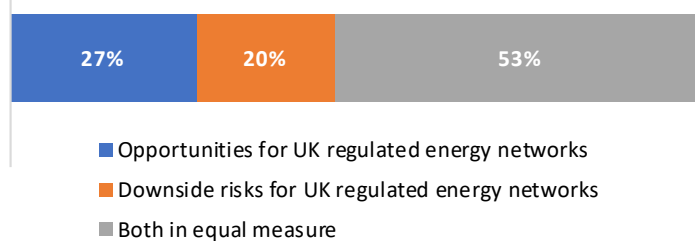
On the key challenges facing GDNs over the short, medium and long terms, more than 75% of the respondents identified political (Brexit and nationalisation) and regulatory risks as key short-term risks albeit the degree of concern associated with these risks varied across the respondent group. In addition, nearly half of the respondents referred to COVID-caused operational challenges (including inflationary pressures) and the tougher RII0-GD2 proposals as key short-to-medium-term challenges in front of any outperformance opportunities.

On medium and long-term risks, there was unanimous agreement that the energy transition agenda, decarbonisation and the role of gas in the future of UK's energy mix was the biggest risk facing GDNs.

Most equity investors emphasized that the regulators have not sufficiently reflected these risks in the financial package and more needed to be done to facilitate the ambitious investment programme required to meet the UK's net zero ambition.

Question 4 – UK's pathway to decarbonisation

a) Potentially there are both risks and opportunities related to the uncertainties around decarbonisation. Please indicate whether you consider decarbonisation mostly creates:



b) With respect to GDNs, do you consider opportunities/risks relating to decarbonisation to be higher, lower, or not different than the opportunities for ET/DNOs/GT?



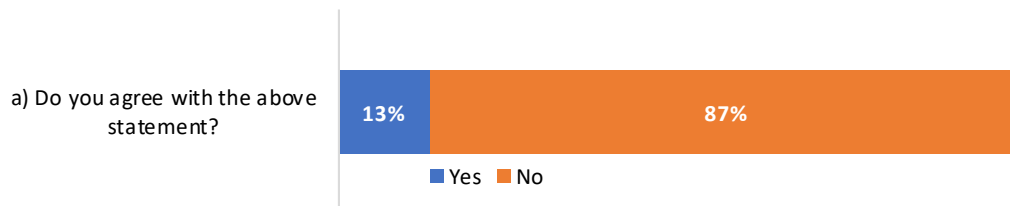
53% of the respondents considered that decarbonisation would create risks and opportunities in equal measure for the energy sector as a whole. 27% of the respondents considered there to be greater opportunities for the sector as a result of decarbonisation whereas 20% of the respondents opined that decarbonisation created more downside risks.

However, there was unanimous agreement amongst the interview responses that decarbonisation created lower opportunities and higher risks for gas networks, compared to electricity networks.

In addition to decarbonisation, respondents cited regulatory, policy and macroeconomic risks as the other major challenges facing energy networks.

Question 5 – Relative risk between UK energy and water networks

Ofgem's draft determination from July 2020 states: "[...] our current judgement [is] that pure-play energy networks hold similar systematic risk⁴ to pure-play water networks."⁵



Amongst the 87% who disagreed with Ofgem's statement, 77% (approximately two-thirds of all respondents) considered gas networks to have higher systematic risk than water. There were a range of factors cited by respondents in support of this answer including the higher levels of perceived overall risks of the sector, market/demand risk, incentives risk, regulatory/policy risks and technology risk for the gas distribution sector.

23% (of the 87%) of the respondents who disagreed with Ofgem's statement considered water networks to have higher systematic risk as they perceived regulatory and policy risks to be higher for the water sector and that certain macroeconomic risks (like nationalisation and Covid-19) were more pertinent for the water sector.

A small minority (13%) of respondents agreed with Ofgem's statement. These were primarily debt investors and their response was based on the credit prospects of the two sectors rather than from an equity beta perspective.

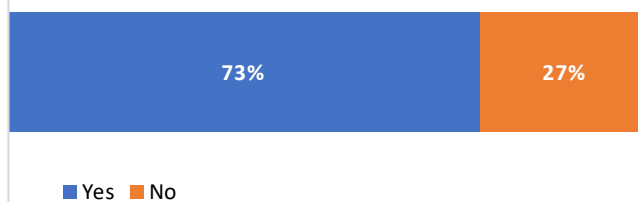
⁴ Systematic risk: non-diversifiable risk inherent to the entire market/market segment.

⁵ Ofgem (2020), 'RIIO-2 Draft Determinations – Finance Annex', 9 July, para. 3.54.

Allowed returns

Question 6 - Relative returns for UK gas distribution networks and water sector

a) Would you expect to see baseline equity returns for regulated energy networks to be different than that for regulated water companies?



73% of the respondents stated that they would expect a differential in baseline equity returns for energy and water companies, whereas the remaining 27% indicated that returns should be similar.

Out of the 73% respondents who expected to see a differential in returns, 82% advised that gas networks should have higher returns based on their view of relative risks in the sector.⁶

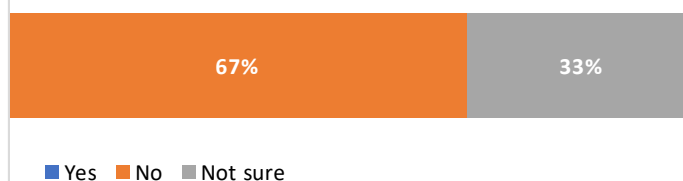
Only two respondents stated that water networks should have a higher level of baseline equity return, albeit marginally higher. This was mainly based on their perception of greater exposure of the water sector to regulatory risk and bad debt risk (due to Covid-19).

However, respondents who expected to see a differential in returns were not able to articulate an actual basis point differential between the two sectors.

Question 7 – Allowed baseline equity return for GDNs

In its July 2020 Draft Determination, Ofgem proposed baseline allowed equity returns for GDNs of 3.95% (CPIH, real) after including a 0.25% outperformance adjustment. The question to respondents was:

Do you consider this to be adequate?



Two-thirds of the respondents stated that they do not consider Ofgem's baseline equity allowance for GDNs to be adequate. This was largely based on their perception of risks facing the sector. Many respondents also benchmarked the returns available in regulated UK infrastructure with those available in other jurisdictions and remarked that the UK was likely to be a less attractive market for future investment at these levels of return.

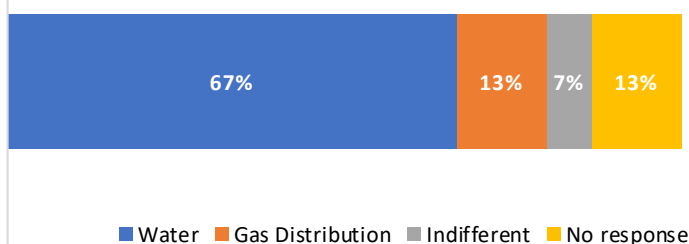
⁶ This is marginally lower than the proportion of respondents who indicated that gas networks have higher systematic risk. This discrepancy is because in answering question 5, two of the debt investors were primarily concerned about the stability of cash flows for debt.

No respondent considered the level of returns to be adequate. The 33% of respondents who were unsure mainly comprised of the credit rating agencies and debt investors and did not have a clear view on equity returns.

Importantly, all respondents strongly rejected Ofgem's approach to setting the outperformance wedge and argued that there was no theoretical or regulatory precedent for such a measure. Some respondents also considered this to be contrary to the tenets of ex-ante incentive-based regulation.

Question 8 - Relative preference of lending debt capital between UK regulated gas networks and water companies

a) If an average performing UK gas distribution network and water company were to each issue a long-term fixed rate bond (with the same tenor, rating, issue size, coupon, and T&Cs), which sector would you prefer to lend to?



Consistent with the views relating to risks facing the two sectors, two-thirds of all respondents indicated that other things being equal, they would prefer to lend long term debt to a water company as opposed to a GDN. Again, the primary reason underpinning this preference was the risk of decarbonisation facing gas networks.

Only two respondents indicated that they would prefer to lend long term debt to a GDN, citing higher operational and regulatory risks facing the water sector.

However, if the tenor of debt was short dated (i.e. c. 5 years), a majority of the respondents indicated that they would be largely indifferent between the two sectors.

Specific risk issues pertaining to GDNs

Question 9 – RAV recovery

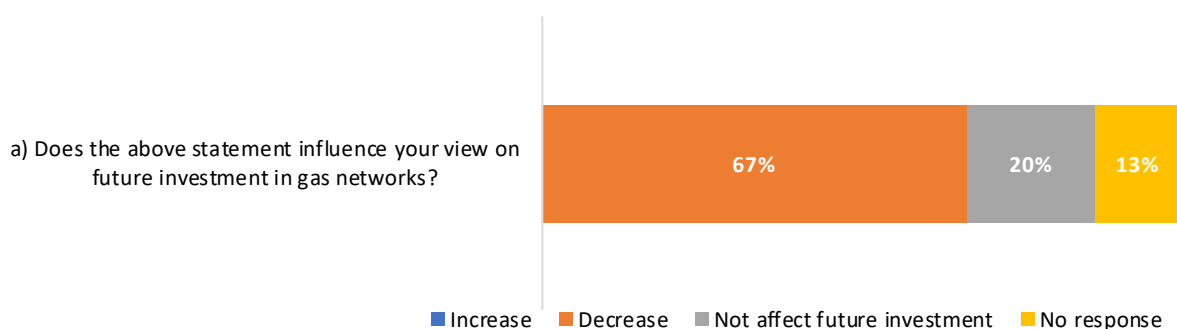
Ofgem's draft determination from July 2020 states:

"Some FES2019 scenarios indicate that energy demand could remain stable, but we agree with NGGT that there is a risk that gas volumes continue to fall. This risk resides mostly, but not exclusively, with gas consumers. Investors have greater protection, given the commitment to RAV recovery and frequent price control re-sets which provide an opportunity to consider the appropriate RAV recovery speed. However, we agree with NGGT that a rapid and sustained decline in gas volumes may mean that return of the RAV becomes less viable at each price control review.

[...]

*Further clarity on volumes will materialise during RIIO-2, including government policies for heat and net zero. Therefore, better information should be available for RIIO-3, which can be taken into account in companies' Business Plans and by Ofgem in future decisions."*⁷

The main question to survey participants was:



67% of all respondents indicated that the risk of falling gas volumes and its future implications for the viability of the return of the RAV would result in a decreased appetite for future investment. A recurring theme in the responses was that, the fact that Ofgem had raised concern about the viability of the RAV in the future alluded to a lack of long-term commitment to GDN assets and increased their perception of asset stranding risk.

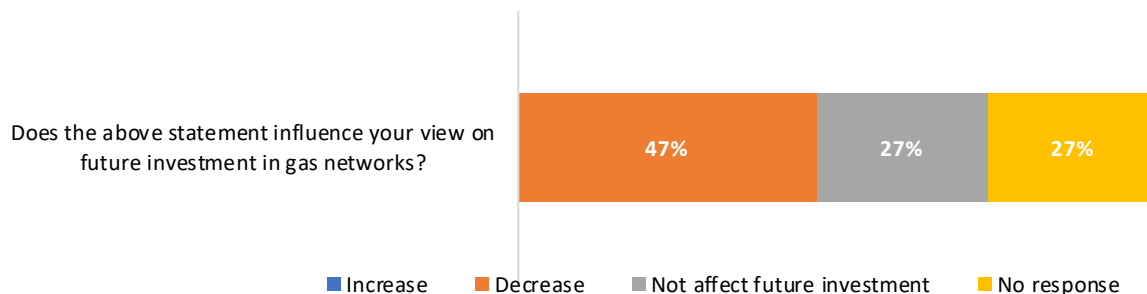
No respondent considered this issue to lead to an increase in their future investment plans.

⁷ Ofgem (2020), 'RIIO-2 Draft Determinations – Finance Annex', 9 July, para.10.6 and 10.8

Question 10 – Payback cut-off period

With regard to the repex investments included in company Business Plans, Ofgem’s draft determination from July 2020 states that for non HSE mandated repex:

“We have applied a CBA payback cut-off of 2037 (ie 16 years from the beginning of RIIO-GD2) to all asset management repex mains investments (and associated services interventions). This reflects uncertainty over the future of the gas network and the risk of asset stranding. It maintains the cut-off point we applied to low pressure distribution mains assets in RIIO-GD1 (ie 2037).”⁸



Given the specificity of the question to GDNs, 27% of the participants refrained from answering the question.

The majority of respondents who provided an answer to this indicated that Ofgem’s approach could limit the level of future repex investments which in turn could affect the long-term health of assets. A number of respondents linked the uncertainty around recovery of future repex mains investment with the risk of asset stranding which led them to suggest a decreased appetite for future investment plans.

Some of these respondents who noted that it would not materially affect their future investment plans indicated that their willingness to make future investments in GDNs was already low and that this specific issue did not alter that view further. However, one respondent noted the majority of the repex mains investment had already been undertaken and this issue did not pose a significant risk for the future.

No respondent considered this issue to lead to an increase in their future investment plans.

⁸ Ofgem (2020), ‘RIIO-2 Draft Determinations – Gas Distribution Annex’, 9 July, paras. 3.86 and 3.88 <https://www.ofgem.gov.uk/system/files/docs/2020/07/draft_determinations_-_gd_sector_0.pdf>

Other issues

Question 11 - Do you have any other comments or observations that you would like to make?

In terms of concluding remarks, a large proportion of the respondents reiterated a sense of disappointment in the current regulatory environment in terms of its ability to support and encourage investment in infrastructure. Respondents voiced concerns that the current regulatory approach risked losing investors at a critical time in the ambition to transition to a net-zero carbon economy.

A common theme emerging from the opinions expressed was the poor relationship between regulators and regulated companies and that the prevailing lack of trust was hampering not just the regulatory process, but also the ability of investors to invest with confidence and certainty.

A number of respondents also referenced alternative infrastructure investment opportunities in Europe and indicated that investor preference for European alternatives, including from UK investors, could increase.

Appendix 1 – Approach to conducting the survey

Phase 1: Preparing the survey and identifying investors to interview

A survey document was prepared (provided as an appendix to this report) that included:

- an overview of UK regulated energy networks as well as Ofgem's RII0-GD2 Draft Determinations; and
- a set of interview questions that explore investor perception of overall risks facing gas distribution sector, relative risks compared to other UK regulated networks, and specific features of the Draft Determinations.

A consistent set of questions was adopted across stakeholders to aid comparability of responses. Respondents had the choice to not respond to any question which was outside their core area of expertise. Additionally, prior to distributing the questionnaire to survey participants, an additional peer review was conducted with another independent consultant (who has over two decades of experience in advising regulators and regulated utilities) to ensure the questionnaire was factual, and represented a balanced view of Ofgem's draft determinations and the emerging issues. Almost all of the suggestions indicated by the independent consultant were incorporated into the final draft of the survey..

A range of financial stakeholders representing a variety of GDN and non-GDN infrastructure investors, including debt and/or equity investors, corporate banks, equity analysts and credit rating agencies were identified.

Phase 2: Conducting interviews

73 respondents were first contacted to ascertain their willingness to take part in this survey with a full context of the survey. 15 respondents confirmed their interest to participate; and were provided with the survey document. This was then followed up by telephone interviews which were conducted over August and September 2020.

After each interview, a written summary of the discussion was circulated to the respondent for them to confirm whether their responses were being reflected accurately. Some respondents provided written responses to the survey questions ahead of the interview.

Respondents were informed that the survey was being conducted on the basis that none of their responses would be attributable to them but that their responses would be collated into a summary report to be submitted to Ofgem.

Phase 3: Reporting

During the final phase the findings from the interviews were aggregated and reproduced in this report. The responses shared in this document do not represent the views of the ENA or its partner firm. No views are attributed to individual interviewees.

Appendix 2 – Further detail on survey responses

In this section we set out further detail on responses to the questions asked in the interviews.

Breakdown of survey respondents

Question 1: Investment experience

All respondents either provide debt or equity capital to UK regulated energy and water networks or issue credit ratings on them. Specifically, out of the 15 respondents:

- 2 were credit rating agencies (no separate investment arms);
- 13 were investors, of which 2 provide debt capital and 11 provide equity capital to UK regulated infrastructure assets.

In terms of the assets owned/ invested in:

- 6 respondents had UK infrastructure investments in energy networks only;
- 3 respondents had UK infrastructure investments in water networks only;
- 4 respondents had UK infrastructure investments in both energy and water networks (including one respondent who is invested in a non-GB GDN and a GB water network); and
- 2 respondents observed all sectors as credit rating agencies.

In terms of investments abroad, 9 out of the 15 respondents indicated they invested in regulated infrastructure networks abroad, including both energy and water networks across North America, Europe, and Oceania.

Investor perception of overall and relative risks relating to the gas distribution sector

Question 2: Change in risk levels of investing in UK energy networks and GDNs

When asked whether the risk of investing in UK energy networks had changed in the past decade, the large majority of respondents were of the opinion that it had increased. However, there was some variation in opinion as to how much the risk had increased and its relevance.

Equity investors were of the opinion that risk had increased materially whereas debt investors were less concerned about the evolution in risk. One of the credit rating agencies noted that there was a marginal increase in the risk profile between RIIO-1 and RIIO-2 but considered that it remained below the risk profile prevalent at DPCR5. Finally, another credit rating agency considered that overall risk had decreased as a result of Ofgem's introduction of the equity indexation mechanism.

The most frequently cited factors behind elevated risk levels included the uncertainties around transition to decarbonisation and low-carbon fuel alternatives, political risk (such as Brexit, and nationalisation of utilities), increased regulatory risk stemming from their view of the RIIO-2 DDs, and more contemporary risks of economic downturn due to the pandemic.

Specifically, on nationalisation and Brexit, while these risks were noted by most respondents, debt investors did not consider this to be particularly relevant for them.

On regulatory risk, a large proportion of the interviewees considered that a tough regulatory settlement involved greater risk to utilities. It meant that they would have to work harder operationally, focusing on working capital and short-term financial performance, rather than long-term company and customer value. This would be compounded by the longer-term risk that utilities will not deliver the desired performance outputs. Many interviewees expressed the view that the relationship between the regulator and regulated networks had deteriorated and this was also contributing to higher levels of regulatory risk.

One of the rating agencies considered that overall risk in the energy networks had not changed significantly over the past decade as the RIIO-2 regulatory framework was better equipped to capture future sector uncertainty.

On the specific issue of GDNs, within energy networks, respondents who were in agreement that risk had increased, largely attributed this to the decarbonisation agenda.

Another credit rating agency stressed that risk for GDNs had declined as a significant part of the repex programme had been undertaken.

On systematic risk, the general view from equity investors appeared to be that they are less concerned about systematic risk per se and focus more on the overall risk/return trade-off. In their view, overall risks (including systematic risks) had increased while returns had declined. As a result, the majority of these respondents disagreed/strongly disagreed with Ofgem's reasoning.

One of the rating agencies disagreed with Ofgem's reasoning on systematic risk on the basis of how the regulator had set cost and efficiency targets. Another debt investor noted as part of their disagreement that while there may have been a marginal reduction in risk, this was not 'significant'.

One equity investor declined to respond as they were not clear about the articulation of systematic risk.

Two respondents agreed with the regulator's statement. Amongst them, one debt investor agreed with the regulator's rationale and argument pertaining to lower systematic risk but simultaneously noted that in RIIO-2 there appeared to be a greater linkage of returns to incentives and Ofgem's use of uncertainty mechanisms introduced greater degree of uncertainty compared to RIIO-1. Finally, a rating agency noted that systematic risk had declined as a result of equity indexation.

Investors made the following key comments:

- Regulators should not dismiss macro risks such as Brexit, pandemic (and the related risk of bad debts and low inflation), and nationalisation. These need to be considered within the framework.
- There is excessive focus on reducing customer bills and not enough focus on encouraging investment to achieve Net Zero. Multiple respondents indicated concerns over "politicization of regulation" and "loss of independence of the regulator" as the main reason behind this.
- In their perception, regulatory risk had increased and that trust between the regulated companies and the regulator was very low ("zero").
- Some respondents noted that RIIO-2 has introduced mechanisms to adjust the cost of equity and cost of debt; however, they disagreed that these changes create a significant reduction in risk.
- Some investors in agreement with Ofgem reasoned that in principle, it is hard to argue with

the economic rationale that equity indexation reduces systematic risk.

Question 3: Key issues and challenges for the sector across time horizons

In the short term, many respondents were concerned that the lingering risk of nationalisation and Brexit had created additional social pressure on the current Conservative government and regulators, resulting in decisions which may prioritise short-term interests instead of the long-term implications and investment needs for the energy sector. One of the rating agencies noted that maintaining current credit ratings may be a challenge for some companies in the sector given the cuts to operating cashflows and the expensive embedded debt costs of some GDNs.

In terms of regulatory risk, there was some concern that regulatory independence had come into question in recent years against the backdrop of increased political pressure to reduce customer bills, as well as growing hostility towards investors and investment. Multiple respondents highlighting that the current approach would need to become more supportive of investors to enable green investments.

The energy transition agenda and decarbonisation were identified as the key medium/long-term challenge by all investors, especially given the retreat from fracking and potential mass replacement of gas boilers, and significant investments needed to switch to alternatives such as hydrogen and bio-fuels. With respect to the energy transition agenda, respondents commented that there was significant uncertainty about the pathway to achieve the government's recently legislated net-zero commitment and the associated capex programme. One rating agency noted that under-utilisation of the gas networks in the long term could lead to a declining RAB and increased risk of asset stranding.

All equity and debt investors believed these risks need to be reflected in the regulatory framework. One rating agency noted that Ofgem's adoption of uncertainty mechanisms was designed to flexibly deal with these risks and reflected the changing nature of the of risk spectrum. The other rating agency considered Ofgem to be ahead of other regulators in recognising the future of gas but noted that if final determinations were in line with DD, it would lead to downward rating pressure.

While reflecting on these risks, many investors acknowledged that some macro risks were outside the regulatory framework and there was no specific mechanism to compensate for these, but they needed to be considered in terms of the overall balance of risk and reward.

Investors made the following key comments:

- For GDNs, if significant investment is needed, e.g. for hydrogen conversion, regulators need to end their hostile environment policy towards investors. Investments will only go through if investors trust they can recover their investment through the regulatory mechanism.
- Within the European market context, one investor with assets in the UK and Europe considered that the UK's country risk premium was structurally higher than that of Germany (based on 5Y credit default swap data) but this was not reflected in the regulatory allowances across the two jurisdictions
- The global pandemic had created some underlying implications for the utilities sector:
 - (a) Lower demand driving lower inflation would lead to lower revenues for utilities and lower RAV growth;
 - (b) It had created increased risk around deliverability of repex programme

(c) Slower growth would lead to pressures on deliverability of productivity improvements which would impact the efficiency gains that utility companies could achieve in the short and medium terms.

- Although equity investors have a long-term focus, the regulator has a short-term focus on efficiency and reducing customer bills. The current regulatory package is not paying enough attention to long-term investment needs on the road to Net Zero (such as investments in hydrogen) and does not support investors.
- There has been a degree of volatility in terms of regulatory decisions. Currently, the regulatory pendulum is swinging towards not acknowledging the overall risk in the infrastructure sectors and not allowing the commensurate risk-adjusted returns. Maybe the regulators have the illusion of a 'wall of capital'. There may be a wall of capital in European assets, but not on UK assets alone.
- Policy risks such as Brexit, nationalisation and uncertainty around the energy transition are outside the purview of the regulator. It cannot be held responsible for risks which cannot be controlled.

Question 4: Risks and opportunities relating to decarbonisation

Respondents indicated that decarbonisation remained one of the biggest drivers of opportunity and risk for energy networks.

There was unanimous agreement that for electricity networks, the decarbonisation agenda provided opportunities given the likely electrification of the economy.

While investors unanimously acknowledged that decarbonisation created downside risks for gas networks, a few of the responses also highlighted that there were some opportunities for gas networks as well (albeit significantly lower than those for electricity networks) such as the shift to hydrogen and biofuels. However, it was also noted that in order to capitalise on these opportunities, the quantum of investment required was very large and it was not clear whether the appetite to commit to such large amounts of investment was present.

One investor separately commented that while the GB gas markets were quite mature, decarbonisation may present more opportunities for gas networks in other jurisdictions in Europe where the market share of gas was relatively lower and the reliance on oil was higher.

In terms of additional risks facing energy networks, (and consistent with earlier responses) respondents collectively identified regulatory, political and macroeconomic risks as the key risks alongside decarbonisation.

Investors made the following key comments:

- Decarbonisation is a big challenge for GDNs, however it depends on future government policy as to whether it is an upside or downside. As the opportunity is currently not entirely within company control, there is greater downside. However, DNOs have huge potential to create value from decarbonisation.
- One investor noted that while the GB gas markets were quite mature, in Northern Ireland, decarbonisation may present more opportunities for gas networks as the market share of gas was relatively lower and the reliance on oil was higher.

- On regulatory risk, reducing base levels of return and introducing more incentives (asymmetric returns), would skew the outcomes to the downside. On embedded debt costs, one investor held the view that if companies had issued debt at efficient rates, then they shouldn't be penalised for when that it had been issued. Additionally, companies should not be penalised for whether the industry, on average, was financeable.
- The regulatory approach leads to a key intergenerational issue: there is currently a big focus on reducing consumer bills, however this can potentially result in underinvestment in long-term projects. Despite achieving savings today, necessary investments might be much more expensive to implement in 4-5 years due to changes in interest rates and inflation.
- In terms of the technology/innovation/operations aspect of the sector, investors noted that the UK has an amazing opportunity and abundant talent. In order to not miss this opportunity, there needed to be a fair and balanced remuneration structure to encourage innovation. Whilst they recognised that Ofgem has introduced innovation funding; however, this had been largely offset by the low levels of allowed return. The regulatory preference for too low risk (and thus too low return) can stifle innovation, by not allowing the companies enough funding to accommodate 10 mistakes to find one great idea.
- One credit rating agency noted that nationalisation was a particular concern in the middle of last year, especially around elections. This is more important for holding companies (rather than operating companies) sitting outside ringfenced operating assets. Operating companies could benefit from nationalisation due to possibly cheaper access to debt financing. A long-term concern of nationalisation is the availability of capital for investment in green energy.

Question 5: Systematic risk of pure-play energy networks and pure-play water networks

Respondents were asked to provide their thoughts on the following quote from Ofgem's draft determination: *"[...] our current judgement [is] that pure-play energy networks hold similar systematic risk to pure-play water networks."*⁹

Of the respondents who disagreed with Ofgem's statement (87%), over three quarters of them argued that energy networks had higher systematic risk primarily due to the uncertainty over decarbonisation policy and the future UK fuel mix created a clear long-term risks for gas networks and this was not an issue for water networks. A couple of respondents stated that gas networks face higher operational challenges and more complex capex needs compared to water due to the following reasons: (a) from a health and safety perspective, the consequences of gas leakage can be significantly more severe than a water leakage, (b) due to the high combustibility of gas, there is a fundamental difference in transporting gas versus water from a risk perspective.

A minority of the respondents (3 out of 15) cited that water companies faced higher operational challenges in terms of meeting ODIs, and the threat of nationalisation was more pertinent to the water sector. Specifically, one rating agency noted that Ofwat's regulation posed a greater risk than Ofgem's approach and return on regulated equity had been eroded for water companies due to ODI penalties. They also noted that in the long-term there was a risk due to water resources becoming scarce while in the short term, the risk of bad debts due to the pandemic was a direct risk for water companies (but only indirectly impacted energy networks).

⁹ Ofgem (2020), 'RIIO-2 Draft Determinations – Finance Annex', 9 July, para. 3.54.

Respondents who agreed with Ofgem's statement (13%) noted that while on the one hand gas networks faced risks relating to decarbonisation and the energy transition agenda (which was absent for water networks), water companies encompassed the entire value chain (sourcing, treatment, transmission and distribution) of the business and hence bore all the risks associated with that value chain.

Investors made the following key comments:

- There is a risk that gas demand could be completely substituted away in the long term. If this were to happen, even the most robust regulatory contract would breakdown leading to the risk of asset stranding. This is unlikely to occur in the water sector.
- Water services is less understood by the public. There remains a debate around the ideal that the delivery of water as a service should be provided free of charge. The same ideal is not prevalent for energy network services.
- Debt investors noted that pricing of bonds was largely determined by the credit rating of the underlying entity rather than with specific reference to the risks relating to decarbonisation or macroeconomic factors (all of which did not feature prominently within the framework adopted by ratings agencies).
- Gas networks have higher systematic risk than other sectors. From an engineering and operations perspective, gas is riskier to operate than electricity/water (it has a much higher downside due to the higher risk of a catastrophic damage). From an asset risk perspective, it would not be correct to say that they carry the same risk. Gas networks would have a higher beta.
- One rating agency noted that water was riskier – for the same rating level, there was tighter guidance on financial ratios for the water sector.
- In the long-term, water supply could be negatively affected by climate change.

Allowed returns

Question 6: Relative returns for UK energy and water sector

60% (9 out of 15) of all respondents advised that gas networks should have higher equity returns than the water sector. This was largely based on their previously cited views regarding the relative risks across the two sectors. However, an overwhelming majority of investors who expected to see a differential in equity returns between the two sectors did not have a clear view on what the differential ought to be.

Only two respondents stated that water networks should have higher levels of baseline equity return. One equity investor considered that GDNs were less risky than water (and hence water should be allowed higher returns) but caveated this opinion as being based on its experience of having invested in a non-GB GDN. And one of the credit rating agencies also considered equity returns ought to be higher in the water sector as it considered water to be riskier than GDNs.

Four (27%) respondents agreed that baseline equity returns in the two sectors ought to be broadly similar. Interestingly, this is higher than the number of respondents who considered the systematic risk levels across energy and water sectors to be similar in Question 5 (13%). This discrepancy is because in answering question 5, two of the debt investors were primarily concerned about the stability of cash flows for debt.

Investors made the following key comments:

- Investors noted that they would expect to see the baseline equity returns for regulated gas networks to be higher than the regulated water companies as they have consistently been for 3 decades since privatisation.
- The energy transition processes which are currently being faced by gas networks and are not being faced by water companies. There is uncertainty around use of technology which is yet to be fully developed. The complexity of the capex programme which is required to deliver the government's legislated energy transition agenda also increases risk for gas networks.
- So far, The UK has been successful at attracting foreign infrastructure investment in energy networks through well-structured regulation and fair return. It will be even more vital to keep the UK energy networks attractive to foreign investors to secure the fund to address the challenges in RII0-2.
- One credit rating agency stated that it regarded the regimes as comparable.
- A small minority of investors, in noting that water is perhaps riskier indicated an expectation of higher returns. Some had previously held a view that energy networks should have a premium over water due to a higher level of technical requirements, however technical challenges in water had now increased to a similar level.

Question 7: Allowed equity returns for UK GDNs

66% of the respondents stated that they did not consider Ofgem's baseline equity allowance for GDNs to be adequate. This was largely based on their perception of risks facing the sector. Many respondents also benchmarked the returns available in regulated UK infrastructure with those available in other jurisdictions and remarked that the UK was likely to be a less attractive market for future investment at these levels of return.

An overarching theme in the response to this question was the unanimous criticism of the 25bps outperformance adjustment. An overwhelming majority of the respondents directly raised the shortcomings associated with this adjustment and considered it to be arbitrary, unjustified and not consistent with regulatory principles. Even some respondents who were unsure of the level of baseline equity returns raised reservations about the outperformance adjustment.

While a third of the respondents were not sure about the level of baseline equity returns, no respondent considered the regulatory proposal to be too high. The respondents who were unsure primarily consisted of debt investors and rating agencies who did not have a clear view on the adequate level of equity returns.

One rating agency noted that the level and the approach to setting the baseline allowed returns seem to have unhelpful aspects for both water and energy (e.g., using the bottom-end of the range of cross-checks in setting returns for energy companies). Another rating agency considered that it would be very difficult to build any additional RoRE outperformance in either sector.

Investors made the following key comments:

- Ofgem's approach to clawback outperformance was jeopardising the regulatory model built on the basis of ex ante incentive framework which aimed to balance the interests of society, customers and networks. Instead, the regulator appears to be focusing on customer bills.

- Investors noted that this was an unprecedentedly low level of returns and realistically only pension funds would likely accept this level of returns. But that would be contingent on the asset providing long term stable cash flows which did not appear to be the case for a complex regulated utility.
- Ofgem had basically set the same level of return as Ofwat less the 25bp outperformance adjustment. In relation to this, four water companies were currently at the CMA which indicated the unacceptability of such levels of returns.
- Ofgem's approach to clawback outperformance is jeopardising the regulatory model built on the basis of ex ante incentive framework which aimed to balance the interests of society, customers and networks. Instead, the regulator appeared to be focusing solely on customer bills.
- One investor noted that even if 3.95% was indeed the correct level of returns, Ofgem had stifled the core tenet of incentive-based regulation by not allowing any opportunity to outperform and earn higher levels of return. The only way to get around this is to push leverage higher by adopting innovative financing structures.
- A section of the respondents also commented on the potential wasted opportunity to ramp up the spending agenda. This was partly due to the very low returns and stringent requirements on investment spend (applicable to both energy and water).

Question 8: Relative preference of lending debt capital to UK water company vs GDN

64% of the respondents were of the view that the higher long-term risks in gas due to decarbonisation made it a less favourable option for long-term debt investments. They considered the water sector to be less risky in the longer term with respect to the stability of outcomes and cash flows, and the nature of the business.

There were two respondents who preferred to lend to gas networks, citing that water networks faced higher nationalisation, operational, and regulatory risks. One of these specified that their answer was based on their experience of investing in a non-GB GDN.

The respondent who indicate an indifference between lending to water or gas networks noted that on one hand decarbonisation-related risks for the gas sector were higher, and on the other hand nationalisation and operational risks were higher for the water sector, leading to broadly similar levels of risk.

On lending over a shorter timeframe, there was common acceptance between most of the respondents that they would be indifferent between lending to the two sectors. Only one respondent stated that they would switch their sector preference for lending debt capital from water to GDNs citing that if the long-term risks around decarbonisation were to be ignored, the water sector faced higher risks in the short-term (due to nationalisation risk).

Investors made the following key comments:

- Debt would be issued at 10+ years for these kinds of companies, however, it is difficult to project the nature of the business and cashflows 10 years into the future for GDNs.
- The lack of substitution risk (i.e. the lower demand risk) in the water sector makes it a preferred debt investment option.

- For longer tenors UK water sector is more attractive as its future in terms of the genuine need for investment / RCV growth is more certain than for GDNs.
- The regulatory backdrop in water is more volatile and uncertain. For shorter tenors, GDNs could be more attractive for debt investments.

Specific risk issues pertaining to GDNs

Question 9: RAV recovery for GDNs

Investors were asked about how the following statement in Ofgem's draft determinations affected their future propensity to invest:

"This risk [that gas volumes continue to fall] resides mostly, but not exclusively, with gas consumers. Investors have greater protection, given the commitment to RAV recovery and frequent price control re-sets which provide an opportunity to consider the appropriate RAV recovery speed. However, we agree with NGGT that a rapid and sustained decline in gas volumes may mean that return of the RAV becomes less viable at each price control review.

[...]

*Further clarity on volumes will materialise during RII0-2, including government policies for heat and net zero. Therefore, better information should be available for RII0-3, which can be taken into account in companies' Business Plans and by Ofgem in future decisions."*¹⁰

The emerging theme in the response from investors to this question was that there was considerable uncertainty and a number of unaddressed risks emerging in the medium to long term for gas networks which could not be resolved via regulation or regulatory mechanisms. As a result, this did not provide them with the required degree of comfort to make discretionary investments and merited caution.

A number of respondents indicated that the statement implied a potential weakening of Ofgem's commitment to the central role that gas networks play in the UK's energy infrastructure mix. They also associated this point with the risk of asset stranding. One rating agency noted that a clear national policy was required to provide certainty that further investments were needed in GDNs. In absence of such clarity, the investment case was weak.

Investors also noted that whilst it was not entirely clear whether this obviously led to asset stranding risk, this could not be ruled out entirely and would dampen appetite for future investment. One respondent further indicated that if asset stranding risk was real, this ought to be offset by stepping-up recovery rates or by increasing the allowed WACC.

One respondent who indicated that this point should not particularly affect future investment plans, noted that the guidance on ratios from rating agencies was not affected by the issue of asset stranding. Another respondent qualified their response by adding that the overall risks facing the sector were already high and this additional point did not necessarily affect that view.

Investors made the following key comments:

- *"However, we agree with NGGT that a rapid and sustained decline in gas volumes may mean*

¹⁰ Ofgem (2020), 'RII0-2 Draft Determinations – Finance Annex', 9 July, para.10.6 and 10.8

that return of the RAV becomes less viable at each price control review.” This was considered to be a very concerning statement by many investors who inferred that the RAV (which is a fundamental building block of regulation) may not be recoverable in the future and needed to be addressed.

- One investor who did not consider this to affect its future investment plans disagreed that the risk mostly resided with consumers, given the policy direction. Its response of future investment not being affected was due to the fact that it considered regulatory risk to be quite high already and this statement did not affect that perception.
- Another investor noted that at the margin, this represented an increase in the risk of investing in gas distribution networks (with no commensurate increase in return) and hence they would be less likely to allocate incremental capital to the sector.
- One equity investor noted that asset stranding risk would not affect its views on investment. However, they stated that there might be broader planning in volume and consumption to improve underwriting of investment decisions.
- One rating agency noted that asset stranding was an area of increased focus in gas networks. However, currently, the credit ratio guidance for gas and electricity was the same. Based on current information, their view was that regulators were taking active steps to monitor asset stranding. However, regulators would be expected to react to new information as and when it arises.

Question 10: Ofgem’s CBA payback cut-off of 2037 for non-HSE mandated repex

Investors were asked about how the following statement in Ofgem’s draft determinations affected their future propensity to invest:

“We have applied a CBA payback cut-off of 2037 (ie 16 years from the beginning of RIIO-GD2) to all asset management repex mains investments (and associated services interventions). This reflects uncertainty over the future of the gas network and the risk of asset stranding. It maintains the cut-off point we applied to low pressure distribution mains assets in RIIO-GD1 (ie 2037).”¹¹

A number of respondents indicated that they were not invested in GDN assets and as a result had no view on this issue.

Respondents who indicated that the above statement would “decrease” appetite for future investment largely linked this issue with the risk of being able to recover the RAB fully and asset stranding. While there was uncertainty around the extent to which this actually would result in asset stranding, they indicated that the uncertainty itself did not augur well for investor confidence.

One GDN investor clarified that the CBA payback approach can only be applied to discretionary investment, which is not necessary for Health and Safety reasons. They considered that Ofgem had applied this approach too widely, which created a risk that safety-critical investment would not be delivered if its CBA score was insufficient. They noted that they would have expected Ofgem to value and protect investment into safety measures and not increase the risk to the network and customers.

¹¹ Ofgem (2020), ‘RIIO-2 Draft Determinations – Gas Distribution Annex’, 9 July, paras. 3.86 and 3.88

Respondents who were unaffected by Ofgem's approach indicated that the payback cut-off for non-HSE mandated repex covered only one aspect of the GDN business. Additionally, one of the debt investors indicated that this was not a pertinent issue for lenders of senior debt and hence did not affect their view on future investment. Lastly, a couple of respondents were not entirely clear about the details of this issue and hence had opted for the "not affect" future investment option.

Investors made the following key comments:

- This reiterates the risk of asset stranding for gas networks in the long term.
- Investors noted that they were not clear about how this would affect the green investments being sought by the regulator and would likely dampen the propensity to make large discretionary investments
- One credit rating agency indicated that it was monitoring the issue closely.
- One debt investor interpreted this to be an implicit recognition by the regulator of higher risks for GDNs. They went on to state that their propensity to decrease future investment in GDNs was more due to the regulatory recognition of higher future risks for GDNs and not necessarily due to the 2037 cut-off.
- Another rating agency cited that repex investments were not a big risk issue.

Other issues

Question 11: Other comments/ issues raised by investors

A selection of quotes from investors is provided below with the intention to more accurately reflect the prevailing sentiment within the investment and credit rating community.

- "We are hoping to see a supportive regulatory environment, as opposed to an adversarial one."
- "COVID has changed everything with regards to available government funds for ambitions such as nationalisation. Meanwhile, the economy needs all the stimulus it can get to support jobs. The government knows that this means private capital is crucial; but the regulators evidently did not get the memo."
- "The laws of thermodynamics are sometimes paraphrased as: 1) you can't win, 2) you can't break even, 3) you have to play. Being an investor in regulated networks feels a lot like that at the moment. Except for the last part."
- "Our LPs have a very clear preference to invest in electricity over gas. We receive a lot of challenge (principally on valuations and assumptions over the medium to long term) from investors when it comes to making a gas investment. We believe there will be decreasing interest in gas in the future."
- "We were also disappointed to see Ofgem ignore the voice of the customer through its wholesale rejection of customer input across the industry. Plans across the industry which were recognised as being bold and ambitious in providing for the needs of customers (including the most vulnerable members of society), had nearly all of their customer proposals rejected."
- "From a macro perspective, we are hoping to see a supportive regulatory environment, as opposed to an adversarial one. We note that macro issues are outside the control of the

regulator, however we would like to see a regime that can adapt to uncertainties like for example, of not knowing the route to decarbonisation. This would be an approach that supports investors and encourages further investment.”

- “The movement in the RPI/CPIH wedge is of concern. We are in dialogue with the regulator and would like to understand how the regulator intends to true-up any differences between expected and outturn inflation.”
- “Even if the economics of the regulatory model can’t reflect the wider nature of the risk landscape, regulators need to exercise their discretion and judgement to accommodate these risks. Indeed, regulators in the past have allowed for headroom while setting returns and allowed companies good opportunities to outperform. But the current direction of travel is not consistent with past approaches.”
- “The stability and predictability of regulatory frameworks impact ratings. There is a negative correlation: the more stable and predictable a regime is, the less demanding our guidance is. We continue to score the regulatory regime in Great Britain at Aaa for transparency, stability and predictability.”
- “We are interested in what RAB multiples the networks that are up for sale will have. In recent transactions, most press reports have stated multiples between 1.3-1.4x. You would think that things have changed significantly over the last few years and so it will be interesting to see what happens. Particularly, with companies like ENW, if people are willing to continue to invest in these companies, that is a sign of confidence in the sector.”

Appendix 3: Survey sent to respondents

Brief introduction to UK regulated energy networks

UK energy networks

The regulated UK energy networks comprise gas and electricity distribution and transmission networks. These companies undertake licenced activities and are subject to economic regulation by Ofgem.

Gas distribution: There are eight regional gas distribution networks (GDNs), owned and operated by four companies: Cadent, Northern Gas Networks (NGN), Scotia Gas Networks (SGN), and Wales and West Utilities (WWU).

Gas transmission: Britain's gas transmission network is owned and operated by National Grid Gas (NGGT), transporting high pressure gas from entry points to the GDNs.

Electricity distribution: Electricity distribution network operators (DNOs) distribute electricity from the high voltage transmission grid to industrial, commercial and domestic users. There are 14 licensed DNOs owned by 6 companies: UK Power Networks (UKPN), Western Power Distribution (WPD), Northern Powergrid (NPg), Electricity North West (ENWL), SP Energy Networks (SPEN) and Scottish Southern Electricity Networks (SSEN).

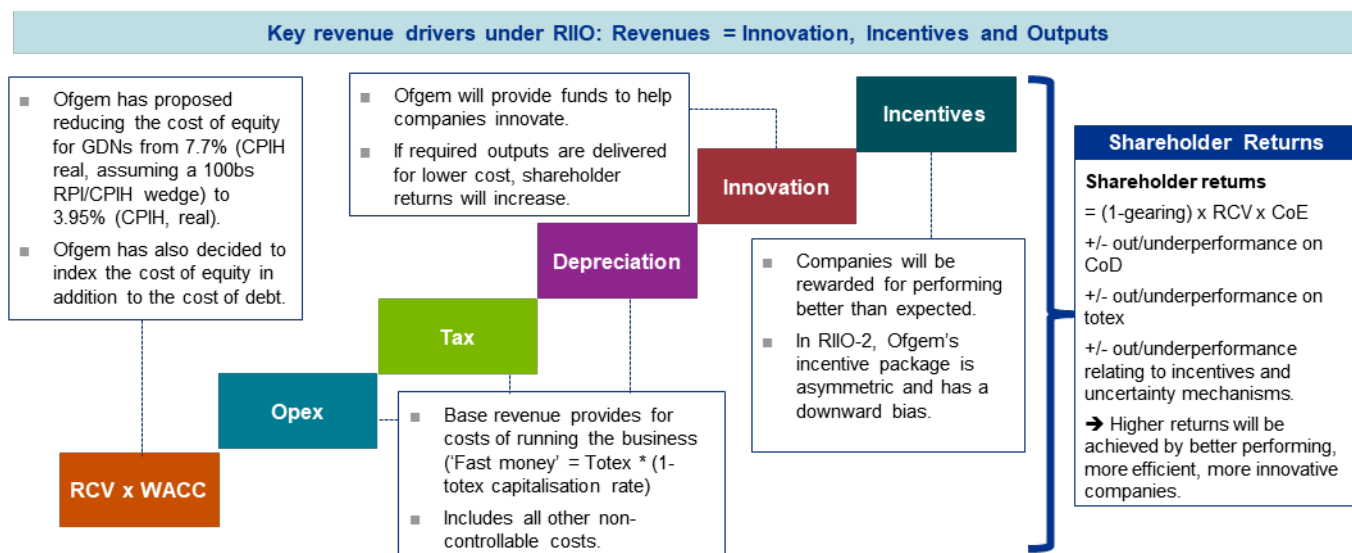
Electricity transmission: The electricity system is operated by National Grid Electricity System Operator (NG ESO), whereas the high voltage transmission network is owned and operated by three regional companies: National Grid Electricity Transmission (NGET) for England and Wales, Scottish Power Transmission (SPT) for southern Scotland, and Scottish Hydro Electric Transmission (SHET) for northern Scotland.

Regulation of gas distribution

Ofgem's current regulatory regime is called 'RIIO', which stands for Revenue = Innovation + Incentives + Outputs. The first period of the RIIO price controls for gas distribution (RIIO-GD1) runs from FY2013 to FY2020. The second period (RIIO-GD2) runs from FY2021 to FY2026.

The RIIO regulatory framework is based on Ofgem's previous 'RPI-X' regulation approach in terms of the building block structure. Prices continued to be set in advance, *ex ante*, for a fixed period of the price control and indexed to inflation (RPI or CPIH).

Ofgem's RIIO model focuses on the outputs delivered (such as customer service and environmental targets) to set allowed expenditure, plus an allowance for innovation and additional revenue from incentive mechanisms. These are referred to as revenue 'building blocks', of which allowed expenditure, incentives and innovation each form a part. The building blocks are set out in the diagram below.



Over the RIIO-2 period, the average regulatory asset value of the GDNs (across all eight licences) is estimated by Ofgem to be c. £20 billion.¹²

Government policy on decarbonisation

The UK Government legislated in 2019 to cut GB's carbon emissions down to net zero by 2050.¹³ The Welsh and Scottish Governments subsequently joined the net zero commitments, amending their legislation accordingly.^{14,15}

The Committee on Climate Change forecast that renewable energy is likely to contribute towards over half of overall electricity generation by 2050, with nuclear and decarbonised gas (including both methane, via carbon capture storage, and hydrogen) providing the rest.¹⁶ In line with this, there is a requirement of energy networks to innovate in order to reduce emissions and meet targets. This innovation may include:

- Improved electric vehicle infrastructure, including smart charging and vehicle-to-grid technology;
- Increased electrical heating and hybrid heating systems, via both domestic and commercial heat pumps; and
- The implementation of hydrogen (and other low carbon alternatives) for residential heating.

The Net Zero legislation has been a fundamental theme in ET, GT, and GD business plans submitted in December 2019 for RIIO-2, as well as Ofgem's July 2020 Draft Determinations. Ofgem recognises that the energy system will need to change to support the transition to a carbon-free economy by 2050 to achieve Net Zero. While it is not known exactly how GB will decarbonise heat, researchers and policy makers are exploring potential pathways, including electrification, local low carbon heat

¹² Ofgem (2020), 'RIIO-2 Draft Determinations – Finance Annex', 9 July, Appendix 6

¹³ UK Government (2019), 'The Climate Change Act 2008 (2050 Target Amendment) Order 2019'.

¹⁴ Scottish Government (2019), 'Climate Change (Emissions Reduction Targets) (Scotland) Act 2019'.

¹⁵ Welsh Government (2019), 'Written Statement: Response to Committee on Climate Change's Net Zero report'.

¹⁶ Ofgem (2020), 'Ofgem's Decarbonisation Action Plan'.

<https://www.ofgem.gov.uk/system/files/docs/2020/02/ofg1190_decarbonisation_action_plan_web_0.pdf>

networks and hydrogen networks. Each alternative pathway would result in a very different future use of the gas distribution networks. As part of RIIO-GD2, Ofgem has stated that innovation funding will be available to support research and development projects needed to build the evidence base for technologies like hydrogen; and uncertainty mechanisms will ensure that the price control can adapt quickly, as further clarity on the decarbonisation pathway emerges.

With regards to gas distribution, residential heating currently comprises c. 18% of the UK's greenhouse gas emissions, and so the decarbonisation of this is a key component in achieving net zero commitments.¹⁷ The UK government is scheduled to publish a Low Carbon Heat Roadmap this year, which will set out future plans.

Replacing qualifying gas mains

As part of RIIO-2, Ofgem has stated that they will collaborate with government and Health and Safety Executive to review the 'Iron Mains Risk Reduction Programme' (IMRRP), commonly known as the mains replacement programme (repex). This programme involves the decommissioning and replacing of qualifying gas mains. The programme is estimated to cost c.£4 billion over the price control period, and the review will focus on how the programme is implemented with regards to 'ensuring consumer money is best spent in light of the Government's Net Zero target, while ensuring that public safety is not compromised.'¹⁸

Summary of Ofgem's RIIO-2 Draft Determinations

Note: Respondents are encouraged to read Ofgem's overview of its draft determinations (available at <https://www.ofgem.gov.uk/publications-and-updates/riio-2-draft-determinations-overview>)

Ofgem published its Draft Determinations (DD) for the RIIO-2 price control period (FY2021-2026) for gas distribution and electricity and gas transmission networks on 9 July 2020.¹⁹

In its overview to the DD, Ofgem states its intention to "*push network companies to cut right down on their running and financing costs to keep network charges on [consumer] bills as low as possible,*" while setting "*tougher targets for customer service, safety, reliability and going further faster on green energy*". Ofgem note that, the DD proposals would "*almost halve company earnings*", to ensure "*less of consumers' money going towards network companies' profits*".²⁰

Specifically for GDNs:

- The allowance for equity returns is 3.95% (CPIH real, including a 25bps downward adjustment for expected outperformance);
- Ofgem's allowed baseline total expenditure (totex) is 20% lower than that proposed by companies in their business plans;
- Over 50% of baseline totex is linked to specific outputs and uncertainty mechanisms

¹⁷ Ofgem (2020), 'Ofgem's Decarbonisation Action Plan'.

¹⁸ Ofgem (2020), 'Ofgem's Decarbonisation Action Plan'.

¹⁹ Ofgem, 2020, 'RIIO-2 Draft Determinations for Transmission, Gas Distribution and Electricity System Operator'. <<https://www.ofgem.gov.uk/publications-and-updates/riio-2-draft-determinations-transmission-gas-distribution-and-electricity-system-operator>>

²⁰ Ofgem, 2020, 'RIIO-2 Draft Determinations Overview', p.3. <<https://www.ofgem.gov.uk/publications-and-updates/riio-2-draft-determinations-overview>>

(UMs);²¹

- The incentives package allows a potential maximum downside of -0.81 to -0.90% and potential maximum upside of 0.41% to 0.45% of base revenues.²²

Some key features of the regulatory package are:

- A high bar for companies in terms of the requirements for the quality of justification and supporting evidence within their business plans;
- Tougher efficiency challenge (using 85th percentile for GDNs as opposed to the upper quartile used at RIIO-1);
- Productivity assumptions of 1.4% per annum for opex and 1.2% per annum for capex/repep;
- Moving certain proposed expenditure to Uncertainty Mechanisms (UMs), especially for discrete projects or bespoke outputs where the evidence is not deemed to be sufficient.

As in RIIO-1, the UMs package include re-openers, indexation, volume drivers, and pass-through items. Re-openers are given a significantly higher role in RIIO-2, with reviews closely tied to the actual engineering approach that materialises. This approach is expected to allow Ofgem to deal with the uncertainties around the path to decarbonisation.

Table 1 below sets out a comparison of Ofgem's RIIO-2 proposals for the allowed returns with the determination previously set by Ofgem under RIIO-1, and by Ofwat for water companies in its PR14 (FY2015-FY2019) and PR19 (FY2020-FY2025) price control determinations.

²¹ Ofgem, 2020, 'RIIO-2 Draft Determinations – Gas Distribution Annex', p.5.

²² Ofgem (2020), 'RIIO-2 Draft Determinations – Finance Annex', 9 July, Table 44

Table 1: Summary of allowed returns across regulated UK utilities

	Ofgem RIIO-2		Ofgem RIIO-1 ¹		Ofwat	
	ET	GT/GD	ET/GD	ED	PR14 ¹	PR19
Cost of debt						
Cost of debt (pre-tax)	1.74%²	1.74%	2.49–3.22%	3.22–3.39%	3.59%	2.14%
Cost of equity						
Risk-free rate		-1.48%	3.00%		2.25%	-1.39%
ERP		7.98%	5.30%		6.50%	7.89%
Equity beta (notional)		0.71	0.90–0.95		0.8	0.71
Cost of equity (post-tax)	3.93% ³	4.20%	7.70–8.00%	7.00–7.40%	6.65%	4.19%
Expected outperformance wedge	0.22% ³	0.25%				
Allowed equity returns	3.70%	3.95%	7.70–8.00%	7.00–7.40%	6.65%	4.19%
Gearing						
Gearing ratios	55%	60%	55–65%	65%	62.50%	60%

Notes: All numbers presented are in real terms with reference to CPIH price base.

¹ RIIO-1 and PR14 used RPI price base. A historical RPI/CPIH wedge of 100bps is assumed to convert RIIO-1 and PR14 allowed returns to CPIH price base. Ofgem estimate the current wedge to be 81bps.

² The exception is SHET, which will continue to have a RAV-weighted cost of debt allowance (1.47%) due to its significantly greater projected growth in RAV.

³ This is estimated such that the cost of capital is identical at 55% and 60% gearing.

Table 2 below sets out a comparison of key risk drivers of Ofgem's RIIO-2 proposals with those for water networks, based on relative risk analysis presented by CEPA and Ofgem (these reports can be accessed via <https://www.ofgem.gov.uk/publications-and-updates/riio-2-draft-determinations-transmission-gas-distribution-and-electricity-system-operator>).

Table 2: Qualitative comparison of risks between regulated energy and water networks^{23,24}

Risk factor	Observation
Stability and predictability of regulatory regime	Both sectors have a revenue cap model. Moody's rates the stability of the regulatory regime in the UK water sector as Aa ²⁵ and energy sectors as Aaa. Both price controls run for a period of 5 years.
Political risk	The perception of the risk of political interference may be higher for energy networks (as noted by Ofgem).
Demand risk	There is potential for changing patterns of demand for water, electricity, and gas and reductions in demand for gas. The materiality of change may be higher in the energy sector.
Market dynamics and policy	The energy networks may be faced with greater uncertainty (for instance, regarding Net Zero) in the medium term than water networks.
Scale and complexity of the investment programme	The technological uncertainties relating to investments in the energy sector (in part due to net zero) may be considered to be higher in energy than in water (as noted by Ofgem).
Financing risk	For energy networks, RII0-2 introduces indexation of the cost of equity and cost of debt. For water companies, only the new cost of debt is indexed.
Treatment of pension deficit	For energy networks, Ofgem indicates that there is full recovery of pension deficit costs whereas for water companies only 50% recovery is allowed ²⁶ .
Exposure to incentives	Energy networks have lower totex, regulatory asset base ratios, and incentive strength than the water sector.
Competition	Energy and water sectors operate as natural monopolies but some competition being introduced by Ofgem and Ofwat with respect to discrete large projects. The materiality of the introduction of competition may be higher for some parts of the energy sector, such as electricity transmission.

²³ Ofgem (2020), 'RII0-2 Draft Determinations – Finance Annex', 9 July, Table 18 (https://www.ofgem.gov.uk/system/files/docs/2020/07/draft_determinations_-_finance.pdf)

²⁴ Ofgem & CEPA (2020), 'RII0-2; Beta estimation issues', 9 July.

²⁵ This was downgraded from Aaa to Aa by Moody's after the PR19 draft determinations were published.

²⁶ In practice, pension deficits in the energy sector post 2013 (incremental deficit) are part of the totex benchmarking and exposed to over/ under performance (subject to sharing factors).

Questionnaire for investors

This questionnaire is intended to cover a wide range of issues pertinent to the gas distribution sector. Respondents are not required to answer questions that are not applicable to them.

Introduction

1. Experience with investing in regulated networks.

- a) Do you provide debt capital or equity capital to UK regulated energy and water companies?
 - ☐ Yes
 - ☐ No
- b) Among UK regulated networks, do you invest in energy networks, and in particular, GDNs?
 - ☐ Yes
 - ☐ No
- c) Do you invest in regulated networks outside of the UK?
 - ☐ Yes
 - ☐ No

Investor perception of overall and relative risks relating to the gas distribution sector

2. Overall risk of investing in UK energy networks

- a) In your view, how has the overall risk of investment in UK energy networks evolved over the last decade? Please indicate whether it has:
 - ☐ increased,
 - ☐ decreased,
 - ☐ not changed.
- b) In particular, how has the risk profile for GDNs evolved over the last decade? Please indicate whether it has:
 - ☐ increased,
 - ☐ decreased,
 - ☐ not changed.

- c) Ofgem's draft determination from July 2020 states:

*"Given our analysis of the reduced RORE range compared to RII0-1, combined with both debt and equity indexation which reduces exposure to macro-economic shocks, we consider there to be **significantly less systematic risk**²⁷ in the RII0-2 price control compared to the RII0-1 price control. This is partly driven by lower incentive strengths, such that companies that overspend on totex allowances bear less of the cost of that overspend."* [emphasis added]²⁸

Do you agree or disagree with the statement above?

- ☐ Strongly agree
- ☐ Agree
- ☐ Disagree
- ☐ Strongly disagree
- ☐ No view

3. What do you consider to be the key issues and challenges for UK energy networks, and, in particular, for GDNs, over the short-, medium- and long-term horizons?
- a) How does this impact your view on risk for the sector?
- b) Would you expect the regulator to reflect this change in risk in the overall financial package?

4. UK's pathway to decarbonisation

- a) Potentially there are both risks and opportunities related to the uncertainties around decarbonisation. Please indicate whether you consider decarbonisation mostly creates:
- ☐ opportunities for UK regulated energy networks,
- ☐ downside risks for UK regulated energy networks,

²⁷ Systematic risk: non-diversifiable risk inherent to the entire market/market segment.

²⁸ Ofgem (2020), 'RII0-2 Draft Determinations – Finance Annex', 9 July, para.5.59.

☐ both in equal measure.

- b) With respect to gas distribution networks, how do you view the relative impact of opportunities / risks relating to decarbonisation with electricity and gas transmission and electricity distribution networks? Please indicate whether you consider it is:

☐ higher,

☐ lower,

☐ not different

for gas distribution.

- c) In addition to decarbonisation, what are the other risks/opportunities facing GDNs in the short, medium and long term that would affect your investment decisions?

5. Ofgem's draft determination from July 2020 states: "[...] our current judgement [is] that pure-play energy networks hold similar systematic risk²⁹ to pure-play water networks."³⁰

- a) Do you agree with the above statement? Please indicate yes or no.

☐ Yes

☐ No

- b) To the extent in which you believe there is a difference in the risk profile between energy networks and water companies, which of the following factors drive that risk differential?

(i) Overall risk

(ii) Market / demand risk

(iii) Operation performance targets (ODIs)

(iv) Managing ongoing costs

(v) Managing investment expenditure

(vi) Regulatory and policy risks

(vii) Other (please specify)

²⁹ Systematic risk: non-diversifiable risk inherent to the entire market/market segment.

³⁰ Ofgem (2020), 'RIIO-2 Draft Determinations – Finance Annex', 9 July, para. 3.54.

Allowed returns

6. Relative returns for UK gas distribution networks and water sector

- a) Would you expect to see baseline equity returns for regulated energy networks to be different than that for regulated water companies? Please indicate yes or no.

☐ Yes

☐ No

- b) If different, what would be your expected differential (in basis points) in terms of equity returns? Please provide a number or a range.

7. In its July 2020 Draft Determination, Ofgem has proposed baseline allowed equity returns for GDNs of 3.95% (CPIH, real) after including a 0.25% outperformance adjustment.

Do you consider this to be adequate? Please indicate your response below.

☐ Yes

☐ No

☐ Not sure

8. Relative preference of lending debt capital between UK regulated gas networks and water companies.
- a) If an average performing UK gas distribution network and water company were to each issue a long-term fixed rate bond (with the same tenor, rating, issue size, coupon, and T&Cs), which sector would you prefer to lend to?
- ☐ Water
- ☐ Gas Distribution
- ☐ Indifferent
- b) Why? Please provide your rationale below.
- c) To what extent would the tenor of the bond affect your disposition to risk?

Specific risk issues pertaining to GDNs

9. Ofgem's draft determination from July 2020 states:

"Some FES2019 scenarios indicate that energy demand could remain stable, but we agree with NGGT that there is a risk that gas volumes continue to fall. This risk resides mostly, but not exclusively, with gas consumers. Investors have greater protection, given the commitment to RAV recovery and frequent price control re-sets which provide an opportunity to consider the appropriate RAV recovery speed. However, we agree with NGGT that a rapid and sustained decline in gas volumes may mean that return of the RAV becomes less viable at each price control review.

[...]

*Further clarity on volumes will materialise during RIIO-2, including government policies for heat and net zero. Therefore, better information should be available for RIIO-3, which can be taken into account in companies' Business Plans and by Ofgem in future decisions."*³¹

- a) Does the above statement influence your view on future investment in gas networks? Please indicate whether it would:
- ☐ increase,
- ☐ decrease,
- ☐ not affect future investment.
- b) If this increases your perception of risk, what would you consider to be the appropriate mechanism for investors to be compensated for this risk?

³¹ Ofgem (2020), 'RIIO-2 Draft Determinations – Finance Annex', 9 July, para.10.6 and 10.8

10. With regard to the repex investments included in company Business Plans, Ofgem's draft determination from July 2020 states that for non HSE mandated repex:

*"We have applied a CBA payback cut-off of 2037 (ie 16 years from the beginning of RIIO-GD2) to all asset management repex mains investments (and associated services interventions). This reflects uncertainty over the future of the gas network and the risk of asset stranding. It maintains the cut-off point we applied to low pressure distribution mains assets in RIIO-GD1 (ie 2037)."*³²

Does the above statement influence your view on future investment in gas networks? Please indicate whether it would:

- ☐ increase,
☐ decrease,
☐ not affect
future investment.

Other issues

11. Do you have any other comments or observations that you would like to make?

³² Ofgem (2020), 'RIIO-2 Draft Determinations – Gas Distribution Annex', 9 July, paras. 3.86 and 3.88 <https://www.ofgem.gov.uk/system/files/docs/2020/07/draft_determinations_-_gd_sector_0.pdf>