NORTHERN POWERGRID

Understanding our consumers' views on financial risk appetite

Pension Report
2016-17

The purpose of this report is to investigate our consumers' attitudes to financial risk and consider the implications of these views on the investment strategy that is applied to our final salary pension scheme.

Contents

A word from our **Finance Director**

Our pension schemes are a key part of our employee benefit package, helping us to recruit and retain high quality staff. We are clear, though, that the pension arrangements need to pass the test that all our costs do, of being efficient and providing good value for our 3.9m consumers.

We closed our defined benefit pension scheme to new joiners in 1997, one of the first electricity distributors to do so. The scheme was protected at privatisation and it benefits from an Ofgem commitment to let us recover the costs of the pre-2010 deficit from consumers, where that relates to our regulated activities. This commitment carries with it an obligation that the pension scheme is managed in a way that gives the right level of consideration to our consumers, who ultimately provide the bulk of the funding.

The scheme was closed early to avoid the costs escalating and that has given the scheme Trustees the opportunity to manage the scheme carefully towards the time when it will be self-sufficient. We hope that this will happen by 2025. To help us engage with the Trustees as they seek to strike this balance, we have commissioned some research to understand our consumers' attitudes to changes in risk and certainty in financial decisions.

In recent years we have carried out a wide range of consumer research, most notably as we assembled our 2015-2023 business plan. In our experience, financial issues, and particularly the technicalities of pensions, are rarely engaging for consumers, who have consistently reinforced their priority that costs should be kept low. Our goal was to understand consumers' risk attitudes without having to involve them in technically-complex pension scenarios, but to inform our future pension strategy. The research that we developed had three main goals:

1 **Engage with consumers on financial risk scenarios.**

2 **Produce reliable results that we could use to inform our pension investment strategy.**

3 **Give consumers the opportunity to influence these key pension decisions.**

To define the issue in clear and accessible terms, we based our questions around a mortgage product, since the issues offer close similarities to pension strategies.

We have gained a good insight from this research, which is directly applicable to the risk decisions currently facing the Trustees. These are consistent with the maturity of our pension scheme and the real prospect that the costs of the scheme may soon drop significantly. Our consumers told us that, when taking significant financial decisions, they prefer certainty and are risk averse. However, our consumers are influenced by the term and value of the "debt" they face. These results build on previous research that emphasised the need to keep costs low.

We will apply this research in our discussions with Trustees about the direction of our pension investment strategy. In line with these views, we have already supported the Trustees as they have pursued an opportunity to reduce risk in the pension scheme and improve future certainty.

"Our consumers told us that, when taking significant financial decisions, they prefer certainty and are risk averse."

Tom Fielden
Finance Director

Executive summary

1.1
The purpose of this report is to investigate our consumers' attitudes to financial risk and consider the implications of these views on the investment strategy that is applied to our final salary pension scheme, the Northern Powergrid scheme of the Electricity Supply Pension scheme, so that we can represent their views in our discussions with the Trustees. To do this we have conducted research on consumers' approach and appetite to financial risk.

1.2
The overall conclusion from the results of the research is that when taking significant financial decisions our consumers prefer certainty and are risk averse. However, while they would take a little more risk to recover a downside position, this slightly higher and asymmetric appetite for risk is more pronounced in younger and lower income consumers. We have a larger share of lower income consumers compared to many other regions of England.

1.3
Overwhelmingly, consumers prefer certainty that a debt will be cleared than the risk that it might not be, even if that downside risk is balanced by the symmetrical upside possibility. However, the debt term and value involved could influence the decision for about half the respondents across all age and income schemes.

1.4
This finding combines with other research that continues to show that keeping costs low and sharing the costs equitably between present and future consumers, is the preference. It is clear that significant risk-taking does not accord with the views of those surveyed.

1.5
When combined with the investment modelling results, we conclude that the scheme is currently following a medium risk strategy that aligns with the preferences of consumers because it aims to provide a fully funded pension scheme, at a reasonably low but certain cost for consumers.

1.6
Other investment strategies, with higher and lower risk, carry a significant risk that consumers would either pay more than required over the long term, or have to significantly increase their costs over a short period of time. Such approaches do not correspond with the preferences of consumers.

Section A
Background

Section A
Background

Introduction

2.1
Northern Powergrid is the electricity Distribution Network Operator (DNO), distributing electricity from the National Grid to 3.9 million homes and businesses across our region of North Lincolnshire, Yorkshire and the North East. The industry was privatised in 1990, when the responsibilities of regional electricity boards where taken over by private companies.

2.2
We are part of the Berkshire Hathaway Energy Group, and we employ over 2,600 staff to maintain our electricity network of more than 63,000 substations, 95,600 km of overhead power lines and underground cables spanning 9,650 square miles.

2.3
We are a regional monopoly that is regulated by the energy regulator, Ofgem. Ofgem's main role is to protect the interests of consumers.

2.4
The cost of running the electricity network is paid for by consumers, via their electricity bills from their suppliers. Ofgem sets DNOs' revenue allowances for specified periods of time, known as price control periods, to ensure consumers receive good value for the network costs that they ultimately finance.

2.5
Northern Powergrid sponsors a pension scheme that is part of the industry-wide Electricity Supply Pension scheme (ESPS), which provides defined benefit pension benefits based on a member's salary and length of service. The pension scheme is known as the Northern Powergrid scheme (the 'scheme').

2.6
The scheme is managed by a board of Trustees and has around 6,000 members, who are a mix of active, deferred, dependant and pensioner members. At privatisation, members' terms were protected by an Act of Parliament so that employers cannot make any changes to the pension scheme without the members' consent.

2.7
Pension schemes are regulated by the Pensions Regulator, whose main responsibilities include keeping people's pension savings safe and improving how pension schemes are run, taking account of and balancing the requirements of the pension scheme and the health of an employer's business. To do this, the Pensions Regulator has a significant focus on reducing all unnecessary risks in pension schemes from investment to administration.

8 million
consumers

3.9 million
homes and businesses powered

95,600 km
of cable

2,600
employees

Ofgem

3.1
Ofgem encourages us to consider the consumer in each investment decision we make i.e. is it effective use of money, does it provide value to consumers. Consumers are not directly represented in the governance of a pension scheme, but do have a voice and Ofgem expects us to 'bring the consumers' perspective' to the discussions between the Company and the Trustees.

3.2
The table below shows that Northern Powergrid has one of the lowest consumer cost burdens in relation to pensions. The table shows each DNO's pension scheme deficits (for their ESPS schemes) as at the last available valuation date, 31 March 2013, that Ofgem is allowing to be separately funded via the price control period and how this deficit cost is recovered per consumer.

Table 1

DNO scheme	2013 Allowed pension deficit (£m)	No of consumers	Deficit contributions per consumer (£ p.a.)
NPg	226	3,874,659	5.5
ENWL	182	2,375,305	6.7
UKPN	813	8,151,355	10.9
SSE	456	3,757,964	12.0
SP	525	3,498,381	15.9
WPD	1,237	7,766,793	16.5

3.3
Although DNOs were not allowed to make their pension benefits any worse for those members of staff who were already members of the scheme at privatisation, DNOs could close their schemes to new members and we were one of the first schemes of the ESPS to do so. This decision capped the future potential costs, and is one reason why our consumers have to pay less towards the repair of the deficit than in some DNOs.

Table 2

DNO scheme	Year closed	Salary sacrifice introduced
NPg	1997	2007
SSE	1999	2013
ENWL	2006	2006
SP	2006	2009
WPD	2005 & 2010	Unknown
UKPN	2011	Unknown

3.4
To further reduce costs related to pensions, HMRC introduced salary sacrifice schemes that reduce the National Insurance tax payable by the employee and the Company. To ensure our consumers continued to pay lower pension scheme related costs, we were one of the first DNOs to introduce a salary sacrifice arrangement for our scheme.

Ofgem policy

3.5
Ofgem has recently consulted and decided[1] on its policy for funding the pension deficits of the network companies. Ofgem notes in the consultation:

- Energy network operators (NWOs) have significant obligations under defined benefit pension schemes. These schemes were generally established before the companies were privatised and, in part, their obligations relate to employees' service prior to privatisation.

- All of the schemes are now closed to new members. Nevertheless, the assets of these schemes compare with the size of the network businesses themselves and, in some cases, exceed the value of the network's Regulatory Asset Value (RAV). Our regulatory regimes have sought to ensure that NWOs' investors and managers are focused on improving the efficiency of their network services and not distracted by the potentially significant swings in the performance of their pension schemes which, in large part, are outside their control.

- We have sought to protect NWOs from the related financeability risks, and to protect consumers from potentially detrimental impacts on the NWOs' investment programmes and the services they provide.

Ofgem concludes:
'our historical practice has been, and our existing commitment is, to provide for consumer funding of pension scheme deficits that relate to regulated networks.'[2]

[1] Ofgem's Decision on Ofgem's policy for funding Pension Scheme Established Deficits dated 7 April 2017 and Second Consultation on Ofgem's policy for funding Network Operators' Pension Scheme Established Deficits dated 16 March 2016.

[2] The statement continues: 'Our principal commitment applies to Pension Scheme Established Deficits, those accrued for service prior to the cut-off dates which are 31 March 2010 for electricity Distribution Network Operators (DNOs), 31 March 2012 for electricity and gas Transmission Owners (TOs) and System Operators (SOs) and 31 March 2013 for Gas Distribution Networks (GDNs). Ongoing pensions expenses (for scheme members' service after the cut-off dates) are included as part of benchmarking total costs (totex) and subject to the same incentive mechanisms as other Totex expenditure.'

Section A
Background

3.6
This commitment does come with some conditions such as that the schemes are run efficiently and subject to good governance. Ofgem is also looking to NWOs to place consumers at the heart of how they participate in pension scheme governance. To achieve this, Ofgem has developed some principles with which NWOs must comply. These were updated as part of Ofgem's April 2017 decision and can found in Appendix 3 of the Ofgem document. Principle 1 is headed 'Efficient and economic employment and pension costs' and contains the following statement:

Protecting the consumer interest
'In light of our funding commitment, we look to employers to participate in the governance of defined benefit pension schemes with the aim of protecting the interests of the consumers who are exposed to any Established Deficit, in balance with the interest of shareholders who would be underwriting any remaining deficit. To this end, we would look to employers to inform investment, benefit and funding strategies with objective and, where possible, evidence-based insights into the interests of consumers, recognising that tomorrow's consumers are as relevant as today's. We look to employers to report transparently on their participation in the governance of these schemes.'

3.7
An important decision for the Trustees of schemes is the investment strategy for the scheme assets and what type of investments to make when considering the return available and the risks attaching to the investment. Ofgem in the consultation at paragraph 2.37 state:

'We maintain that risk management is a matter for the employer sponsors and the Trustees. We appreciate that this is a complex area and determining the level of risk that is appropriate for consumers may not be easy. We believe that the Network Operators would be able to consider the consumer interest in their approach to risk and we encourage Network Operators to engage actively with academics, consumer representatives and others to inform their thinking. We do not, however, believe our role is to provide guidance to the Network Operators and the Trustees as to the appropriate level of risk. We agree that a more prescriptive approach is not required. We believe it is inappropriate to assume that de-risking is necessarily in the consumer interest. We also believe it is inappropriate to judge the wisdom of any risk strategy on the basis of outcomes.'

3.8
As Ofgem observe, risk management is a complex area and it is difficult to engage with consumers on such matters in a way that is meaningful. Another electricity distributor, Western Power Distribution (WPD), assisted by PriceWaterhouseCoopers (PwC) undertook some consumer research and published the results in October 2016[3]. This research focused on consumers' attitudes towards the variability in their bills that might result from the pension scheme taking on more or less risk with its investments.

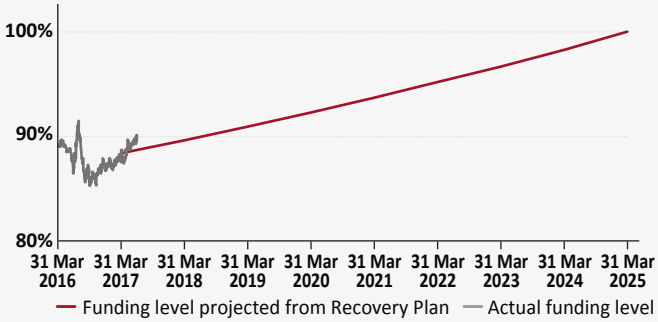
3.9
We wish to build on this research by looking at an individual consumer level at our consumers' appetite for risk when they make significant financial decisions. Decisions taken by the Trustees in consultation with the sponsoring employer can have a noticeable impact on the costs that end up being funded by consumers through their energy bills, so we think this approach offers useful insights that Trustees should take into account.

Our pension scheme

4.1
The result of the early actions we took to control our pension costs is that we have one of the lowest pension related financial burdens in the sector. The latest triennial valuation of the scheme, as at 31 March 2016, showed that it had liabilities of £1.8[4] billion and assets of £1.6 billion.

4.2
The scheme's assets were in deficit (as they are less than the estimated liabilities). In such situations, the Company and the Trustees must agree on a Recovery Plan. We have agreed a plan that aims to remove the deficit by 2025 through a combination of additional contributions from the Company and additional investment returns.

Fig 1 Technical provisions funding level



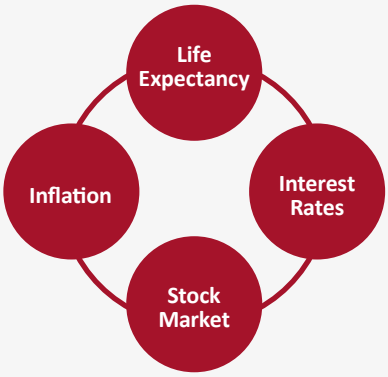
[3] PwC 'Consumer-led pension strategy – Workstream 3 – Investigating UK electricity consumer preferences for bearing DNO pension cost and risk'
[4] On a technical provisions basis

4.3
A key decision for the Trustees and the Company is how to maintain the most suitable balance of risky assets, which seek to provide the investment returns in the planned Recovery Period, with safe assets that ensure that the pension promise is met (i.e. pensions are paid on time and in full). Compared to investing solely in risky assets, this initially requires additional contributions from the Company, and that means consumers having to pay more in their bills. However, risks are better managed.

4.4
To be able to strike the right balance of asset allocation, the Trustees must first understand all risks in the pension scheme, in particular the financial risks that affect the funding and investments.

4.5
The nature of the pension benefits commitment introduces a variety of risks. The main financial risks that affect the deficit in the scheme are:

Fig 2 Key pension scheme risks



4.6
The quantification of the liabilities in defined benefit pension schemes is very sensitive to small shifts in any of the potential risks, and this increases or decreases the value of the liabilities, normally by a much greater multiple. This is because a specific change will cause assets and liabilities to move by different amounts in the same situation. This has consequences for the funding level of the scheme as shown in Fig 3.

Fig 3 Key sensitivities

	Change to ongoing funding level
What if... life expectancy increases by three years	-10%
What if... bond yields fall by 1% p.a.	-7%
What if... inflation increases by 1% p.a.	-7%
What if... growth assets fall by 25% p.a.	-10%
What if... salary increases are 1% p.a. higher	-3%

4.7
Many risks can be seen as either rewarded, where we expect a worthwhile benefit from the risk, or unrewarded, where there is no likely benefit from running the risk. A focus of any defined benefit pension scheme is to understand and control both rewarded and unrewarded risks as much as possible. For example, schemes are often prepared to carry some equity market risk as the potential gains from investment returns can contribute to the funds of the scheme and reduce any deficit. There are many risk management tools available to manage pension scheme risks; however, there can be a significant cost implication.

4.8
A common approach in pension schemes at the moment is to control the unrewarded risks, of which the most significant in a pension scheme are interest rate and inflation risk. A scheme can 'hedge' the risk by investing in assets with similar interest rate exposures to the liabilities of the scheme, and therefore those assets will move by the same amount as the liabilities. Such instruments are commonly known as Liability Driven Investments.

Section A
Background

Pension scheme maturity

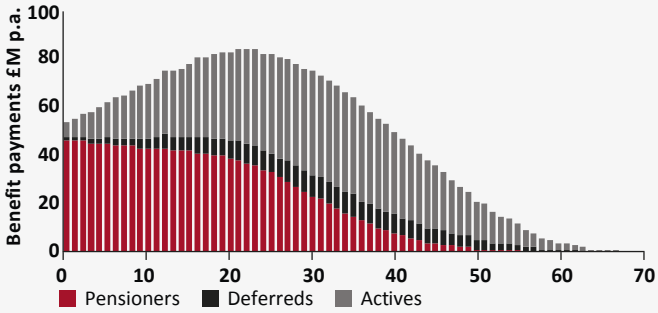
4.9
The early closure of the scheme to new members has had an effect on the 'maturity' of the scheme and the expected cashflow payments (i.e. all the benefit payments from the scheme). Pension scheme Trustees, in consultation with the sponsoring employer (but not necessarily its agreement), must put in place an investment strategy to meet the scheme's aim of paying its liabilities. The target is to achieve 100% funding of the scheme in a controlled manner, balancing the risky growth assets with lower risk bond/gilt like assets that match the liabilities of the scheme and the need for additional contributions from the Company to make up any shortfalls until the scheme matures. Once a scheme has fully matured and there are no longer any contributions from active employees it makes sense to match the future liabilities with low risk assets so there is near certainty that the scheme will be able to meet its steadily diminishing commitments until the last beneficiary has ceased to draw benefits from the scheme.

4.10
As with any liability it is essential to have the means to pay them at the point of peak cashflows. The risk to a pension scheme is that any shortfalls that arise in the future would have to be paid over a shortening period to the point of peak cashflows, and the assets would not have the required time to produce any significant investment returns. This shortfall would lead to increased contributions being paid for, ultimately, by consumers. As a scheme's investment horizon reduces, so its ability to take investment risk reduces.

4.11
There is also a risk that a scheme could become overfunded and have a surplus. Under pension legislation any 'surplus' has to be used to the benefit of the members of the scheme and there is no simple route that would enable consumers to share in any upside that was represented by a surplus in the scheme. With the benefit of hindsight, they would have contributed more than they needed to for the Company to meet its obligations to the scheme, but with no straightforward means to be reimbursed.

4.12
The scheme's cashflow projections, shown below, indicate that the total pension lifetime is significant, and estimated to be around 80 years from 2014. The point of peak pension payments will be in around 15-25 years from 2014, and the aim is to ensure the scheme is fully funded in advance of the peak cashflows, to avoid any sudden contribution calls on consumers.

Fig 4 The scheme's cashflow projection



Previous consumer research studies

5.1
We place a key focus on the interests of the consumer and how they will be affected by any decision we implement. To understand the interests of the consumer we have previously conducted research to help formulate our business plans.

5.2
Ofgem allows for the majority of the pension costs of the scheme to be passed onto consumers via their electricity bill. This means that the consumer is the ultimate financier of the major proportion of the pension scheme deficit. Ofgem have set each DNO the task of engaging with consumers to understand their views on funding defined benefit pension schemes.

5.3
To date, no feedback from consumers has been involved in the process of setting the funding and investment strategy of the scheme due to the complexities and detailed knowledge needed to make the decisions required. Therefore, we have taken the lead on seeking the voice of the consumer, in relation to pensions, and used consumers' views from previous research to set out our position in any discussions.

5.4
In October 2016, WPD published their research 'Consumer-led pension strategy' (more detail is provided below). We have worked to build on this approach by exploring consumer views on financial risk appetite when faced with significant financial decisions. This will help to give a fuller picture of consumers' views.

Northern Powergrid consumer research

5.5
We have conducted recent research into understanding consumer priorities and how they align with our business plan and commitments, which includes our research into financial risks, which the remainder of this report will focus on. In many other areas, we have been able to place the consumer at the centre of our business planning and have conducted significant research into consumer beliefs to better understand their priorities.

Western Power Distribution 2016/17 consumer research

5.6
In October 2016, WPD, in conjunction with PwC, published a report into seeking consumer feedback with regards to funding defined benefit pension schemes. The WPD research focused on consumer costs and bill variability, to help derive their funding and investment strategy for their pension scheme.

5.7
The WPD research 'Consumer-led pension strategy' can be found at *https://www.westernpower.co.uk/About-us/Finance/Pensions.aspx*

5.8
The WPD consumer research into general costs found that:

Variability of bills (distribution element only)
The overall conclusion was that consumers would accept a 5% average variability in costs.

Inter-generation considerations
- 6.5 consumers out of 10 agreed regulators should consider the price future consumers will pay when setting today's prices.
- 6.6 consumers out of 10 stated it was important that future consumers should not pay a higher bill than the bill payers of today.
- 4.3 consumers out of 10 were willing to pay more now to avoid a cost increase for future consumers (only 20% of domestic consumers directly agreed – headlined in the summary).

The above scores are described as mean scores and those surveyed were not aware that this related to pension costs.

Domestic consumer preferences
Consumers were asked to consider a list of 8 priority areas to invest money when setting prices, and the results showed that reducing pension deficits was ranked within the bottom two in almost all focus schemes, with an 'index analysis score' of only 12 out of 100.

Preferences relating to pension deficits
When asked to what extent they would agree with a decision by the DNO to reduce the price consumers pay for electricity by reducing the pension costs of a DNO, they arrived at a mean score of 6 out 10, and surprisingly only 39% directly agreed in the quantitative survey.

However, in the focus groups almost all agreed, and a comment 'no-brainer' was noted.

To add to this only 35% (mean score 5.6) of consumers care whether a DNO has a pension deficit.

5.9
The overall conclusion from the WPD research was that there were three emerging themes that bear on the challenge posed by increasing pension costs. The three themes are:

- A strong preference from consumers that they should not be expected to pay costs which could be avoided by efficient management action.
- A strong preference for transparency relating to elements of the electricity bill; and in the focus groups, both domestic and business consumers showed a strong preference for some form of breakdown of costs.
- An increased awareness of pension challenges of DNOs increased the acceptance of bill variability as a result of pension costs.

5.10
The conclusion goes on to say that:

'as a result of these themes, both WPD and the industry as a whole will benefit from increased level of meaningful and specific consumer engagement in the future. The results of this research have demonstrated that, from a consumer interest perspective, the most efficient pensions strategy currently is one which has some exposure to the variability (and potential upside) from return-seeking assets. While this strategy may be appropriate today, the conclusions may be very different in (say 20) years' time if, for example, this strategy then fell outside the UK norms. If the industry is to successfully navigate the increases defined benefit pension challenges while continuing to meet consumer acceptability for the business plans then it will need to build on this research and demonstrate that consumer interests are a key driver in the decision making process on pension strategy.'

5.11
It should also be noted that WPD were one of the later schemes to close (see Table 2 above) and therefore WPD have more employees in the higher cost defined benefit scheme. This also means the time to peak cashflows for WPD's schemes is further in the distance, since WPD will have younger active members. This means that the investment strategy can reflect a more risky approach.

Section B

Results of consumer research into financial risk appetite

Annex 1 provides the full detail of the methodology and results of the consumer research into financial risk appetite. This section provides a summary.

Aims and objectives of the research

6.1
The objective for our research was to obtain our consumers' views on their approach to financial risks by exploring and understanding our consumers' appetite for:

– Upside risk – we asked 'how willing are you to exchange a positive, guaranteed outcome for the chance of a more positive outcome?'

– Downside risk – we asked 'how willing are you to accept a negative, guaranteed outcome to avoid the chance of the more negative outcome?'

– The interaction between the two;

– How attitudes are affected by the value involved;

– How attitudes are affected by the time horizon involved.

6.2
The results of the consumer research give valuable insight into consumers' views on financial risk and we recommend that Trustees have due regard to these views when formulating the future funding and investment strategy of the final salary pension scheme of which the Trustees are the custodians.

Methodology of the research

7.1
Northern Powergrid continuously engages with all its consumers (both domestic and business) to better understand their views on the services we provide and how and where future investments are made. We commissioned [the opinion researchers] Explain in April 2017 to engage with consumers using a qualitative approach, in order to bring new insights to the business planning process.

Previous research demonstrated that household consumers have a limited understanding of the role of the electricity Distribution Network Operator and the part we play in getting electricity to their homes. In recognition of this, a workshop style approach was adopted in which consumers were given the opportunity to read, absorb and review information before their views were sought.

During these workshops, all respondents were asked to complete a short questionnaire centred on three scenarios and respondents were asked to identify their most likely response if faced with the scenario. Each scenario required respondents to make a choice about their money in the presence of uncertain outcomes.

Three consumer workshops were held in local venues, taking place in Sheffield, Halifax and Newcastle upon Tyne – ensuring that a range of location types were engaged across both of Northern Powergrid's two distribution services areas. There were therefore 24 consumers for each session. All respondents were recruited by Explain's on-street researchers who used a set of qualifying questions to ensure that respondents fulfilled the required profiles. Respondent profiles can be found in more detail in the Annex 1 report.

In addition to the Explain consumer findings, we also held a workshop in York, run by Impact Research, with 27 community leaders. This group had more acquaintance with our business as we had worked with them on our Well Justified Business Plan in the past. The group included:

– Representatives from the commercial/business sector with interests in the electricity network.

– Representatives from local community schemes.

– Representatives from local authorities.

– Academics from local universities.

– Representatives from consumer advice schemes/agencies.

Section B

Results of consumer research into financial appetite

Results summary

8.1
The overall results from the research confirm that:

– The majority of our consumers are risk averse when faced with significant financial decisions;

– There's a clear preference for consumers to have certainty of significant financial decisions;

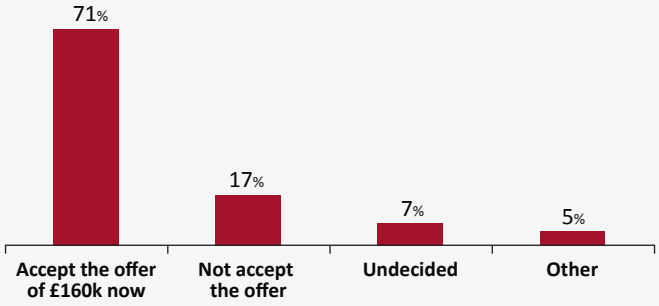
– Consumers would sacrifice a surplus to guarantee certainty of significant financial decisions;

– Younger (18-39 age band) and low income households would take some risk to recover a downside position.

8.2
In other stakeholder engagement activities, we have found that when quite large sums of money are expressed in terms that make them seem smaller, consumers can be misled into thinking that the sums are too small to worry about. For example, expressing the annual distribution charge in terms of pence per day can make something that is a reasonably significant part of the annual electricity bill seem quite insignificant. This is seldom helpful and in the context of this exercise we thought it would be better to avoid the problem altogether. So we used scenarios with amounts that were big enough to concentrate the participants' minds on a number that would be meaningful in their lives. We recognise that where the respondents suggested that they might have given different answers if the amount at stake in the scenarios had been higher or lower we should take that into account in our overall assessment. However, we consider that for the purposes of informing the Trustees of consumers' attitudes towards risk, the evidence from our exercise is a better indicator of their underlying risk acceptance/aversion than it would have been had the scenarios used examples with numbers that spread the possible impact of pension investment risks over several years worth of electricity bills.

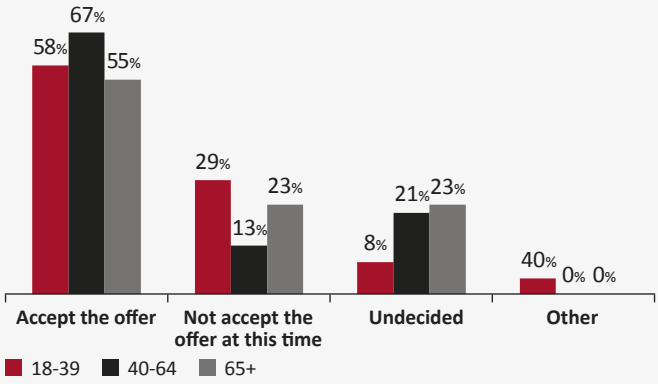
8.3
The results from scenario one, which investigated consumers views on 'upside risk' by offering them a certain profit now or a 50/50 chance of a larger profit or break even position in 12 months, evidenced that the majority of consumers are risk averse when faced with a significant financial decision. They would opt for certainty instead of potentially losing a surplus position. The results also show that there is general consensus from all consumers across different age and income schemes when faced with an upside scenario.

Scenario 1 – Overall results



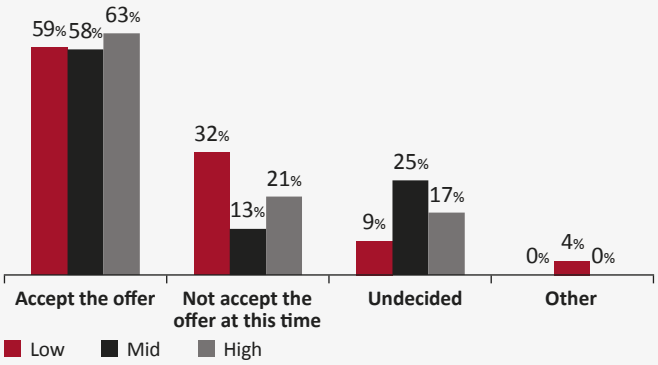
8.4
The results from scenario two, which investigated consumers views on 'downside risk' by offering them a certain loss now or a 50/50 chance of a break even position or a larger loss in 12 months with the backup of using savings to fund the loss, highlighted that the majority of consumers remain risk averse in the downside scenario. There is evidence that there is some appetite for risk in younger consumers, who are those aged 18-39, to be able to recover a downside position.

Focus groups results by age bands

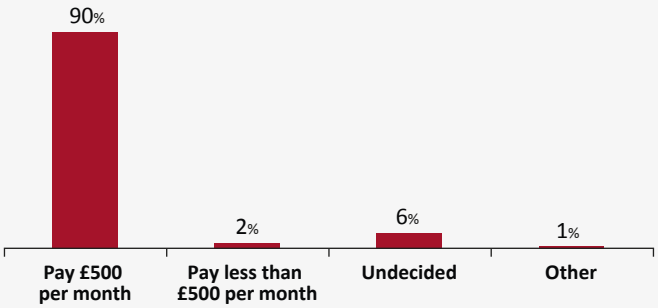


8.5
The appetite for risk was also seen in the low income households results of scenario two, which show an increase in these consumer categories opting for a 'risk-on' position.

Focus groups results by income level

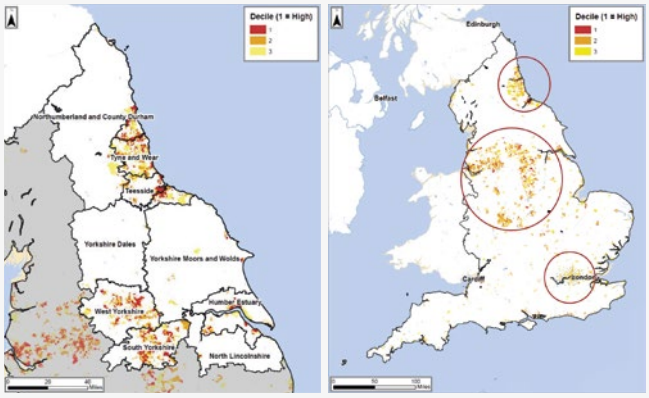


Scenario 3 – Overall results



8.6
The region covered by Northern Powergrid has a significantly high proportion of low income households based in the large conurbations in the region. We should therefore be mindful of this in applying the results. The maps below (Figs 4 & 5) highlight our region compared to England as a whole, showing the areas of low income households which may reasonably be expected to have higher concentrations of the fuel poor. As can be seen, there are more fuel poor households in the North of England, compared to other regions.

8.7
The maps below highlight our region versus England as a whole with the areas of low income households i.e. those that are expected to be fuel poor. As can be seen, there are more fuel poor households in the North of England, compared to other regions.



8.8
The results of scenario three, which investigated consumers' views on how they would settle a known debt over a specified period of time, overwhelmingly show that in a neutral situation of clearing a debt over a known period, consumers would prefer the certainty of clearing the debt.

8.9
However, consumers' views on their selected level of payment would be influenced depending on the term or value of the debt and value involved.

Would consumers' views be different if the value was lower?

Would consumers' views be different if the term was longer?

Section C
Potential investment strategies

Annex 2 covers the potential investment strategies in more detail. This section provides a summary.

Potential investment strategies

9.1
Having conducted the consumer research, the next step is therefore to consider the implications on the financial investment strategy. To do this we have considered three different approaches to investment strategy and conducted some modelling. The modelling is designed to show the impact of changes in asset strategy on risk and return of a portfolio (including both assets and liabilities). This is done by projecting the assets and liabilities forward under a wide range of different plausible economic scenarios over a time horizon. This gives an idea of the variety of different scheme funding positions that could result in the future.

9.2
It is important to do the modelling considering different scenarios because it is highly unlikely that (for example) investment returns will be delivered in a straight line fashion – financial markets are volatile, and so returns will be delivered in a volatile manner. The impact of this is magnified when a pension scheme is paying out more in benefits to members than it is receiving in contributions, because the timing of investment returns has a significant impact on the financial position of a scheme.

9.3
While there is a multitude of possible strategy options, we considered just three to give a simplified view of whether the current level of risk appears consistent with consumers' views, or whether higher or lower risk strategies would better reflect these views. In particular we considered the following:

– High risk – a strategy with 25% more in growth assets, and 25% less well hedged than the current scheme.

– Medium/Current strategy – a strategy broadly in line with that currently being pursued by the scheme.

– Low risk – a strategy with 25% less in growth assets, and 25% more hedged than the current scheme.

9.4
While there are a variety of ways to consider these strategies, we have focused on the potential position six years after the 2016 valuation, since this would be the final valuation before the 2025 'end date' of the current Recovery Plan.

9.5
For each strategy, we have considered the expected deficit and the range of outcomes that might arise one-time-in-six (reflecting a roll of the dice), and one-time-in-20. Given the general risk aversion that we perceived from the consumer research, we believe that these are not inappropriate risk measures to consider.

9.6
The liabilities based on the statutory technical provisions assumptions can be thought of as the amount required for the scheme to meet all future payments without requiring additional contributions (but still relying on the future returns of residual levels of return-seeking – and therefore risk-generating – assets). This residual level of return-seeking assets would reflect the maturity of the scheme at 2025, as well as reflecting a degree of inter-generational fairness, because future consumers might expect to be underwriting significantly lower risks from pension entitlements built up many decades previously.

9.7
Based on the current agreed statutory technical provisions assumptions for the scheme (and ignoring experience since the valuation date), the investment modelling analysis shows the following results:

Table 3

Strategy	Expected funding level surplus/ (deficit) (£m)	Funding level position at 1-in-6 surplus/ (deficit) (£m)	Funded position at 1-in-20 surplus/ (deficit) (£m)
High	100	(240)	(440)
Medium/ current	0	(200)	(330)
Low	(90)	(180)	(250)

Section C
Potential investment strategies

Conclusions

10.1
The consumer research shows that consumers have a clear preference for the benefits of a reasonable amount of certainty in financial decisions, and a willingness to sacrifice other savings to guarantee that outcome. Meeting this preference involves striking a balance between maximising the chances of meeting the statutory technical provisions target and minimising the range of possible outcomes across all possible scenarios.

10.2
The higher risk strategy gives the best chance of meeting the technical provisions target. However, this comes with an increase in the range of outcomes – in particular, the increase in the deficit at both a one-in-six and one-in-20 level going from medium to high is significantly bigger than the increase going from low to medium. The higher risk strategy appears to increase the level of uncertainty while also potentially generating a scheme 'surplus'. Given the views expressed by the consumers, it did not appear that any desire to generate such surplus funding outweighed the aversion to risk to make the strategy optimal for consumers. The possibility that the surplus might be used to the benefit of the scheme members rather than the consumers reinforces this point.

10.3
Conversely, the lower risk strategy gives the worst chance of meeting the technical provisions target – the expected position is a deficit, meaning the strategy is effectively 'targeting failure'[5]. Also, adopting the lower risk strategy does not materially improve the position at, for example, the one-in-six level compared to the current strategy. The lower risk strategy appears to reduce the potential shortfall to the funding target in a one-time-in-six and one-time-in-20 event, without enough of a reduction in the level of uncertainty to make the strategy optimal for consumers.

10.4
Therefore, it seems that the Trustees' current medium risk strategy is the optimal strategy of the three from a consumer perspective as it strikes a balance to best meet consumer preferences.

[5] In practice the Company would have to increase deficit contributions above those currently agreed and included in the modelling under this option to ensure the Recovery Plan eliminates the deficit resulting in extra costs to consumers.

Section D

Overall conclusions

Section D
Overall conclusions

Proposed approach to investment strategy

11.1
We believe we have been successful in our objective to understand our consumers' approach to financial risks so that this can be used by the scheme Trustees in determining the investment strategy of the scheme. The consumer research shows that consumers have a clear preference for the benefits of a reasonable amount of certainty in financial decisions, and a willingness to sacrifice other savings to guarantee that outcome. Meeting this preference involves striking a balance between maximising the chances of meeting the statutory technical provisions target and minimising the range of possible outcomes across all possible scenarios.

11.2
We have considered the results of the consumer research and investment modelling and we have found the process gives a useful insight into the overall aim of taking consumers' views into account when determining the optimal investment strategy.

11.3
The results of both the consumer research and investment modelling bring to the fore three key conclusions:

a. Consumers are generally risk averse when faced with a significant financial decision, however, some show a willingness to consider the time and value in question;

b. A successful balanced investment strategy that reduces risk over time is key to delivering the aim of being 100% fully funded on the statutory technical provisions basis in the future, but in line with consumers' preferences for low, certain costs;

c. In our particular circumstance we should be cognisant of the views of low income households, who are willing to take some risk to recover a downside position.

11.4
Our view is that the Trustees should continue with our current medium risk investment strategy which balances low risk 'protection' assets, with some growth assets that aim to recover the current downside position in the scheme over a reasonable timescale.

11.5
When there is an opportunity, the Company and Trustees should be prepared to take appropriate action to safeguard any improvements in funding level, and move towards a lower risk investment strategy that maintains the consumers' overall desire for certainty of costs now and for inter-generational consumers.

Annex 1
Results of consumer research

Understanding our consumers' views on financial risk appetite

Annex 1
Results of consumer research

Introduction

1.1
Ofgem has recently consulted and decided[6] on its policy for funding the pension deficits of the network companies. Ofgem notes in the consultation:

– Energy network operators (NWOs) have significant obligations under defined benefit pension schemes. These schemes were generally established before the companies were privatised and, in part, their obligations relate to employees' service prior to privatisation.

– All of the schemes are now closed to new members. Nevertheless, the assets of these schemes compare with the size of the network businesses themselves and, in some cases, exceed the value of the network's Regulatory Asset Value (RAV). Our regulatory regimes have sought to ensure that NWOs' investors and managers are focused on improving the efficiency of their network services and not distracted by the potentially significant swings in the performance of their pension schemes which, in large part, are outside their control.

– We have sought to protect NWOs from the related financeability risks, and to protect consumers from potentially detrimental impacts on the NWOs' investment programmes and the services they provide.

Ofgem concludes:
'our historical practice has been, and our existing commitment is, to provide for consumer funding of pension scheme deficits that relate to regulated networks.'[7]

1.2
This commitment does comes with some conditions, such as that the schemes are run efficiently and subject to good governance. Ofgem is also looking to NWOs to place consumers at the heart of how they participate in pension scheme governance. To achieve this, Ofgem has developed some principles with which NWOs must comply. These were updated as part of Ofgem's April 2017 decision and can found in Appendix 3 of the Ofgem document. Principle 1 is headed 'Efficient and economic employment and pension costs' and contains the following statement:

Protecting the consumer interest
'In light of our funding commitment, we look to employers to participate in the governance of defined benefit pension schemes with the aim of protecting the interests of the consumers who are exposed to any Established Deficit, in balance with the interest of shareholders who would be underwriting any remaining deficit. To this end, we would look to employers to inform investment, benefit and funding strategies with objective and, where possible, evidence-based insights into the interests of consumers, recognising that tomorrow's consumers are as relevant as today's. We look to employers to report transparently on their participation in the governance of these schemes.'

1.3
An important decision for the Trustees of schemes is the investment strategy for the scheme assets and what type of investments to make when considering the return available and the risks attaching to the investment. Ofgem in the consultation at paragraph 2.37 state:

'We maintain that risk management is a matter for the employer sponsors and the Trustees. We appreciate that this is a complex area and determining the level of risk that is appropriate for consumers may not be easy. We believe that the Network Operators would be able to consider the consumer interest in their approach to risk and we encourage Network Operators to engage actively with academics, consumer representatives and others to inform their thinking. We do not, however, believe our role is to provide guidance to the Network Operators and the Trustees as to the appropriate level of risk. We agree that a more prescriptive approach is not required. We believe it is inappropriate to assume that de-risking is necessarily in the consumer interest. We also believe it is inappropriate to judge the wisdom of any risk strategy on the basis of outcomes.'

1.4
As Ofgem observe, risk management is a complex area and it is difficult to engage with consumers on such matters in a way that is meaningful. Another electricity distributor, WPD, assisted by PwC undertook some consumer research and published the results in October 2016.[8] This research focused on consumers' attitudes towards the variability in their bills that might result from the pension scheme taking on more or less risk with its investments.

[6] Ofgem's Decision on Ofgem's policy for funding Pension Scheme Established Deficits dated 7 April 2017 and Second Consultation on Ofgem's policy for funding Network Operators' Pension Scheme Established Deficits dated 16 March 2016.

[7] The statement continues: 'Our principal commitment applies to Pension Scheme Established Deficits, those accrued for service prior to the cut-off dates which are 31 March 2010 for electricity Distribution Network Operators (DNOs), 31 March 2012 for electricity and gas Transmission Owners (TOs) and System Operators (SOs) and 31 March 2013 for Gas Distribution Networks (GDNs). Ongoing pensions expenses (for scheme members' service after the cut-off dates) are included as part of benchmarking total costs (totex) and subject to the same incentive mechanisms as other Totex expenditure.'

[8] PwC 'Consumer-led pension strategy – Workstream 3 – Investigating UK electricity consumer preferences for bearing DNO pension cost and risk'

1.5
We wish to build on this research by looking at an individual consumer level at our consumers' appetite for risk when they make significant financial decisions. Decisions taken by the Trustees in consultation with the sponsoring employer can have a noticeable impact on the costs that end up being funded by consumers through their energy bills, so we think this approach offers useful insights that Trustees should take into account.

Objectives of the research

2.1
The objective for our research was to obtain our consumers' views on their approach to financial risks by exploring and understanding our consumers' appetite for:

– Upside risk – we asked 'how willing are you to exchange a positive, guaranteed outcome for the chance of a more positive outcome?'

– Downside risk – we asked 'how willing are you to accept a negative, guaranteed outcome to avoid the chance of the more negative outcome?'

– The interaction between the two.

– How attitudes are affected by the value involved.

– How attitudes are affected by the time horizon involved.

2.2
The results of the consumer research give valuable insight to consumers' views on financial risk and we recommend that Trustees have due regard to these views when formulating the future funding and investment strategy of the final salary pension scheme of which the Trustees are the custodians.

Methodology of the research

3.1
Northern Powergrid continuously engages with all its consumers (both domestic and business) to better understand their views on the services we provide and how and where future investments are made.

3.2
We commissioned [the opinion researchers] Explain in April 2017 to engage with consumers using a qualitative approach in order to bring new insights to the business planning process.

3.3
Previous research demonstrated that household consumers have a limited understanding of the role of the electricity Distribution Network Operator and the part we play in getting electricity to their homes. In recognition of this, a workshop style approach was adopted in which consumers were given the opportunity to read, absorb and review information before their views were sought.

3.4
During these workshops, all respondents were asked to complete a short questionnaire centred on three scenarios and respondents were asked to identify their most likely response if faced with the scenario. Each scenario required respondents to make a choice about their money in the presence of uncertain outcomes.

3.5
Three consumer workshops were held during May in local venues, taking place in Sheffield, Halifax and Newcastle upon Tyne – ensuring that a range of location types were engaged across both of Northern Powergrid's two distribution services areas. Each workshop setting consisted of three tables each with eight consumers recruited to take part. There were therefore 24 consumers recruited for each session. This approach allowed for both joint activities involving everyone in the room as well as smaller break-out discussions on each table. All respondents in attendance were recruited by Explain's on-street researchers who used a set of qualifying questions to ensure that respondents fulfilled the required profiles. Respondent profiles can be found in more detail in the next section of the report.

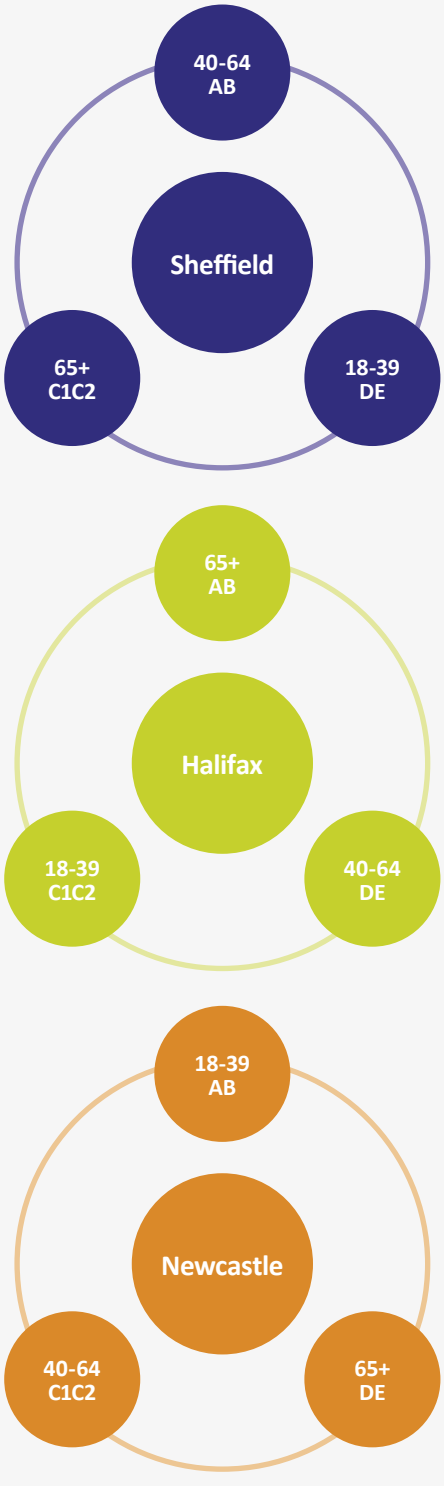
3.6
The sessions followed a pre-set discussion guide. The conversations taking place on each table were audio recorded with respondent consent and transcripts compiled for each session. These transcripts were then used as the basis of qualitative analysis to identify any relevant themes and distinctions in the findings.

3.7
Feedback received from attendees was extremely positive, with all feedback noting the experience had been enjoyable and informative.

Annex 1
Results of consumer research

Respondent profile

3.8
The profile of respondents recruited to attend each workshop was agreed at project inception in order to ensure engagement with a range of ages and socio-economic groups. The profile of each workshop by table was as follows:



3.9
In addition, quotas were set during recruitment to ensure that the sessions were inclusive and each of the following groups was fairly represented within the sessions:

- Consumers who have experienced a power cut in the last 12 months
- Vulnerable consumers and those on the Priority Services Register
- BME – Black and ethnic minority groups
- Consumers in urban, rural and coastal communities
- Consumers with no recent contact with NPg
- Consumers with recent contact with NPg
- Young people (future consumers)
- Consumers who have experienced fuel poverty

3.10
In addition to the Explain consumer findings, we also held a workshop in York, run by Impact Research, with 27 community leaders. This group had more acquaintance with our business as we had worked with them on our Well Justified Business Plan in the past. The group included:

– Representatives from the commercial/business sector with interests in the electricity network.

– Representatives from local community groups.

– Representatives from local authorities.

– Academics from local universities.

– Representatives from consumer advice groups/agencies.

Risk questionnaire

4.1
The management of risk in an NWO's pension scheme is complex and unsuitable for direct discussion in workshop forums. Instead, our chosen approach was to understand a consumer's appetite for financial risk using a more familiar example. The questions considered by the consumers were based on a simple financial product that many consumers would be familiar with, namely a mortgage on a house. A mortgage product is appropriate because it has a number of similarities to funding a pension scheme deficit:

– There is a significant debt at risk.

– The duration of the indebtedness covers a similarly long period.

– To pay off the debt, products with varying risk characteristics are available which can ease the monthly contributions required, but may lead to a need for a large cash injection at the end.

4.2
A key factor was to place a significant value 'at risk' in the questions, to replicate the substance of the decisions made by the Trustees of the pension scheme. This is instead of focusing on a smaller cost per consumer value at risk that might underplay the significance of the values at stake. We also acknowledged that the maturity of final salary pension schemes means there is a finite timescale on removing the debt, so we wished to understand consumers' views on how value and time interact in their considerations.

4.3
We trialled our questions at a Stakeholder Engagement Panel in Newcastle, before they were finalised for the workshops. The comments provided by the Stakeholder Engagement Panel gave an insight into potential problems from the domestic consumers, for example, referencing complex pension strategies, the potentially sensitive nature of the questions to low income households and how each individual's view will be biased to their experiences.

4.4
The questions were:

Scenario 1
You currently own a property with an outstanding mortgage balance of £150,000 (i.e. this is the amount you owe to the bank). This balance is fixed (i.e. will not change over time). You need to sell the property in the near future as you'd like o pay off the mortgage. In a year's time, there is an equal chance that the property will be worth:

– £170,000 (meaning you would pay off the mortgage and make a profit of £20,000).

– £150,000 (meaning you would break even).

You receive an offer for the property of £160,000, meaning you could pay off the mortgage now and make £10,000 profit. In scenario one, which of the following options do you think you'd be most likely to choose?

– Accept the offer of £160,000 now, pay off the mortgage and earn £10,000 profit.

– Not accept the offer and wait 12 months when you will still be able to pay off the mortgage – you might make £20,000 profit or might make zero profit.

– Undecided.

– Other.

Scenario 2
You currently own a property with an outstanding mortgage balance of £150,000. This balance owed to the bank will not change (i.e. is fixed). You need to sell the property in the near future in order to pay off the mortgage. In a year's time there is an equal chance that the property will be worth:

– £130,000 (meaning a further payment of £20,000 is required).

– £150,000 (meaning no further payment is required).

You have savings of £20,000 which you had planned to use to pay for a 'once in a lifetime' holiday.

You receive an offer for the property of £140,000 now, meaning you would need to pay £10,000 now out of your 'holiday' savings to pay off the mortgage.

In scenario two, which of the following options do you think you'd be most likely to choose?

– Accept the offer, meaning you can pay off the mortgage if you use £10,000 of your holiday savings, leaving you £10,000 to still spend on a holiday.

– Not accept the offer, meaning in a year's time if you sell your property for £150,000, you will pay off the mortgage and may still have your full £20,000 for your holiday. However, you may only sell your property for £130,000 so may have no holiday savings left.

– Undecided.

– Other.

Annex 1
Results of consumer research

Scenario 3
You currently own a property with an outstanding mortgage balance of £57,600. This balance is fixed (i.e. will not change). You need to make monthly payments into an investment account (a type of savings account) over the next 8 years which will then give you the funds to pay off the mortgage.

You can pay £500 per month and be certain of paying off the mortgage balance by the end of the 8 year period. Alternatively, you can pay a lower amount into a more risky investment account. After 8 years you may have enough to clear the balance or, if the investment account balance isn't at £57,600, you may need to make a further payment at the end.

You plan to retire in 8 years so any additional payments you might need to make would impact on your standard of living in retirement.

In scenario three, which of the following options do you think you'd be most likely to choose?

– Pay £500 per month and be sure to pay off the mortgage after 8 years.

– Pay less than £500 per month and possibly pay off the mortgage or possibly have to pay an additional sum of money to pay off the balance.

– Undecided.

– Other.

Supplementary questions

Scenario 3.1
Still thinking about scenario three, would your answer be different if the value was lower, for example, if the mortgage balance was £10,000? Yes or No

Scenario 3.2
Still thinking about scenario three, would your answer be different if the period was longer, for example, 15 years rather than 8 years? Yes or No

Results of consumer research

5.1
There were a total of 99 respondents across the four focus groups. The analysis below shows the results from the local community stakeholder and the domestic consumer workshops separately. For the consumer workshops, we then provide a demographic breakdown.

Scenario 1
Fig 1.1 demonstrates that of the total 99 respondents, 71% stated they would be most likely to 'accept the offer of £160,000 now, pay off the mortgage and earn £10,000 profit'. 17% reported that they would not accept the offer. 12% of respondents were 'undecided' or 'other' on their response to this scenario.

Fig 1.2 and Fig 1.3 show the separate results for the local community stakeholder and domestic consumer workshops.

Fig 1.1 Overall results

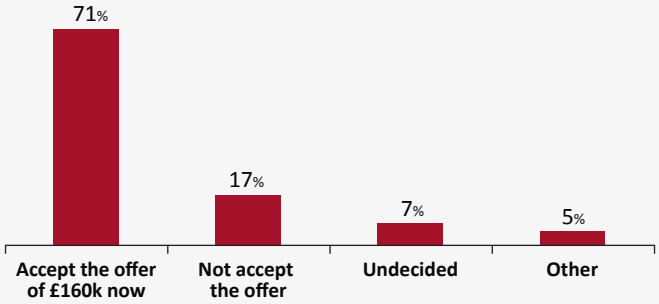


Fig 1.2 Stakeholder workshop

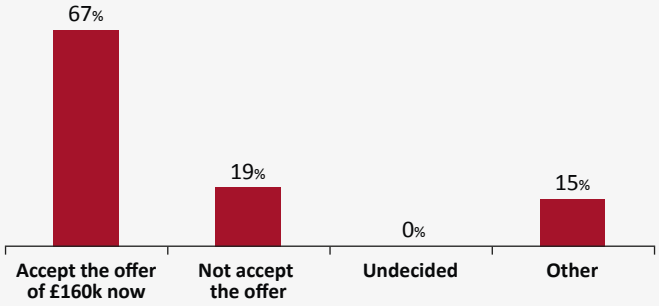
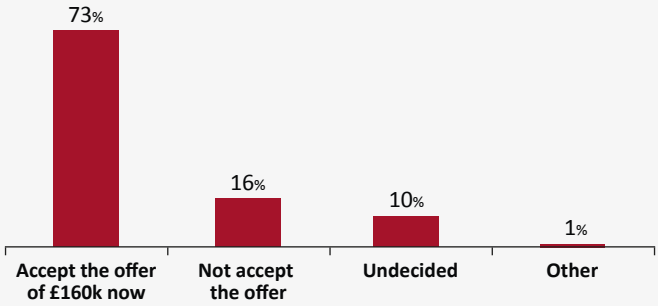


Fig 1.3 Consumer workshops



Comments from domestic consumer respondents:

'I'm not a gambler, I'm not prepared to take the risk, just in case it drops, I wanted to get the money there and then so I knew I'd got it.' (Halifax, AB, 65 plus)

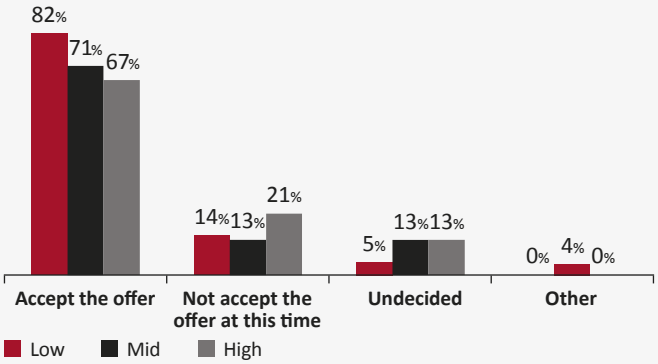
'I think in terms of money and houses, because it's such a big thing, I wouldn't be willing to risk that at all. If you've worked hard to save up and get that.' (Newcastle, AB, 18.39)

'It's a gamble at the end of the day, and my family is more important than the money.' (Sheffield, DE, 18-39)

Domestic consumer results based on income level

Looking at the differences between income levels for domestic consumers, Fig 1.4 shows that the majority, 73%, of consumers chose to accept the offer, whilst 16% chose not to accept the offer at this time. In particular, those who are low earners were more likely to accept the offer, with 82% saying this would be their choice. The high earners were less likely to accept the offer, but 67% said they would still choose that option.

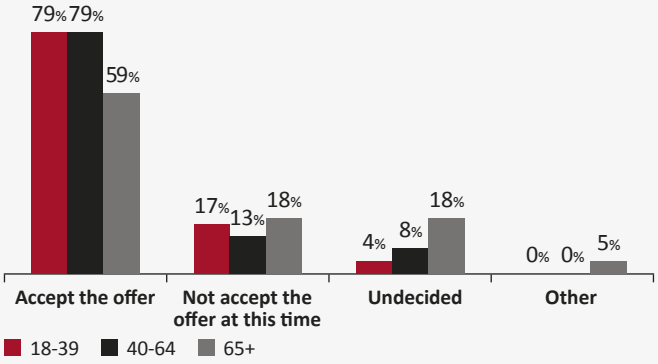
Fig 1.4 Domestic consumer results based on income level



Domestic consumer results based on age bands

Looking at the differences between the different ages of consumers, Fig 1.5 shows that a significant majority (72%) across all age bands would accept the offer. A key result has been that a material proportion of consumers who are 65 and over would not accept the offer or were undecided.

Fig 1.5 Domestic consumer results based on age bands

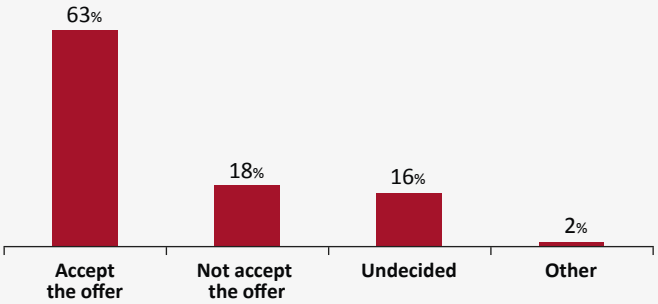


Scenario 2

Fig 2.1 demonstrates that of all the respondents 63% reported that they would 'accept the offer', i.e. they were accepting that 'you can pay off the mortgage if you use £10,000 of your holiday savings, leaving you £10,000 to still spend on a holiday'. 18% of respondents would 'not accept the offer', and a further 16% of respondents were 'undecided'.

Fig 2.2 and Fig 2.3 show the separate results for the local community stakeholder and domestic consumer workshops.

Fig 2.1 Overall results



There was agreement amongst many of the domestic consumers that having £10,000 guaranteed to spend on a holiday would be preferable to the possibility of having none.

Fig 2.2 Stakeholder workshop

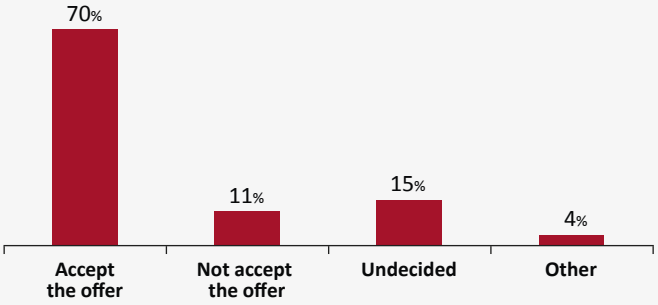
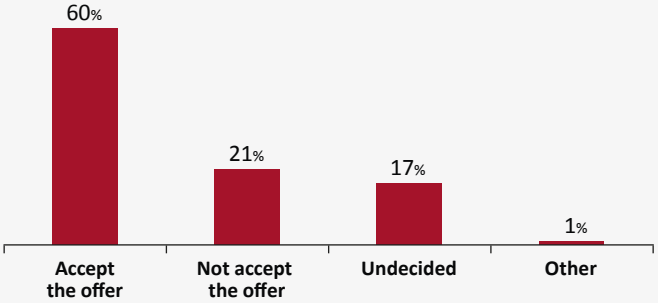


Fig 2.3 Domestic consumer workshops

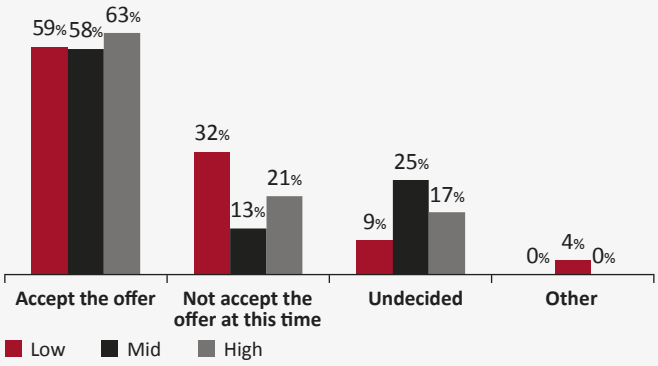


Annex 1
Results of consumer research

Comments from domestic consumer respondents:
'I'd rather have ten thousand pounds to spend on a holiday than risk having nothing to spend on a holiday.' (Halifax, AB, 65 plus)

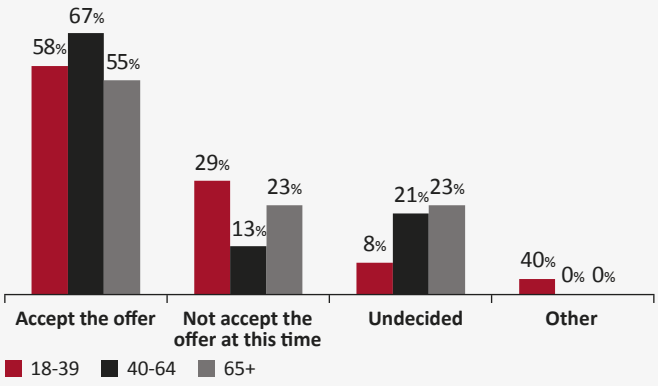
Domestic consumer results based on income level
Looking at the differences between income levels for domestic consumers, Fig 2.4 shows that the majority of domestic consumers (60% across all income levels) would accept the offer, and reduce their holiday savings by £10,000. However, the low income group and the high income group, were more likely than the middle income group not to accept the offer at this time, with 32% of the low income group and 21% of the high income group declining.

Fig 2.4 Focus groups results by income level



Domestic consumer results based on age bands
Looking at the differences between age bands for domestic consumers, Fig 2.5 shows that the majority would accept the offer in all age groups, however 29% of younger consumers decided to not accept the offer at this time.

Fig 2.5 Focus groups results by age bands



Scenario 3
Fig 3.1 demonstrates that, of the total respondents, 90% stated they would 'pay £500 per month and be sure to pay off the mortgage after eight years'. Two respondents across the locations said they would 'pay less than £500 per month and possibly pay off the mortgage or possibly have to pay an additional sum of money to pay off the balance'. 6% of respondents overall were 'undecided' when it came to scenario three.

Fig 3.2 and Fig 3.3 show the separate results for the local community stakeholder and domestic consumer workshops.

Fig 3.1 Overall results

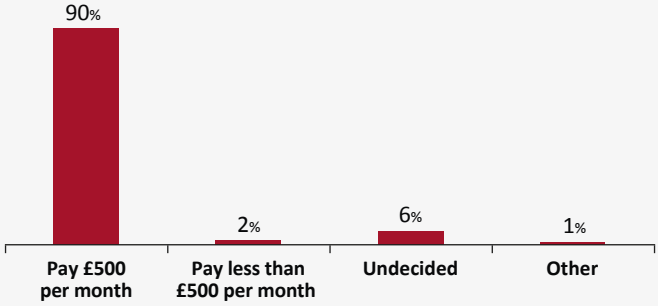


Fig 3.2 Stakeholder workshop

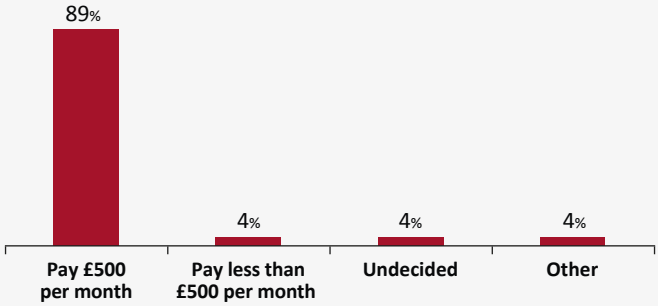
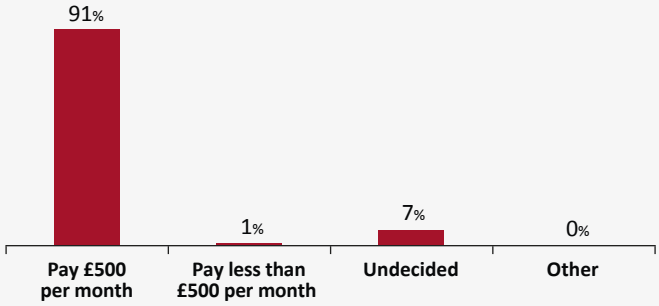


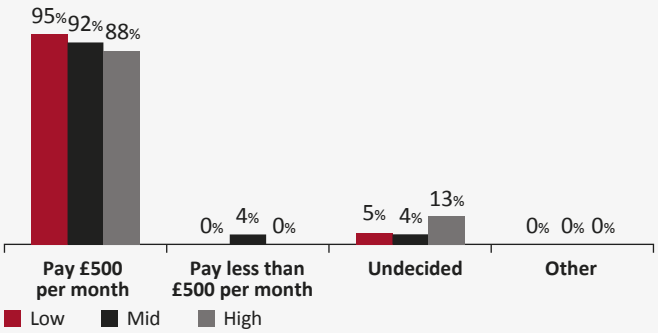
Fig 3.3 Consumer workshops



Comments from domestic consumer respondents:
'Purely for the security involved, you know it's going to be gone after 8 years. I suppose it depends on your financial situation.' Sheffield, DE, 18-39)

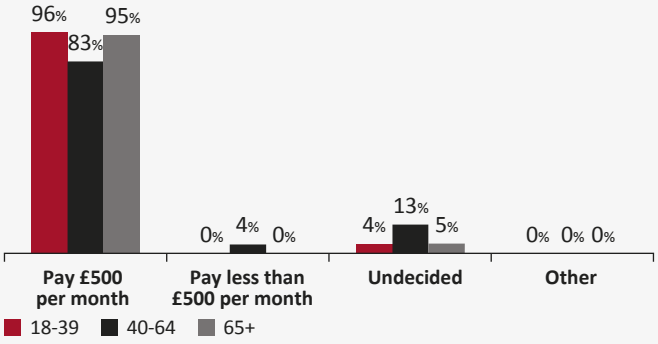
Domestic consumer results based on income level
Fig 3.4 shows the results split by income level. The significant majority across all income bands would prefer to pay the £500 per month which would guarantee the payment of the mortgage at the end date.

Fig 3.4 Domestic consumer results based on income level



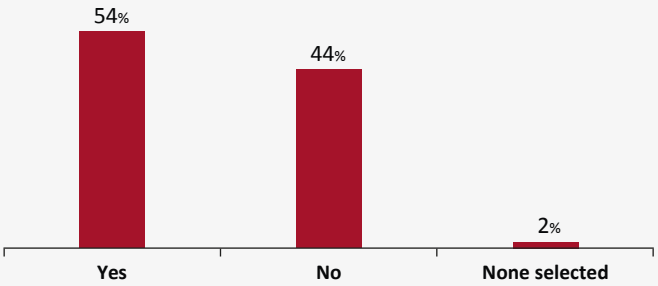
Domestic consumer results based on age group
The results split by age group are shown in Fig 3.5.
This shows that a high majority across all age groups would prefer the option to pay £500 per month and guarantee the payment of the mortagage by the end date.

Fig 3.5 Domestic consumer results based on age group



Scenario 3.2
Fig 3.6 demonstrates that out of the total respondents 54% reported that their answer would not be different if the value was lower. 44% of respondents said it would be different. Two respondents from the local community stakeholder workshop did not answer.

Fig 3.6 Does the consumer view change based on different value



From the domestic consumer workshops:

- One respondent, who had earlier answered that they would pay less than £500 per month, reported that they would answer differently if the value was different.
- Around half (47%) of the respondents who initially said they would choose to pay £500 per month reported that they would have chosen differently if the value was lower, clearly demonstrating that the value at stake did impact on financial risk decision making.

Scenario 3.3
Fig 3.7 demonstrates that around half (47%) of all respondents overall reported that their answer would not be different if the period was longer. 50% of all respondents said it would differ. Three respondents from the local community stakeholder workshop did not answer.

Fig 3.7 Does the consumer view change based on different term

Annex 1
Results of consumer research

From the domestic consumer workshops:
- The one respondent from the domestic consumer workshop who earlier chose to pay less than £500 per month stated that they would choose differently if the period was longer.

- 47% of consumers who initially chose to pay £500 per month would answer differently if the period was longer, clearly demonstrating the length of time involved did impact on financial risk decision making.

Independent summary by Explain, the opinion researchers

6.1
Explain provided the following analysis, conclusions and recommendations:

Discussion findings
During discussion with respondents around their responses, it was highlighted by many that they were averse to risk; this was reflected in the quantitative results for each scenario. This risk aversion was particularly evident amongst the older age groups, who reported that their age did reduce their willingness to take risks. This was typically because their future earning potential was lower, due to retirement or a plan to retire in the near future. Whether or not people had children was also seen to impact on their decisions.

It was typically agreed that a key goal in life is the ability to be mortgage free and so this was seen as a priority over the perceived risky possibility of higher offers. Throughout discussion, consumers referred to 'risk' and 'gambling', however many respondents preferred certainty around their finances, to enable them to plan for the present and future, as bills, budgeting and finances in general were commonly highlighted as day-to-day priorities. Job security was also a concern for a proportion of respondents, particularly in the lower socio-economic groups, and this impacted on willingness to take risks.

Other factors under consideration were individuals' personal circumstances, and the wider context of each scenario. Some felt they did not have enough information to make a decision and this was respondents' key reasoning for 'undecided' responses.

Conclusions
Through the risk scenario exercise, it was found that the majority of consumers engaged in the research were averse to financial risk and many expressed a preference for certainty in order to plan for the future. The monetary value and length of time involved were demonstrated to impact on respondents' response to the scenarios. Of those who chose to 'pay £500 per month' if faced with scenario three, nearly half (47%) reported that their choice would be different if the value in question was lower. Willingness to take risks was also impacted by respondents' age, with the older age groups citing a preference for a comfortable retirement without the burden of the mortgage.

Overall recommendations
'Exercise a cautious and risk averse position towards financial strategy.'

This is in line with the finding that NPg consumers prefer greater certainty and less risk in their own financial decision making.

Northern Powergrid overview

7.1
The overall results from the research confirm that consumers are generally risk averse when faced with significant financial decisions. There is a clear preference for consumers to have certainty of financial decisions, and they would sacrifice other savings to guarantee that certainty. This is shown by the results of all scenarios.

7.2
There is evidence that there is some appetite for risk in younger consumers aged 18-39, and low income households, where taking on additional risk might enable them to recover a downside position. The results of scenario two show an increase in these consumer categories opting for a 'risk-on' position.

7.3
The results of scenario three overwhelmingly show that in a neutral situation of clearing a debt over a known period, consumers would prefer certainty of clearing the debt. However, their views are influenced by the term or value of the debt.

7.4
In other stakeholder engagement activities we have found that when quite large sums of money are expressed in terms that make them seem smaller, consumers can be misled into thinking that the sums are too small to worry about. For example, expressing the annual distribution charge in terms of pence per day can make something that is a reasonably significant part of the annual electricity bill seem quite insignificant. This is seldom helpful and in the context of this exercise we thought it would be better to avoid the problem altogether. So we used scenarios with amounts that were big enough to concentrate the participants' minds on a number that would be meaningful in their lives. We recognise that where the respondents suggested that they might have given different answers if the amount at stake in the scenarios had been higher or lower we should take that into account in our overall assessment. However, we consider that for the purposes of informing the Trustees of consumers' attitudes towards risk, the evidence from our exercise is a better indicator of their underlying risk acceptance/aversion than it would have been had the scenarios used examples with numbers that spread the possible impact of pension investment risks over several years worth of electricity bills.

7.5

The region covered by Northern Powergrid has a significantly high proportion of low income households based in the large conurbations in the region. We should therefore be mindful of this in applying the results. The maps below (Fig 4 & 5) highlights our region compared to England as a whole, showing the areas of low income households which may reasonably be expected to have higher concentrations of the fuel poor. As can be seen there are more fuel poor households in the North of England, compared to other regions.

Fig 4 Map of Northern Powergrid's region and areas of low income

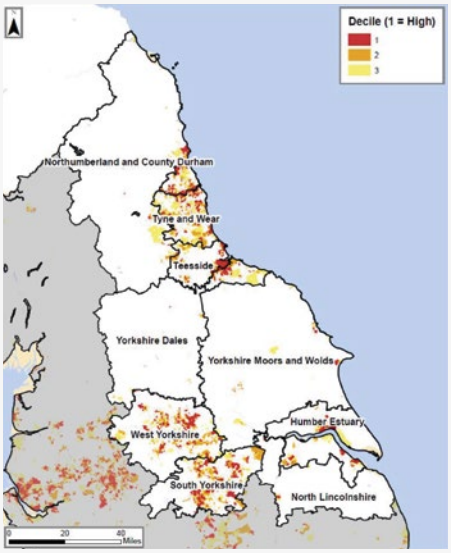
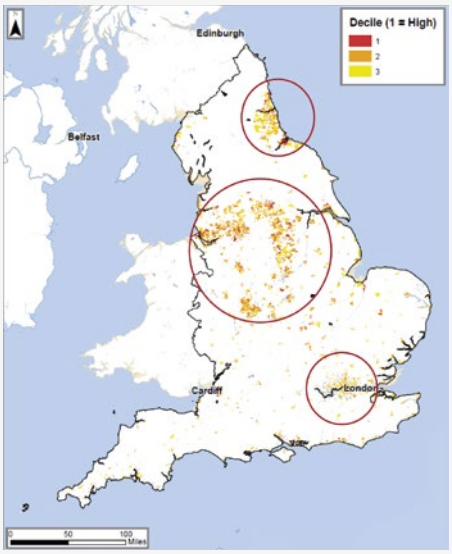


Fig 5 Map of UK and areas of low income



Annex 2

Results of the investment strategy modelling

Understanding our consumers' views on financial risk appetite

Introduction

1.1
The results of the consumer research (Annex 1) can give a direct input on the consumers' views on financial risk and be used to influence the future funding and investment strategy of our final salary pension scheme. The next step is therefore to carry out financial modelling to which our consumer research can be applied. This annex provides the results of the investment modelling that was carried out in conjunction with Hymans Robertson LLP.

Objectives of the analysis

2.1
The modelling is designed to show the impact of changes in asset strategy on risk and return of a portfolio (includes both assets and liabilities). This is done by projecting the assets and liabilities forward under a wide range of different plausible economic scenarios across a time horizon. This gives an idea of the variety of different scheme funding positions that may be achieved in future.

2.2
It is important to do this because it is highly unlikely that (for example) investment returns will be delivered in a straight line fashion – financial markets are volatile, and so returns will be delivered in a volatile manner. The impact of this is magnified when a pension scheme is paying out more in benefits to members than it is receiving in contributions, because the timing of investment returns has a significant impact on the financial position of a scheme. For example, if a scheme with assets of £1,000 achieves a 5% return before it pays out benefits of £100, the remaining assets will be £950 (£1,000 x 1.05 – 100). If, however, the returns are achieved after the payments, the remaining assets will be 945 (1.05 x (1,000 – 100)). This effect, compounded over a number of years, can be highly material.

2.3
This analysis (referred to as 'stochastic') has been carried out for a number of different investment approaches. The range of outcomes produced for each different investment approach can be compared. This can then be interpreted in light of what the consumer research tells us about consumer preference for risk. In general, investment strategies that aim to deliver higher returns will also be more volatile. The overall objective is to seek to achieve the best possible balance between risk and returns. While the Trustees of the pension scheme will do so with members' interests at the front of their minds, the analysis seeks to consider this from the perspective of the consumer who is, in essence, underwriting the (potentially material) financial risks of the pension scheme.

2.4
In general, while a pension scheme will invest in many different types of assets, those assets are often categorised as 'return-seeking' and 'matching'. Return-seeking assets (for example, equities) are held to generate growth in the value of the portfolio. These returns can be volatile (equity markets can move significantly up and down). This is not a significant issue for pension promises that are not due to be paid for many years. However, since pension schemes have closed to future accrual, a material element of the members' pensions is due to be paid in the short- to medium-term. Rather than solely holding volatile, return-seeking investments, pension schemes will tend to invest in assets whose value moves much more closely in alignment with the value of the pension promises. Since the asset and liability values move in a matched way, these are known as matching assets, or hedging assets. Typical matching assets include government bonds ('gilts') or liability-driven investments (LDI). LDI investments will often be tailored to match the scheme's liabilities as closely as possible.

2.5
Past performance of pension schemes has suggested that around 80% of the performance of a pension scheme's investments is attributable to the choice of allocation between return-seeking and matching assets, so the asset allocation choice is amongst the most material decisions required in running a pension scheme. The decision is the responsibility of the Trustees of the pension scheme, and those Trustees are required to consult the employer that finances the scheme about the strategy.

Methodology of modelling

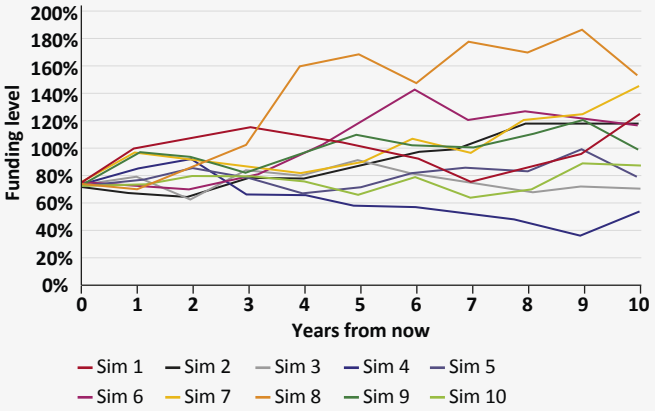
3.1
The model assumes that inflation and interest risk sensitivity are the key risk drivers that impact the overall performance of the portfolio. Therefore, the model allows for interest rate and inflation hedging across different portfolios to take into account any risk mitigation that is currently in place.

3.2
The model depends significantly on a stochastic asset model. This type of model is founded upon an economic scenario generator and uses probability distributions to project a range of possible outcomes for the future behaviour of asset returns and economic variables. Some of the parameters of the model are dependent on the current state of financial markets and are updated each month (for example, the current level of equity market volatility) while other more subjective parameters do not change with different calibrations of the model.

Annex 2
Results of the investment strategy modelling

3.3
In carrying out the analysis, the model is run a large number of times. Each run produces a different set of assumptions, which means that the simulated progression of the scheme's funding level is different with each model run. This is illustrated below in Fig 1, with each coloured line representing the simulated funding progression under a different model run.

Fig 1 Simulated funding progressions



3.4
Running the model a large number of times allows us to capture the full range of possible outcomes for the scheme. In this analysis, we have carried out 5,000 simulations. Carrying out 5,000 simulations means that the ranked results give an accurate representation of the true range of possible outcomes. This therefore allows us to analyse how likely a given funding outcome is, and to see what the chances are of ending up above or below a given funding level in the future.

3.5
The outcomes of the 5,000 simulations are then ranked from 'best' to 'worst'. This can be thought of as a funding 'league table'. The 'median' funding level can be considered to be the average expected outcome (the team that finishes mid-table). We would expect that half of the time the funding level will be above the median, and half of the time it will be below this. The 'best' and 'worst' percentiles highlight the chances of being above or below a particular funding level. For example, the one-in-six outcome is the outcome in place 4,167 (out of 5,000) in the funding league table, and the one-in-20 outcome is in place 4,750.

Assumptions

4.1
The key subjective assumptions in the investment modelling are:

- The average excess equity return over the risk free asset (tending to be approximately 3% p.a. as the investment horizon is increased);
- The volatility of equity returns (approximately 18% p.a. over the long term), and;
- The level and volatility of yields, credit spreads, inflation and expected (breakeven) inflation, which affect the projected liability and bond returns.

4.2
The output of the model is also affected by other more subtle effects, such as the correlations between economic and financial variables. The median returns of different asset classes, and the volatility of those returns, over different periods as shown in Table 4 below:

Table 4

	Expected return (5 yrs)	Expected return (10 yrs)	Expected return (20 yrs)	Volatility (Disp) 1 year
Index linked gilts (long dated)	0.4%	-0.1%	-0.1%	9%
Fixed interest gilts (long dated)	0.2%	0.2%	0.6%	12%
Corporate bonds (long dated)	0.6%	0.8%	1.5%	12%
UK equity	5.2%	6.3%	8.0%	16%
Overseas equity	5.6%	6.7%	8.4%	18%
Property	2.6%	3.7%	5.2%	14%
Infrastructure equity	4.5%	5.6%	7.1%	20%
Absolute return bonds	2.1%	3.0%	0.0%	3%
Insurance linked	3.4%	4.4%	6.0%	14%
Inflation	3.0%	3.2%	3.5%	1%

4.3
Our expectation (i.e. the average outcome) is that long term real interest rates will gradually rise from their current low levels. Higher long-term yields in the future will mean a lower value placed on liabilities and therefore our median projection will show, all other things being equal, an improvement in the current funding position (because of the mismatch between assets and liabilities). The mean reversion in yields also affects expected bond returns. The impact of the yield reversion assumption is illustrated in the standard results charts that we produce using the model output.

4.4
While the model allows for the possibility of scenarios that would be extreme by historical standards, including very significant downturns in equity markets, large systemic and structural dislocations are not captured by the model. Such events are unknowable in effect, magnitude and nature, meaning that the most extreme possibilities are not necessarily captured within the distributions of results.

4.5
Given the context of this modelling, we have not undertaken any sensitivity analysis to assess how different the results might be with alternative calibrations of the economic scenario generator.

4.6
As part of the modelling, it is necessary to map the scheme's physical asset holdings to the asset classes used by the model. The mapping aims to model the scheme's assets using the best matches within the available model asset classes and takes account of the scheme's physical holdings and investment strategy benchmark. In some cases this can lead to mappings that are not entirely intuitive, or that a single holding is mapped to multiple model asset classes. Any differences between the assets modelled and the physical assets are not expected to materially affect the outcome of the modelling. The mapping used is given in the table below:

Table 5

	Physical holding	Included in investment modelling as
UK equities	LGIM UK Passive	UK equity
Overseas equities	LGIM Global Passive	Overseas equity (hedged) + currency exposure
	LGIM Global Passive (GBP Hedged)	Overseas UK equity (hedged)
Alternatives	LGIM Listed Infrastructure	Infrastructure
	CBRE UK Property	Property
	Credit Suisse Reinsurance	Insurance linked securities
	Henderson UK Bonds	Absolute return bonds
	PIMCO UK Bonds	Absolute return bonds
Liability matching assets	LDI	LDI (hedged)
	Active bonds	Corporate bonds (hedged)
	Corporate bonds	Corporate bonds (hedged)
	Cash	LDI (hedged)

4.7
Hedging refers to the process of removing a given risk from the portfolio. In the table above, the risk being hedged is that of assets held in currencies other than sterling being impacted by movements in the currency exchange rate. A holding marked as 'hedged' has the impact of currency movements removed – in practice this can be done in several ways, such as having currency holdings in the portfolio or through the use of other investment instruments such as derivatives.

4.8
Liabilities are calculated in line with the current agreed statutory technical provisions basis for the Group, and do not allow for any actual experience since 31 March 2016. The unhedged liabilities are approximated by assuming that real and fixed liabilities can be represented by long dated inflation linked and fixed interest gilts respectively. It is possible that the proxy liabilities mis-state the true sensitivity of the scheme liabilities to changes in interest rates and inflation.

4.9
In carrying out the modelling we have assumed that the agreed level of deficit recovery contributions continues for the period considered.

Strategies modelled

5.1
While there is a multitude of possible options, we considered just three to give a simplified view of whether the current level of risk appears consistent with consumers' views, or whether higher or lower risk strategies would better reflect these views. In particular we considered:

– High risk – a strategy with 25% more in growth assets, and 25% less well hedged than currently being pursued by the Group Trustees.

– Medium/Current strategy – a strategy broadly in line with that currently being pursued by the Group Trustees.

– Low risk – a strategy with 25% less in growth assets, and 25% more hedged than currently being pursued by the Group Trustees.

5.2
It is readily possible to extend the analysis to consider more granular changes in portfolios. However, at this stage we have attempted only to consider whether the consumer research supports allocations at a very broad level. Moreover, we question whether consumer research can provide sufficiently detailed findings to map across to more finely tuned changes in modelled asset allocations.

5.3
While again there are a variety of ways to consider these strategies, we have focused on the potential position six years after the 2016 valuation, since this would be the final valuation before the 2025 'end date' of the Recovery Plan.

Annex 2
Results of the investment strategy modelling

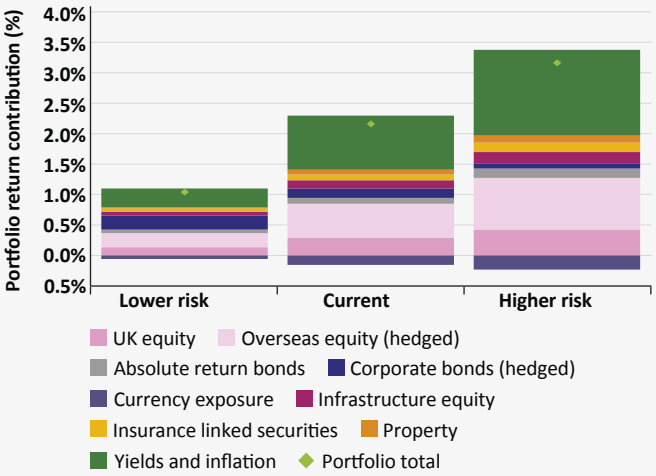
5.4
For each strategy we have considered the expected deficit, and the range of outcomes that might arise in a one-in-six (reflecting a roll of the dice), and one-in-20 event. Given the general risk aversion that we perceived from the consumer research, we believe that these are not inappropriate risk measures to consider.

5.5
It would be possible to consider specific scenarios – for example, high inflation – to see how different approaches performed. The current approach, however, intrinsically reflects not only how likely particular scenarios are, but also how multiple markets move in any scenario (for example, how bond yields and equity prices might be affected by the high inflation).

Results

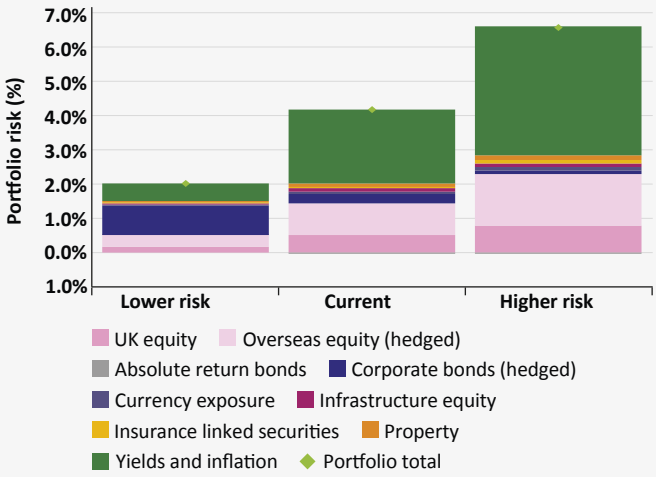
6.1
Fig 2 below shows the median portfolio return (relative to gilt yields) – the light green diamond – under each of the three scenarios, along with breakdown of the contribution to this return from the various elements of the portfolio. For example, the pink areas reflect the returns (over gilts) expected from the equity investment allocations.

Fig 2 Returns by mandate



6.2
Fig 3 below shows a measure of risk (defined as the standard deviation of the gilts funding level over 1 year) under each of the three scenarios, along with breakdown of the contribution to this risk from the various elements of the portfolio.

Fig 3 Risks by mandate



6.3
Growth assets are expected to generate returns in excess of gilt yields over the longer term, and so we would expect that increasing the holding in growth assets would increase the overall return. This can be seen in Fig 2, with the portfolios with higher allocations to growth assets producing higher expected returns. Each additional 25% in growth assets increases the return expectation by around 1% per annum.

6.4
While growth assets are expected to generate higher returns in the long term, those returns are far from certain; a wide range of outcomes is possible including a number of less than favourable outcomes. Therefore, increasing expected returns through increased growth assets also increases the potential downside risk associated with poor investment returns. Similarly, reducing growth assets should reduce this potential downside risk.

6.5
The third bar of Fig 3 shows the level of risk from the portfolio with more growth assets and less hedging. As might be expected, this has a higher risk than the current portfolio which in turn has more risk than the less growth/more hedging portfolio. Each 25% increase in return-seeking assets (at the expense of matching) increases the risk by around 2%.

6.6
As noted above, hedging refers to the process of reducing a given risk within the portfolio. In this case, the risk being hedged is that of the assets and liabilities moving in different ways in response to market forces, potentially increasing the deficit. Increasing hedging should therefore reduce the level of risk within the portfolio, since more hedging should mean that the scheme is better protected against the impact of market movements. For each portfolio, the largest element of risk (the green area) is the impact of liabilities moving differently to assets (from the assets not being fully matched to the liabilities). Fig 3 shows this element of risk reduces as the level of hedging adopted increases (i.e. moving from right to left along the bars).

6.7
Increased hedging also means that the scheme loses out on any potential additional return from favourable market movements. Therefore, increasing hedging would be expected to reduce returns. This can also be seen in Fig 2, as the element of return from yields and inflation reduces as the level of hedging adopted increases (i.e. moving from right to left along the bars).

6.8
To summarise, it can be seen from taking the two charts together that:
– increasing hedging reduces the return and risk from yields and inflation (and vice versa); and

– reducing growth assets reduces the return and risk (and vice versa).

6.9
On considering the impact this has on the scheme's projected funding position in six years' time, the analysis produces the following results:

Table 3

Strategy	Expected funding level (£m)	Funding level at 1-in-6 level (£m)	Funded position at 1-in-20 level (£m)
High	100	(240)	(440)
Medium/ current	0	(200)	(330)
Low	(90)	(180)	(250)

The results show that increasing the level of investment risk:
– increases the expected funding position; but

– increases the size of the deficit in 'bad' scenarios, with the size of the deficit increasing more rapidly as the level of risk increases.

Conclusions

7.1
The liabilities based on the technical provisions assumptions can be thought of as the amount required for the scheme to meet all future payments without requiring additional contributions but still relying on the future returns of a residual level of return-seeking – and therefore risk-generating – assets. The objective would be that this residual level of return-seeking assets reflected the maturity of the scheme at that point, as well as reflecting a degree of inter-generational fairness, given that future consumers might not expect to be underwriting significant risks from pension entitlements built up many decades previously.

7.2
The optimal strategy is to target full funding on this technical provisions basis. Adopting a higher target, equivalent to a lower risk/return strategy, would result in the Company (and therefore consumers) paying higher contributions than necessary, resulting in consumers' bills being higher than necessary. Conversely, adopting a lower target, based on higher risk/return, would allow for lower payments now but with further funding potentially required in the future – this could result in a substantial additional contribution being required over a relatively short timescale.

7.3
The consumer research shows a clear preference for consumers to have reasonable certainty of financial decisions, and
a willingness to sacrifice other savings to guarantee that certainty. Meeting this preference involves striking a balance between maximising the chances of meeting the technical provisions target and minimising the range of possible outcomes across all possible scenarios.

7.4
The high risk strategy gives the best chance of meeting the technical provisions target. However, this comes with an increase in the range of outcomes – in particular, the increase in the deficit at both a one-in-six and one-in-20 level going from medium to high is significantly bigger than the increase going from low to medium. The higher risk strategy appears to increase the level of uncertainty while also potentially generating 'surplus'. Given the views expressed by the consumers, it did not appear that the desire to generate such surplus funding outweighed the aversion to risk to make the strategy optimal for consumers.

7.5
Conversely, the lower risk strategy gives the worst chance of meeting the technical provisions target – the expected position is a deficit, meaning the strategy is effectively 'targeting failure'[9]. Also, adopting the lower risk strategy does not materially improve the position at, for example, the one-in-six level compared to the current strategy. The lower risk strategy appears to reduce the potential shortfall to the funding target in a one-time-in-six and one-time-in-20 event without enough of a reduction in the level of uncertainty to make the strategy optimal for consumers.

7.6
Therefore, it seems that the medium/current strategy is the optimal strategy of the three from a consumer perspective as it strikes a balance to best meet consumer preferences.

[9] In practice the Company would have to increase deficit contributions above those currently agreed and included in the modelling under this option to ensure the Recovery Plan eliminates the deficit resulting in extra costs to consumers.

Contact us

Keith Mawson
Head of Regulatory Finance
Keith.Mawson@northernpowergrid.com

Russell Dougherty
Pensions Manager
Russell.Dougherty@northernpowergrid.com

www.northernpowergrid.com

General enquiries

T 0800 011 3332
E generalenquiries@northernpowergrid.com

Connection enquiries

T 0800 011 3433
E getconnected@northernpowergrid.com

NORTHERN POWERGRID

www.northernpowergrid.com

POWER CUT?
CALL 105