Appendix A17

Uncertainty and Risk

Appendix A17: Uncertainty and Risk

1. Background

A key part of our business plan is the management of risk and uncertainty at a time of transition to low carbon in the energy sector and the considerable uncertainty in the UK and global economy. We have a well developed strategy and approach to the management of corporate risk and this is reflected in our business plan. The key features of NGN's risk management in RIIO-GD1 are detailed below.

- We are best placed to manage the risks to the delivery of the business plan within the regulatory framework proposed for RIIO-GD1.
- We have identified the commensurate rate of return and cost of equity taking into account the risks best managed by NGN within the existing regulatory framework.
- We have proposed no additional uncertainty mechanisms to those set out in the March 2011 Strategy document. Within those mechanisms we will mitigate such risks and associated cost to an efficient level as we have sought to demonstrate with our approach to TMA permit costs set out in Section 7 of our plan.

In this appendix we summarise our approach to risk management and then set out the key risks and uncertainties we are likely to face in RIIO-GD1.

On balance we believe we will be facing a higher level of risk in RIIO-GD1, except for limited circumstances, we believe we are best placed to manage these risks rather than impose them and their associated costs on customers.

NGN's proactive management of risk in an increasingly uncertain environment means that we require a minimum cost of equity in RIIO-GD1 of 7.2%.

2. NGN's approach to risk management

NGN's approach to risk management is twofold.

- Actively identify all potential risks to our business:
- Ensure sufficient controls are implemented to mitigate identified risks are mitigated to an efficient and manageable level.

We maintain a central corporate risk register which is regularly reviewed and updated at all levels within the company and across all areas of the business.

In line with best practice the register requires the following.

- The impact of all risks are quantified. NGN uses a sliding five point scale consistent with High Medium Low classification.
- The likelihood of all identified risks is quantified using a five point sliding scale of probability.
- Overall risk score is the product of likelihood and impact. The level of the overall risk score determines management response. The highest risks are the responsibility of senior management.
- Specific targeted management responses are identified to control each risk.

- All risks are assigned to managers who are responsible for implementing controls, tracking and monitoring the risk.

In the context of RIIO-GD1 it is important to distinguish between internal and external risks.

2.1. Internal risks

These risks stem from unsustainable or unattainable forecasts which cannot be delivered, or from the potential for inaccuracies within the forecasts or formulation of them. Such risks could impact consumers and other stakeholders. However, we believe such risks are minimal for the following reasons.

- The key business operations, processes and data which underpin this business plan are subject to rigorous quality control and validation including continual assessment from internal audit.
- All forecasts within this plan have been subject to assessment and challenge at every level of the business and have been approved by NGN's Board.
- We have clearly identified the key assumptions underlying this business plan. We have identified the scope for variance in such assumptions and they have been accommodated. This business plan, in terms of baseline expenditure and outputs, together with uncertainty mechanisms is robust to a wide variety of outcomes that may occur over 2013-21.

2.2. External risks

These are risks which could arise from a variety of areas e.g. regulatory, political and economic. The impact and likelihood of some of these issues are better understood than others. In all cases we are able to identify and manage these risks through our corporate risk management policy. We describe the main risks below.

<table>
<tr><th colspan="5">Significant reduction in cash flows leading to poor credit ratios and inability to raise finance</th></tr>
<tr><th>Control</th><th>Likelihood</th><th>Consequence</th><th>Risk rating</th><th>Change from GDPCR1</th></tr>
<tr><td rowspan="2">None this is a purely external change which NGN cannot mitigate without compromising the business and its stakeholders.
The only control is to modify the regulatory framework.</td><td>Without controls
High</td><td>Without controls
Very high – c.£240m</td><td>Without controls
High</td><td rowspan="3">Yes.
The March 2011 Strategy document decision to 100% capitalise Repex is the primary contributor to extending the duration of a significant element of NGN cash flows into the future. Extending cash flows in this manner increases the perceived risk by investors and requires a higher cost of equity as a consequence. This is reflected in NGN's proposal for a cost of equity of 7.2%.</td></tr>
<tr><td>With controls
Low</td><td>With controls
Low</td><td>With controls
Low</td></tr>
<tr><td>Mitigation through regulatory framework?</td><td colspan="3">Yes. NGN is proposing transitional arrangements to address the financeability implications of the change to 100% capitalisation of Repex. A transition period is required to restore NGN's credit metrics to an acceptable level - ensuring NGN's investment programme can be financed and limiting the overall impact on the perceived riskiness of the regulatory framework. The basis of this transition arrangement is set out more fully in Section 8 of our business plan.</td></tr>
</table>

<table>
<tr><th colspan="5">Major or systematic asset failure</th></tr>
<tr><th>Control</th><th>Likelihood</th><th>Consequence</th><th>Risk rating</th><th>Change from GDPCR1</th></tr>
<tr><td rowspan="2">Effective asset risk management.</td><td>Without controls
Very high</td><td>Without controls
Very high</td><td>Without controls
Very high</td><td rowspan="3">No.</td></tr>
<tr><td>With controls
Low</td><td>With controls
Low</td><td>With controls
Low</td></tr>
<tr><td>Mitigation through regulatory framework?</td><td colspan="3">No, NGN has in place an effective asset management risk strategy.
For RIIO-GD1 these have been improved even further within our Total Network Management approach.</td></tr>
</table>

<table>
<tr><th colspan="5">Unable to raise debt at a cost in line with new cost of debt index</th></tr>
<tr><th>Control</th><th>Likelihood</th><th>Consequence</th><th>Risk rating</th><th>Change from GDPCR1</th></tr>
<tr><td rowspan="2">Effective management of short and medium term debt.</td><td>Without controls
High</td><td>Without controls
High - £45m</td><td>Without controls
High</td><td rowspan="3">Increased risk.
The March 2011 Strategy document removed headroom from cost of debt and linked allowance to Iboxx indices.</td></tr>
<tr><td>With controls
High</td><td>With controls
Medium</td><td>With controls
Medium</td></tr>
<tr><td>Mitigation through regulatory framework?</td><td colspan="3">The proposed index has key limitations and does not provide an ability for companies to effectively hedge against movements in cost of debt. As set out in our business plan we estimate that the impact of these factors is around 85bps.
The impact of this accrues directly to equity increasing risk.</td></tr>
</table>

<table>
<tr><th colspan="5">HSE don’t approve NGNs new iron mains safety risk management</th></tr>
<tr><th>Control</th><th>Likelihood</th><th>Consequence</th><th>Risk rating</th><th>Change from GDPCR1</th></tr>
<tr><td rowspan="2">Tri-partite engagement GDNs-HSE-Ofgem.</td><td>Without controls
High</td><td>Without controls
Very high - £160m</td><td>Without controls
Very high</td><td rowspan="3">Increased risk.
HSE have made changes to the Repex programme. NGN must get approval from HSE for our new approach to manage risk from iron mains, large diameter mains in particular.</td></tr>
<tr><td>With controls
Low</td><td>With controls
Low</td><td>With controls
Low</td></tr>
<tr><td>Mitigation through regulatory framework?</td><td colspan="3">None proposed, this is a risk NGN will manage.</td></tr>
</table>

<table>
<tr><th colspan="5">Significant increase in streetworks costs (e.g. through TMA permit schemes)</th></tr>
<tr><th>Control</th><th>Likelihood</th><th>Consequence</th><th>Risk rating</th><th>Change from GDPCR1</th></tr>
<tr><td rowspan="2">Management of operations to minimise level of costs incurred.</td><td>Without controls
High</td><td>Without controls
Very high - £120m</td><td>Without controls
Very high</td><td rowspan="3">Increased risk.
New TMA permit schemes will be introduced in NGN’s region from 2012. Local Authorities under financial pressure may also seek to increase revenues generally though increased streetworks charges.</td></tr>
<tr><td>With controls
Low</td><td>With controls
Low</td><td>With controls
Low</td></tr>
<tr><td>Mitigation through regulatory framework?</td><td colspan="3">In part, through ex-ante allowance for new West Yorkshire TMA permit scheme and re-openers in 2015 and 2018 for efficient costs. General increase in streetworks costs to be managed by NGN.</td></tr>
</table>

<table>
<tr><th colspan="5">Unable to procure interruption services leading to expensive reinforcement of network</th></tr>
<tr><th>Control</th><th>Likelihood</th><th>Consequence</th><th>Risk rating</th><th>Change from GDPCR1</th></tr>
<tr><td rowspan="2">Procurement of interruption contracts to avoid network reinforcement.</td><td>Without controls
High</td><td>Without controls
High - £67m</td><td>Without controls
High</td><td rowspan="3">No change.
NGN has been managing these risks around certain large users since interruption arrangements were reformed in 2009.</td></tr>
<tr><td>With controls
Medium</td><td>With controls
Medium</td><td>With controls
Medium</td></tr>
<tr><td>Mitigation through regulatory framework?</td><td colspan="3">In part, NGN is proposing to continue to receive an allowance for procuring interruption services from large users. However, NGN will carry the risk of delivering any reinforcement if unable to procure these services.</td></tr>
</table>

<table>
<tr><th colspan="5">Real price effects (RPE) exceed business plan forecasts</th></tr>
<tr><th>Control</th><th>Likelihood</th><th>Consequence</th><th>Risk rating</th><th>Change from GDPCR1</th></tr>
<tr><td rowspan="2">Efficient procurement and management of costs and other efficiency savings.</td><td>Without controls
High</td><td>Without controls
High - £50m</td><td>Without controls
High</td><td rowspan="3">Increased risk.
Given the increased economic volatility and 8 year price controls there is greater potential for prices to rise above inflation in RIIO-GD1.</td></tr>
<tr><td>With controls
Medium</td><td>With controls
Medium</td><td>With controls
Medium</td></tr>
<tr><td>Mitigation through regulatory framework?</td><td colspan="3">Yes – an ex-ante allowance is included in this business plan but there is still a risk RPEs will increase above this during RIIO-GD1. NGN will manage this risk.</td></tr>
</table>

<table>
<tr><th colspan="5">Impact of Smart Meter rollout has a significant cost and operational impact on NGN</th></tr>
<tr><th>Control</th><th>Likelihood</th><th>Consequence</th><th>Risk rating</th><th>Change from GDPCR1</th></tr>
<tr><td rowspan="2">Focused strategy and approach to target resources around supplier rollout of smart meters as efficiently as possible.</td><td>Without controls
High</td><td>Without controls
High - £80m</td><td>Without controls
High</td><td rowspan="3">Increased risk.
Smart meter rollout has been mandated on suppliers by DECC. The programme will run 2014 to 2019 and install a smart meter in every home in the UK.</td></tr>
<tr><td>With controls
Medium</td><td>With controls
Medium</td><td>With controls
Medium</td></tr>
<tr><td>Mitigation through regulatory framework?</td><td colspan="3">In part, NGN have included an estimate of the likely impact of smart metering on our operations over RIIO-GD1. We have made an informed assessment of the cost of these impacts based on field assessment of the key issues identified. There remains significant uncertainty around the actual costs of this programme over the period. Estimates included within our plan are at the lower end of the range of potential impact on NGN.</td></tr>
</table>

<table>
<tr><th colspan="5">Exceptional operating events (e.g. extreme winter weather conditions or major supply interruption) lead to major operational failure and significant additional costs</th></tr>
<tr><th>Control</th><th>Likelihood</th><th>Consequence</th><th>Risk rating</th><th>Change from GDPCR1</th></tr>
<tr><td rowspan="2">Effective management of emergency and repairs resources and efficient call off contracts.</td><td>Without controls
Medium</td><td>Without controls
Medium - £25m</td><td>Without controls
Medium</td><td rowspan="3">Increased risk.
There is a growing consensus that global warming is driving the extreme weather events as experienced in December 2010.</td></tr>
<tr><td>With controls
Low</td><td>With controls
Low</td><td>With controls
Low</td></tr>
<tr><td>Mitigation through regulatory framework?</td><td colspan="3">No, NGN has based its plan on the basis of a severe winter such as that experienced in 2009/10 with additional contingency measures based on our learning from December 2010 extreme weather event. NGN would be exposed to additional risk in the event of extreme winter weather conditions and/or large scale supply incidents on the network.</td></tr>
</table>

<table>
<tr><th colspan="5">High volume of entry connections including bio-methane leading to significant network change</th></tr>
<tr><th>Control</th><th>Likelihood</th><th>Consequence</th><th>Risk rating</th><th>Change from GDPCR1</th></tr>
<tr><td rowspan="2">Efficient design and delivery of schemes can minimise cost but no controls for volume which is main driver.</td><td>Without controls
Medium</td><td>Without controls
Medium - £20m</td><td>Without controls
Medium</td><td rowspan="3">New risk.
Bio-methane is seen as a key component of achieving the UK’s 2050 carbon reduction targets. Developments in technology and incentives could stimulate significant level of connections by 2021.</td></tr>
<tr><td>With controls
Low</td><td>With controls
Low</td><td>With controls
Low</td></tr>
<tr><td>Mitigation through regulatory framework?</td><td colspan="3">Recovery of costs through re-openers if connection charging boundary is made shallow</td></tr>
</table>

Full statutory remediation of NGN owned all contaminated land is required				
Control	Likelihood	Consequence	Risk rating	Change from GDPCR1
Proactive approach to monitor and inspect contaminated sites and engage with authorities to manage environmental risk without remediation.	Without controls Medium	Without controls Medium - £26m	Without controls Medium	Increased risk. Authorities are increasing the pressure to remediate sites.
	With controls Low	With controls Low	With controls Low	
Mitigation through regulatory framework?	Yes. Remediation costs of £12.5m are included as part of this plan, NGN will manage the risk of the potential £14m additional costs.			

Increased tax liability due to introduction of IFRS				
Control	Likelihood	Consequence	Risk rating	Change from GDPCR1
None this is a purely external change which NGN cannot mitigate.	Without controls High	Without controls High - £160m	Without controls High	No change. The potential introduction of IFRS was known during GDPCR1 and a re-opener mechanism was put in place.
	With controls Low	With controls Low	With controls Low	
Mitigation through regulatory framework?	Yes - Mechanism to increased allowed revenues when IFRS is introduced.			

NG NTS is unable to meet NGN's NTS exit capacity requirements throughout RIIO-GD1				
Control	**Likelihood**	**Consequence**	**Risk rating**	**Change from GDPCR1**
Continued engagement with NG NTS and exchange of planning information.	Without controls Medium	Without controls Very high - £60m	Without controls Very high	Increased risk. NG NTS have highlighted in their RIIO-T1 Business Plan the increasing diversity of entry and exit flows makes it increasing difficult for the NTS to maintain capacity provision. NGN has already experienced reductions of its current (OCS) capacity bookings by the NTS.
	With controls High	With controls High - £30m	With controls High	
Mitigation through regulatory framework?	No NGN is managing this risk throughout RIIO-GD1.			

Negative RPI causes reduction in allowed revenues whilst costs do not reduce				
Control	**Likelihood**	**Consequence**	**Risk rating**	**Change from GDPCR1**
None, this is an external factor arising from the methodology used to set revenues. It is the role of equity to carry such risks.	Without controls Medium	Without controls High - £30m	Without controls Medium	No change. This risk has always existed and materialised in 2009 when negative RPI was experienced. Equity holders saw significant reduction in returns.
	With controls Medium	With controls High	With controls High	
Mitigation through regulatory framework?	No. This is a risk NGN will bear.			

2.2.1. NGN's risk mitigation

Most risks which have been identified above have an identified control to mitigate the risk in line with our risk management strategy. For some risks (e.g. negative RPI) it is not possible to have a control and NGN will bear this risk. As far as possible this ensures that any risks that are borne by NGN or consumers are managed to efficient levels.

As identified above, NGN is undertaking the following strategies and actions to minimise internal and external risk in RIIO-GD1.

- **NGN's internal controls**
- **NGN's procurement and programme delivery**
  We recognise this is fundamental to ensuring that our customers only bear efficient costs. We have detailed market testing and benchmarking process embedded throughout our organisation and have appropriate policy and procedures in place.

- **Operations management**
  NGN has detailed winter contingency and major incident plans which manage such events in a manner designed to minimise the impact on customers'. These plans racket up the levels of resources available and fit in with national contingency and accident planning arrangements.

- **Streetworks**
  As set out in Section 8, these schemes are beginning to be introduced within NGN's region, starting with the Yorkshire Common Permit Scheme (YCPS) which will commence in April 2012. Similar traffic management schemes are expected to come in up to 2021. We are currently developing our strategy and approach for minimising such costs. This will be in place and operational in time for the start of the YCPS. NGN recognises that within these constraints we have the ability to reduce such costs to an efficient level.

  The key elements of NGN's approach are detailed below.

  - Traffic management schemes and costs are taken into account at every level e.g. asset management, operations planning and scheduling, investment decisions, Repex planning etc.
  - Management ensures that, as far as possible, additional streetworks costs are minimised or avoided.

- **Impact of Smart Metering rollout**
  Section 7 describes the potential impact of smart metering on our emergency service. There is significant uncertainty as to whether our estimates overstate or understated the impact. We are obtaining further data from our field trials, but there will remain significant uncertainly as the RIIO-GD1 period starts.

- **Environmental risk management**
  This is critical to ensuring NGN's statutory liabilities in relation to its inherited portfolio of 120 contaminated sites are minimised. Further details on our approach to managing such sites are set out in Section 6 of this plan.

The only exceptions to NGN's risk mitigation are:

- Increased Totex capitalisation rate;
- Cost of Debt Indexation;
- Impact of IFRS; and
- RPI indexation.

These factors are totally external and wholly imposed on NGN. Therefore we have no ability to fully or partially offset these risks. Ofgem has recognised this, hence the mitigation mechanisms which have been incorporated into the regulatory framework. In the case of Totex capitalisation the March 2001 Strategy document requested companies to propose and justify transitional arrangements. Details of NGN's proposed transitional arrangements are set out in Section 8.

3. Uncertainty mechanisms for RIIO-GD1

In some circumstances it is appropriate for risks to be shared between NGN and consumers. In a number of cases Ofgem has already recognised this and introduced mechanisms in the current price control or have committed to for RIIO-GD1. These are shown below.

- Streetworks costs
- Critical National Infrastructure (CPNI) security investment costs

- Impact of IFRS
- Entry connection costs if the connection charging is made shallow boundary

We recognise that these mechanisms go some way to reducing the identified risks which may arise in RIIO-GD1. Given NGN's proactive approach to risk management we are not formally proposing any additional incentive mechanism. We do feel there would be merit in further industry level discussion on the impact of smart metering.

3.1. Implications for cost of equity

One of the key contributing factors to a company's cost of equity is the level of risk that a company is perceived to face. This is encapsulated in a company's equity risk premium (ERP). In Section 8 we detail evidence of the market's view of NGN's ERP. It is important to note that as indentified in the risk matrix, we are facing increased levels of risk in RIO-GD1. Whilst the uncertainty mechanism mitigates some, there remain some residual risks that we have chosen to bear and manage rather than impose on consumers. These are:

- Divergence between the Iboxx index and NGN's actual debt;
- Major reinforcement costs if interruptible customers go firm;
- Real price effects in excess of allowances;
- Statutory liability in relation to contaminated sites in excess of allowance; and
- Cost of exceptional winter events or major incidents.

There are macro economic factors arising from the recent global financial crisis that look set to endure and exert pressure on the future cost of borrowing and equity returns. Taking these into account, we believe in order to finance our baseline operations and capital programme a minimum cost of equity of 7.2% is required.