



ASSESSMENT OF OFGEM'S FINANCIAL RING FENCE CONDITIONS A REPORT FOR OFGEM

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Cambridge Economic Policy Associates Ltd



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SUMMARY

This report evaluates the robustness of the ring fence licence conditions that apply to 41 Protected Energy Companies (PECs). Many aspects of these conditions have worked well and have protected customers. However, our scenario analysis points to a number of weaknesses, detailed below, giving the potential for customers to be placed at unnecessary risk. We have identified two broad approaches that Ofgem could take to guard against these risks: either it can increase monitoring and its powers in respect of cash lock up; or alternatively it could take measures to ensure that sufficient resources are available in the event of an Energy Administration order. We prefer the latter, and recommend that Ofgem considers consulting with companies to find the least cost way to achieve the objective. This could involve requiring companies to deposit cash in escrow, or alternatively to provide third party guarantees or appropriate insurance arrangements. In addition, sanctions on directors could be enhanced, and other provisions and definitions of the ring fence tightened up.

The ring fence conditions

The ring fence conditions include requirements to certify that a company has sufficient financial resources to provide its licensed activities, requires Ofgem's approval for asset disposals, prevents core network assets being used to provide security for debts and allows a cash lock-up to be imposed in some circumstances when a company is in or may be in financial distress. The ring fence conditions can be seen as part of a wider range of measures that seek to prevent or address the consequences of network companies getting into financial difficulties. Amongst the other measures is Ofgem's secondary duty to ensure that companies can finance their licensed activities and provisions for companies to be placed into a special Energy Administration regime. Energy Administration differs from normal insolvency processes primarily through the requirement for the Administrator to seek to maintain the operation of the business alongside considering the interests of creditors, rather than having a sole responsibility to consider the interests of the creditors.

Context

During the period that the ring fence conditions have been in place in the energy sector no network company has got into financial difficulties that have led to harm for customers. This includes a period when the UK economy, and the World economy more generally, has suffered the most significant financial crisis and recession, since the 1930s. Therefore, it could be argued that the conditions work relatively well and there is little case for change. Furthermore, when Enron suffered its financial collapse it was the owner of Wessex Water, but again customers did not suffer any harm, so it might be argued that the ring fence conditions in the water sector (which are similar to those in energy) worked well.

However, there has not been a significant review of the robustness of the ring fence conditions for a number of years, and there have been major changes in the structures of companies in that period, including increased gearing, more privately owned companies, corporate functions being carried out on an international basis and greater contracting out. Furthermore, it is important that the ring fence conditions are seen to be robust over a reasonable period into the future. Therefore, we have been mindful of some of the issues highlighted by the financial crisis, as well

as recognising that such events are not the norm. Nevertheless, ring fence conditions are intended to prevent relatively rare and often difficult to predict events.

Objectives for the ring fence conditions

We consider that in order to evaluate the robustness of the ring fence conditions it is necessary to have a view about what the conditions are intended to achieve, through the outcomes and impacts that they are intended to achieve or prevent. From a “purist” perspective, in principle, the ring-fence conditions, together with other aspects of the regulatory regime, should ensure that in the event of a PEC becoming financially distressed, there will be no impairment to customer service and the costs of rectifying the situation, should not be borne by the customer.

In the real world, however, the costs of realising such a high standard, particularly in terms of the extent of the regulatory burden placed on both companies and Ofgem itself, mean that a range of regulatory restrictions together with what might be tolerated by customers in the event of PEC financial distress, might be considered. From our discussions with Ofgem and considering the other protections already contained in the overall regulatory regime, we decided to assess the ring fence conditions against three targets or objectives, which we have described as Low, Medium and High restrictions. The low restriction objective is that Ofgem should have early warning of a company that maybe entering, or is in financial difficulties and that the restrictions on activities and use of resources are effective. Through early warning Ofgem can then make more informed decisions about what, if any, regulatory action to take. The medium and high restriction objectives are about the degree of harm, if any, that occurs to customers as a result of a company getting into financial difficulties. The medium restriction objective allows for some limited harm to occur to customers, perhaps through some reduction in quality of service or delays in capital expenditure programmes. The high restriction objective is based on no harm to customers.

Harm to customers can be considered in two ways. First, that there is no discontinuity of service, and second, that customers do not end up paying more because a company has financial difficulties due to reasons it could reasonably have avoided, and that shareholders and bondholders face the appropriate financial consequences. It is important to note that we have not explicitly evaluated the ring fence conditions against an objective to seek to avoid companies entering Energy Administration. There are almost certainly circumstances in which Ofgem will want to allow a company to be put into Energy Administration, particularly if the financial difficulties arise from poor management and inefficient operations. Where a company enters Energy Administration, consistent with the three objectives discussed above, we have considered whether the administrator will have the resources necessary to maintain operations and the potential for customers to face costs, both of which are issues that the ring fence can help to address. However, depending upon which standard or level of restriction is adopted, this may have implications as regards Ofgem’s ability to take action to possibly prevent Energy Administration occurring.

Customers may be impacted upon in two broad ways. First, there may be a degradation in service as a company suffers financial distress, for instance, as a consequence of lower capital expenditure (although in such a case, the impact of a relatively short term delay in capital expenditure may be negligible given the long term nature of network assets). Second, if when

the company enters administration the administrator has no available cash to keep the business operating, the administrator may seek indemnities, which would be likely to result in customers (or tax payers) being liable for any costs incurred by the administrator that were not covered by revenues recovered by the company or the proceeds from a future sale of assets.

This situation would be most acute if a “Lehman Brothers”-type situation occurred, in which any cash was removed from the PEC and held in another jurisdiction. Moreover, if no buyer can be found for the assets of the business, given the current regulatory arrangements, there may be pressure for the regulation to be loosened to facilitate a sale of the business. This cost, however, is unlikely to materialise for the PECs with a Regulatory Asset Base (RAB), as this will generate a strong future revenue stream. Furthermore, any proceeds of a sale could be used to cover the initial costs of administration, although it is not clear whether the administrator would have this confidence when they initially took over the operation of the company. The situation is less clear for the PECs without a RAB, which are the independent gas and electricity networks, where the administrator may face initial costs with limited confidence they could be recovered from a future sale.

Approach

The main part of our analysis to assess the robustness of the ring fence has been to consider a range of plausible but generally unlikely, scenarios of events that could lead to companies getting into financial difficulties. We consider how such scenarios might play out in practice and what impact the ring fence conditions would have in each scenario, whether the objectives discussed above are met, and the impact on customers. Generally we found it easier to envisage plausible scenarios for network companies or their wider corporate group getting into financial difficulties than for network companies engaging in non-core risky activities that led to financial difficulties. For all scenarios we have considered the consequences of bad faith by the management towards Ofgem, and in particular, what would happen if company management considered that it was more important to respond to their ultimate controller or owner than Ofgem.

In addition to this scenario analysis we have considered how Ofgem currently implements the ring fence conditions, including the monitoring it undertakes. We have also recognised that in some circumstances other regulatory tools may address issues that the ring fence does not, and therefore the evaluation of the ring fence conditions needs to be in the context of the overall regulatory regime. We have reviewed the ring fence conditions used in other sectors, primarily water and rail, to identify any significant differences and lessons to learn.

Conclusions

A number of aspects of the ring fence appear to be appropriate and work well. The limitations on engaging in non-core risky activities appear to have worked well. The restrictions on disposals of assets have also worked well. There may be some limitations to the restrictions on cross-defaults and offering security over network assets, that need to be considered, including whether the definition of assets needs to be widened to incorporate vehicles and property.

However, overall we consider that the ring fence conditions have some significant shortcomings that may undermine their effectiveness in some situations, which while unlikely, are plausible.

The shortcomings can be grouped into four main elements, although the first and last both relate to limitations with the Availability of Resources certificate:

- **Lack of early warning** – A combination of regular Ofgem monitoring, other regulatory reporting requirements, openness by companies, and companies various requirements to disclose information to stock markets, will ensure that Ofgem receives early warning of many situations that could lead to companies getting into financial difficulties. However, given the increasing number of privately owned and non-quoted energy companies, it is less clear that in all circumstances Ofgem would have early warning of potential difficulties. The Availability of Resources statement provides relatively little information that would inform Ofgem of significant risks, and it is not clear that companies would notify Ofgem quickly enough on all occasions about changes in circumstances.
- **Ineffectiveness of the cash lock-up** – Our analysis indicates that there are two problems with the cash lock up: the form of the trigger, and the effectiveness of the lock-up once in place. The cash lock-up is triggered following a downgrade or warning by a credit rating agency. It is far from clear that this would happen quickly enough in many plausible situations to allow activation of the cash lock-up while there remained cash to lock-up. Ofgem is relying on the action of third parties (the rating agencies) which have historically been backward rather than forward looking. There are also questions about whether the limitations on using cash in such circumstances are strong enough to ensure it would be available to continue the operation of the business. For example, many energy companies have corporate Treasury functions that may mean that cash is held in the physical location of the parent (which may be outside the UK), raising questions about whether cash would be available to lock-up in a UK subsidiary. There are also legitimate ways that a PEC could transfer funds to a parent company while under the lock-up regime.
- **Sanctions** – It is not clear that financial penalties levied against a failing company would represent significant sanctions that Directors of the company would react to, if for example, they were under significant pressure from their parent company.
- **Coverage** – The ring fence conditions are developed from the perspective of financial risks, while the increasing use of contracting out by some network companies suggests that operational risks may also be significant. In particular, PECs may be exposed to the failure of service companies whose activities fall outside the ring fence.

The shortcomings we have identified suggest that even the Low restriction objective of an early warning to Ofgem of potential financial difficulties may not be met in a range of plausible, although unlikely, circumstances. Furthermore, given the concerns about the operation of the cash lock-up we cannot be confident that customers would not suffer some harm through difficulties for business continuity, despite the protections offered by the Energy Administration regime. The harm to customers may manifest itself in customers having to pay the costs of Energy Administration because there is no cash in the business to fund its ongoing operation, although any sale price for the assets may recover some or all of these costs, as discussed above.

Recommendations

Our analysis has indicated that there are significant weaknesses in the ring-fence conditions that mean that under certain circumstances undesirable outcomes are possible, and a change in the conditions could prevent or mitigate the effect of these. Although the events likely to cause these outcomes are unlikely, the heightened awareness of risk in the context of the aftermath of the financial and economic crisis means that it is appropriate for Ofgem to consider making amendments to the ring-fence conditions.

The extent of any change will depend on how much protection Ofgem wants them to achieve, and therefore it will be important for Ofgem to be clear about what level of protection it considers the ring fence conditions should provide in the future. There could be a danger of false expectations amongst companies, investors and other stakeholders about what the financial ring fence can achieve and what actions the regulator may take in some circumstances, if there is not sufficient clarity from Ofgem about the objectives for the ring fence conditions in the future.

Whatever the views of Ofgem on the objectives of the ring fence in the future, though, there are different ways of achieving the desired level of protection. Whilst to some extent, the value of the RAB and its ability to generate future cash, provides some protection, we have identified two additional broad approaches to consider in making changes to the conditions, which differ largely according to what Ofgem relies on in order to mitigate any potentially negative impacts:

- Increasing the level of monitoring and give strong powers to lock up cash.
- Making provision to ensure that resources are available to prevent harm to customers.

In addition consideration should be given to other changes which may be appropriate with either of the above high level approaches. Specifically, these include a clear statement that investors and lenders should expect no special protections should the PEC enter Administration.

Intrusive monitoring and stronger powers to lock-up cash

Under this option Ofgem would formalise a relatively intrusive range of monitoring to give itself the best possible opportunity to identify any potential concerns that companies are entering financial difficulties. The starting point for this monitoring would be a significantly enhanced Availability of Resources certificate providing significantly more information about upcoming risks, such as dates for re-financing, operational risks, cashflow projections, etc. There would also be strong requirements to notify Ofgem about changes in circumstances. Ofgem would accompany these arrangements with its own regular monitoring of public indicators of companies' financial positions, which Ofgem already does to some degree.

Ofgem would also take stronger powers to impose cash lock-up provisions. This could include financial ratio based triggers or wider discretionary powers to impose the lock-up, perhaps for an interim period, to allow Ofgem to assess whether its concerns were material. The nature of the lock-up may also be strengthened to ensure that cash remained in the business to allow business continuity.

In the event that these measures failed to alert Ofgem in time to enact the cash lock-up, and cash was lost from the business in consequence, working capital would need to be raised from

somewhere to maintain operations. There is an issue of whether or not the RAB provided sufficient security to be extended to any administrator to provide the required working capital.

Ensuring resources are available to prevent harm to customers

An alternative option would be to stiffen the existing Availability of Resources certificate to ensure that sufficient working capital is available at all times to safeguard day to day operations. This could be met in different ways; indeed, it would be up to the PECs themselves to demonstrate to Ofgem's satisfaction how this requirement might be met.

The independent networks currently have to place six months cash in escrow to demonstrate that they have sufficient financial resources to meet most, if not all, eventualities. Whilst this option would be available to the DNOs, in practice it may be too blunt a solution. The objective would be to ensure that sufficient working capital would be available through say, a six month administration period, on the assumption that the DNOs cash resources were somehow depleted overnight. The amount of working capital required would need to take into account anticipated revenue streams and outgoings; in fact, it would probably be equivalent to the average cash holdings of the DNO (that is, the cash withdrawn from the business). Rather than such an obligation being cash-collateralised, it should be possible for a DNO to obtain a third party guarantee or insurance. Given the remoteness of the likelihood of the guarantee being drawn, the pricing of this should be relatively competitive. An industry wide insurance scheme may have relatively low costs because of the pooled nature of the risks, but we have not investigated this option in any detail, so we are not in a position to robustly assess potential costs of such an industry wide insurance scheme.

While Ofgem would probably want to maintain some monitoring under this option, including an enhanced Availability of Resources certificate, given that the consequences of financial difficulties had been largely protected against through the provisions for cash, it would be less important to monitor as intrusively as for the first option. As set out above, it would also avoid the necessity of potentially having to rely on the tax-payer to "bail-out" the PEC in the short term, as there will be an immediate need for liquidity, irrespective of the leveraging capacity of the RAB in the medium term. As discussed above, there is an issue as to whether banks may be unwilling to offer lines of credit without a government guarantee until the administrator has been able to establish how the initial loss occurred. We are assuming that such an outcome would have political ramifications.

Evaluating the options

The intrusive option and the option based on ensuring availability of cash, are both likely to have the effect of somewhat increasing costs that customers will ultimately bear.

In the case of the former, the increased monitoring costs would be likely to be passed on to customers. In the event that monitoring failed to prevent financial distress, and where there was no explicit assurance of available resources for an administrator to use, there is a risk that the administrator would initially seek very sweeping indemnities that would be underwritten by customers and/ or taxpayers. This may lead to significant uncertainty at the start of the administration process. In practice, however, customers and taxpayers may not face any

additional costs if the administrator were able to offset these costs through the sale price for the assets, which is a very plausible outcome for a company with a RAB.

In terms of the second option, as we discussed above, there may be some insurance based options that mean the costs of this option could be quite low. Overall, the question is whether those costs, which may materialise through a slightly higher cost of capital, are appropriate if they help to significantly reduce the risk that customers pay significant costs if a company enters financial difficulties.

Our current view is that the second option based on ensuring that resources are available to prevent harm to customers may be the better option. We consider it will be difficult to identify objective and robust triggers for a cash lock-up to be instituted under the first option, that would ensure sufficient resources were available. Furthermore, a relatively discretionary power for Ofgem to impose an enhanced cash lock-up, even for a limited period of time, creates risks of a perception of significantly increased risk. While the second option has the potential to increase costs), it arguably allows Ofgem's greater freedom of action with regard to whether to allow Energy Administration. Where it can be confident that customers will not pay significant costs for Energy Administration it can allow companies that are poorly run to enter Energy Administration, which provides a strong signal to shareholders and management about the reality of this risk. Under the current arrangements and the first option, Ofgem may be more reluctant to allow Energy Administration, rather than say re-opening a price control, if it is concerned that customers will face significant costs. .

Whilst we do not support excessive monitoring; our recommendation for the PECs to provide a working capital commitment may not be necessary if the raising of six month working capital ex-post is not too difficult. If the credit lines could be put in place quickly, the PECs would not necessarily need to make the resources commitment as set out.

Measures that may be appropriate under both options

Under both of these options there are some changes to the ring fence conditions that may be appropriate. These are:

- **Ensuring that the costs of financial distress are allocated appropriately** - Under both options, Ofgem should make clear that it would not adjust the regulatory arrangements to help a company in financial distress, and therefore the shareholders would face the prospect of losing all their equity, and bondholders may also receive only a very small proportion of their holding depending on how much the company was sold for, and the need to cover costs during financial distress, such as those of the administrator and any additional financing costs. This may increase the cost of capital if lenders and investors believe that the PECS have been supported by an implicit government guarantee that protects their interests.
- **Governance and sanctions** – Ofwat's ring fence conditions include provisions that are intended to ensure that the network company Directors act in the best interests of that company rather than a parent company. We have some concerns about whether these provisions work in circumstances where the parent company is 100% owner of the network company. However, stronger provisions of this type, together potentially with

powers to impose criminal sanctions on Directors, may be necessary to give Ofgem comfort that were a company is in significant financial difficulties the Directors will comply with relevant licence conditions. Financial penalties imposed on an otherwise failing company may not be effective to ensure compliance.

- **Tightening up provisions and definitions** – It appears appropriate to tighten up the provisions regarding assets that companies can use as collateral for debt to cover any assets necessary for business continuity, such as vehicles or property. Consideration may also be given to issues arising from a company giving security over revenue flows, although this would be less important where cash was held to ensure business continuity.

We recognise that this range of changes could be perceived as being very significant compared to the current arrangements, and it will therefore be appropriate to debate them extensively with the affected companies and other stakeholders. We consider that there are significant shortcomings with the existing provisions, but there are options to address the issues, and it is important to identify a proportionate set of changes that maximise benefits and minimise costs.

1. INTRODUCTION

This report for Ofgem evaluates the existing ring fence conditions that apply to the Protected Energy Companies (PECs) in Great Britain. The PECs with the ring fence licence conditions are all of the network owners in the UK, including gas and electricity transmission and distribution owners, and the independent gas and electricity network owners. It does not include the gas and electricity interconnectors that connect to Great Britain, or storage operators. Offshore transmission operators may have similar conditions, but through a different regime. The ring fence conditions form part of a range of regulatory tools that are designed to help ensure that the interests of energy customers are protected against, and from the consequences of, a network company suffering financial and to some extent operational distress, although this is only likely to occur in extreme circumstances.

1.1. Context and background

In part due to good regulatory practice, and partly in response to the events in recent years in the financial markets, Ofgem has been reviewing the robustness of its regulatory tools to help ensure that the interests of energy customers are protected against, and in the case of, a network company suffering financial and to some extent operational distress. The review of the robustness of the ring fence conditions is part of this work. Although the project takes place against the background of the financial crisis, we have sought to bear in mind that any conclusions reached should seek to be appropriate not just to short term financial conditions, but also over the longer term.

In particular, while there are heightened concerns about whether the financial crisis might have impacts for network companies, it is important to bear in mind that over the period in which the ring fence conditions have been in place no network company has so far got into significant financial distress such that Ofgem has felt it necessary to take significant regulatory action, or for Ofgem or the Secretary of State to consider using Energy Administration. As far as we are aware, financial distress has not been the cause of any significant negative impact on customer service or continuity of service. Disruptions to service or supply have generally resulted from specific technical faults on networks or following severe weather events.

1.2. Approach

To evaluate the robustness of the ring fence conditions we have first considered what the key objectives for the conditions are, and the outcomes that Ofgem is seeking to achieve or avoid through the conditions. Only with a clear view about the objective(s) of the conditions is it possible to assess whether they are robust. Ofgem will also need to consider the objectives for the conditions on a forward looking basis to determine the best option for developing the provisions. As discussed in Section 3, we have identified three possible outcomes that the conditions are seeking to achieve or avoid, and in Section 5 we assess whether the conditions are robust for achieving or avoiding these outcomes. We have considered the robustness of the ring fence conditions against the outcomes under a range of scenarios/ situations that might plausibly arise. We deliberately sought to choose a range of scenarios/ situations some of which the ring

fence conditions may be better suited to address than others, to seek to identify the ways in which the conditions are robust and where they are not.

In addition to this core part of our analysis we have also reviewed a range of documents provided by Ofgem about how it implements the ring fence conditions on an ongoing basis. This has been very helpful in understanding how in practice Ofgem interprets and implement the ring fence conditions. These documents have also informed the scenarios/ situations that we developed. We have undertaken a legal review of the current conditions to identify any loopholes or unclear aspects of the conditions that could affect their robustness.

We have also compared the ring fence conditions in energy licences with similar conditions used in the water and rail sectors to identify any differences, and possible options for changing or improving the conditions in the energy sector.

1.3. Structure of the report

The remainder of this draft report has the following sections:

- Section 2 explains the current ring fence conditions and our understanding of how Ofgem implements and interprets the conditions on a day to day basis.
- Section 3 discusses our understanding of the objectives of the financial ring fence conditions, and how they relate to other regulatory tools such as the provisions for Energy Administration.
- Section 4 explains how we have approached the assessment of the robustness of the financial ring fence conditions, including the scenarios we have used to test the robustness of the conditions.
- Section 5 explains the results of our assessment of the robustness of Ofgem's ring fence conditions under different scenarios.
- Section 6 is an analysis of how Ofgem's ring fence conditions compare to examples in other sectors and other circumstances in which similar ring fence provisions are appropriate.
- Section 7 draws together our analysis to make recommendations to Ofgem about what changes should be made to the ring fence conditions and the approach to monitoring the ring fence conditions.

2. THE RING FENCE CONDITIONS AND MONITORING ACTIVITIES

2.1. Introduction

This section provides an introduction to the individual ring fence conditions. It discusses Ofgem's experience with their operation to date, operational risks that could undermine their effectiveness and how they fit in with other monitoring activities undertaken by Ofgem. This section is intended to provide context and background for the subsequent sections and analysis.

2.2. The ring fence conditions

Six conditions in Protected Energy Company (PEC)¹ licenses are known collectively as the 'financial ring fence.' Today's ring fence has evolved from conditions introduced by Ofgem and its predecessors in the mid-1990s. These regulators have extended and adapted the conditions in response to changing circumstances and the need to standardise conditions across licensees. Standardisation was achieved in network licenses introduced under the Utilities Act 2000 and has been substantially preserved in subsequent modifications. The biggest differences between the conditions relate to the independent electricity and gas network operators compared to the main networks, rather than between different types of networks.

41 energy network licensees classified as PECs are covered by the ring fence. They are a diverse group of operators including all electricity distribution (including IDNOs) and transmission, and gas distribution (including IGTs) and transmission businesses.² The ring fence does not currently apply to the ten gas and electricity interconnector licensees, a decision motivated by cross-jurisdictional impediments. Offshore transmission networks may be subject to a financial ring fence.³ However discussion of these arrangements is beyond the scope of this report.

The ring fence conditions have undergone several stages of evolution since they began to appear in the mid-1990s. Although some differences remain, predominantly between different classes of PEC, the ring fence exists as a largely standardised set of six conditions in PEC licences.

Table 2.1 below summarises each license condition, examining the obligations they impose on PECs, highlighting any material differences between PEC types, the role they play as part of the ring fence, and what they enable Ofgem to achieve.

¹ Under The Energy Act 2004, a PEC is a network licensee that holds a licence granted under section 6(1)(b) or (c) of the 1989 Act (transmission and distribution licences for electricity); or a licence granted under section 7 of the Gas Act 1986 (licensing of gas transporters). [check this copying]

² The five Gas Transporter (Storage) licensees are classified as PECs but are not currently subject to the financial ring fence, having the relevant conditions removed from their modified Gas Transporter licenses.

³ <http://www.ofgem.gov.uk/Networks/offtrans/pdc/cdr/cons2009/Documents1/consultation2309.pdf>

Table 2.1: Overview of financial ring-fence licence conditions

License condition	The licensee is required to	Purpose	Benefit to the regulator
Disposal of (relevant) assets: Electricity distribution SLC 26; Electricity transmission SLC B3 Gas transporter SLC 29	<ul style="list-style-type: none"> Provide two months written notice to Ofgem of any proposed disposal of operational control of (or granting security over) any assets forming part of its network (with certain exemptions).⁴ 	<ul style="list-style-type: none"> Prevents licensees from relinquishing control of any asset that may be critical to the operation of their network without making Ofgem aware of it. 	<ul style="list-style-type: none"> Gives Ofgem the opportunity to prevent the disposal if it does not serve the interests of consumers and network users.
Availability of resources: Electricity distribution SLC 30; Electricity transmission SLC B7 Gas transporter SLC 44	<ul style="list-style-type: none"> Ensure it has sufficient financial resources to carry on its licensed activities and to submit a certificate to the Authority annually, supported by the licensee's external auditors and factors considered, confirming availability of financial resources. Not make or pay any dividend that would cause it to be in breach of its financial ring fence conditions at any future time. Licensees have a duty to report adverse circumstances at any time. 	<ul style="list-style-type: none"> Ensures that a protected energy company always has at its disposal the resources to maintain and develop an efficient, economic and coordinated system. 	<ul style="list-style-type: none"> Provides 'crucial information' for monitoring purposes.
Restriction on activity and financial ring-fencing: Electricity distribution SLC 29; Electricity transmission SLC B6 Gas transporter SLC 43	<ul style="list-style-type: none"> Not conduct any activities other than those of its core business, subject to certain exceptions and specific limitations on the turnover and investment of permitted non-core activities (up to 2.5% if turnover or share capital). Not enter into an agreement incorporating a cross-default obligation without consent from 	<ul style="list-style-type: none"> Prevents a licensee from assuming material risks that are unrelated to its regulated activities and which may jeopardise its financial position in the event of an adverse outcome. 	<ul style="list-style-type: none"> Ofgem's power under this condition stems from discretion to withhold granting consents unless a licensee is protected from the risks associated with certain activities.

⁴ The presumption is that if assets are adopted by a network (mainly the independent networks) they are not encumbered with any obligations.

License condition	The licensee is required to	Purpose	Benefit to the regulator
	Ofgem.		
Credit rating: Electricity distribution SLC 40; Electricity transmission SLC B10 Gas transporter SLC 46	<ul style="list-style-type: none"> Maintain an investment grade credit rating⁵ i.e. not less than equivalent to: <ul style="list-style-type: none"> BBB- by Standard & Poor's; Baa3 by Moody's; or BBB- by Fitch Ratings 	<ul style="list-style-type: none"> Ensures that licensees finance themselves and manage their operations in an efficient manner and by doing so ensure that they maintain ready access to sources of liquidity and capital on reasonable terms. 	<ul style="list-style-type: none"> Where a licensee experiences a reduction in its investment grade status it may trigger cash lock-up provisions under the indebtedness condition.⁶
Indebtedness: Electricity distribution SLC 41; Electricity transmission SLC B9 Gas transporter SLC 47	<ul style="list-style-type: none"> Not incur any indebtedness nor create any security, nor guarantee any liability of another person, other than on certain specified terms and for a permitted purpose, or otherwise with the consent of Ofgem. 	<ul style="list-style-type: none"> Ensures that a licensee only assumes liabilities relating to the conduct of its own business and activities and does not become exposed to risks at group level that may jeopardise its financial position outside of those activities. Cash lock-up provisions ensure that the licensees conserve cash and other sources of value when its investment grade credit rating is jeopardised. 	<ul style="list-style-type: none"> Ofgem powers under this condition stem from discretion to withhold granting consents in relation to the additional liabilities that the licensee may assume and in relation to its transactions with affiliates.
Undertaking from ultimate controller: Electricity distribution SLC 31 Electricity transmission SLC B8 Gas transporter SLC 45 Electricity Transmission B8	<ul style="list-style-type: none"> Obtain an undertaking from its parent company and any other ultimate controllers that they will refrain from taking any action which may cause the licensee to breach its obligations under the Gas Act or the Electricity Act or its licence. 	<ul style="list-style-type: none"> Prevents a holding company or other ultimate controller from using its influence to cause the licensee to act inconsistently with the requirements of its licence and statutory obligations including most notably its requirement to maintain and develop an efficient system, and also the other ring-fencing conditions. 	<ul style="list-style-type: none"> Enables Ofgem to take action to prevent any repeated attempts of this nature.

Source: Ofgem⁷

⁵ IGTs and IDNOs too small to receive their own credit rating are permitted to obtain a 'keep-well' agreement from their parent instead. These agreements include commitments to provide all necessary funding and resources to ensure that the licensee can meet its obligations, and to make reasonable endeavours to maintain an investment grade credit rating. If parent is not rated they must hold a sum equal to six months operating/asset replacement costs in an escrow account.

⁶ Cash lock-up provisions refer to the ability to stop the licensee from paying dividends or other distributions. These were first introduced for distribution companies in 2005. Lock up is triggered when the licensee has the lowest investment grade credit rating and a rating agency revises their outlook to negative or put them on review for downgrade.

⁷ Ofgem (2009) “Arrangements for responding in the event that an energy network company experiences deteriorating financial
[http://www.ofgem.gov.uk/NETWORKS/POLICY/Documents1/Arrangements%20for%20responding%20to%20financial%20distre
%20Guidance%20Doc%20FINAL.pdf](http://www.ofgem.gov.uk/NETWORKS/POLICY/Documents1/Arrangements%20for%20responding%20to%20financial%20distre%20Guidance%20Doc%20FINAL.pdf)

2.3. Integrated framework

Table 2.1 above provides an introduction to the ring fence conditions, focusing on each condition in isolation. However, the ring fence should be regarded as a series of mutually reinforcing elements of a complete ring fence. The remainder of this section focuses on how the ring fence works as a whole, buttressed by other monitoring activities undertaken by Ofgem and informed by experience of its operation to date.

The ring fence conditions provide a three pillar framework for protecting energy consumers from the adverse effects of a network company experiencing financial distress based on: strong licence requirements; timetabled monitoring requirements; and potential enforcement action.

In order for this to be effective, each pillar must be strong. Licence requirements must be comprehensive, monitoring must be timely, and enforcement must be effective and credible.

2.3.1. Pillar one: licence conditions

The Monopolies and Mergers Commission (MMC) (now the Competition Commission) gave careful consideration to the ring fence conditions as part of its 1997 report on PacifiCorp's proposed, and subsequently unsuccessful, bid to acquire The Energy Group PLC.⁸ Its examination of the ring fence and a series of proposed licence amendments found arrangements to be sufficient to deal with the financial pressures of the proposed acquisition. Standardisation and subsequent amendments have strengthened the ring fence since the MMC investigation. However, the environment in which it must function and the risks that it must protect PECs from have changed significantly in the 12 years since then. This means that although the ring fence is stronger than before, it does not necessarily mean that it is fully fit for purpose today.

2.3.2. Pillar two: monitoring activities

While they do contain measures for Ofgem to monitor the financial health of energy network companies, the conditions are more focused on the *process* for ensuring that the company avoids entering financial distress. Except for the requirement to maintain an investment grade credit rating, there are no other fairly objective measures of whether a company may be entering or in financial distress (although there are implicit indicators because the credit rating is based on key financial ratios).⁹

The ring fence conditions themselves are dependent on a number of sources of information gathered through annual submissions, individual requests or notifications, continuous market monitoring, and *ad hoc* information requests.¹⁰ The validity of much of the information relies on a combination of assurances from companies and audited statements, with the onus on companies to tell the truth and inform Ofgem as soon as they are aware of any material changes. This may

⁸ http://www.competition-commission.org.uk/rep_pub/reports/1997/413pacificorp.htm

⁹ A credit rating depends on the information available to the credit rating agency and its approach to assessing companies. Generally credit rating agencies tend to be backward looking.

¹⁰ An example of an *ad hoc* information request is a request for refinancing requirements over 2009/10m, gathered as part of the Networks Financial Stability exercise [HN: though this will become regular].

also increase the importance of Ofgem being seen as approachable for companies and whistleblowers.

Table 2.2 below shows the frequency of Ofgem's monitoring activities in relation to the ring fence conditions.

Table 2.2: Timing of ring-fence monitoring ac

Sample	Annual	Each occurrence	Continuous	Ad hoc
Disposal of (relevant) assets		Requests and notifications		
Availability of resources	Annual declaration	Notification of changes and on announcement of dividends		
Restriction on activity & financial ring-fencing	Information from annual cost and revenue reporting	Requests and notifications		Inspection of organisation charts and websites
Credit rating			Ratings monitoring	
Indebtedness	Some information in annual cost and revenue reporting	Requests and notifications	Ratings monitoring	
Undertaking from ultimate controller	Only when there is a change			

Source: CEPA

Table 2.2 provides an indication of the timing of Ofgem's monitoring of the ring fence. Although these activities cast a wide net, there is potential for some mismatch between the frequency that information is gathered and the speed with which difficulties can arise. Some of these gaps are filled by Ofgem's other monitoring activities.

Other monitoring activities, nominally independent of the ring fence complement its operation by aiding the detection of licence breaches or signs of emerging distress. Such activities include the monitoring of company news, financial analyst reports, debt and equity issues, and credit ratings of certain resource providers (such as United Utilities), parents and financing companies. Some problems may also be identified from cost and revenue reporting. For example, lower than expected capex or deteriorating service quality may provide a cue to commence a closer inspection of its causes.

Ofgem has significant powers to make information requests when deemed appropriate. These powers can, amongst other occasions, be exercised when Ofgem suspects a breach of the ring fence. For example, Ofgem recently requested all network companies to submit organisation charts and refinancing requirements for the forthcoming year. There is also a wealth of public information that Ofgem can draw on in such cases such as public accounts and corporate websites.

Licensees are free to take the initiative to report problems to Ofgem and are required to do so as part of the ring fence. There are some recent cases of licensees contacting Ofgem regarding financial difficulties. These problems were eventually solved without any regulatory intervention, but the advance warning provided useful information in case it did not work out so well. In

addition there have been cases where company insiders have approached Ofgem regarding potential licence breaches.

2.3.3. Pillar three: enforcement action

Ofgem has significant power to penalise companies that breach licence conditions. These exist at three levels: within the ring-fence; under the Electricity and Gas acts; and as part of the process for dealing with companies in financial distress.

The ring fence provides some power for Ofgem to enforce the licence conditions. It has scope to exercise discretion over the granting of consents over certain areas of the conditions and may impose lock up on companies and deny dividend payments. These actions are more preventative than penalising.

Ofgem has significantly greater powers to enforce the ring fence under the Gas Act 1986 and the Electricity Act 1989. Just as with other licence conditions, if a licensee is found to have contravened one or more licence conditions it may be subject to financial penalties¹¹ or licence revocation. There are also potentially severe consequences for any company that provides misleading or incorrect information in such statements and the possibility to investigate fraud.

In the case of ultimate failure, there are further steps that Ofgem can take as part of its pre-administration process for financially distressed licensees. Ofgem may facilitate a trade sale of the network assets to another network operator, it has the power to reopen the price control and it can initiate the energy administration process. These powers are not necessarily penalties themselves. However their processes are designed to protect consumers, placing much of the burden of failure or network licensees' shareholders.

¹¹ Up to 10% of UK licensed revenue
<http://www.ofgem.gov.uk/About%20us/Documents1/Ofgem%27s%20Enforcement%20Powers%20Factsheet.pdf>

3. EVALUATING THE RING FENCE

3.1. Introduction

In order to evaluate the financial ring fence conditions it is necessary to identify the objectives of the ring fence. This is not straightforward. Ofgem has stated objectives for the conditions, but there is not a clear statement of what outcomes they are intended to prevent with regard to the nature of harm to customers. In particular, financial distress may lead to Energy Administration for a PEC, but Ofgem does not seek to prevent Energy Administration in all circumstances, although it recognises the potential costs to customers of such an outcome.

As a result, there are a range of possible objectives that could be considered for the ring fence conditions. The evaluation of the conditions depends on which set of objectives are considered appropriate. We have evaluated the ring fence propose against different objectives.

3.2. Issues to be considered in the evaluation

3.2.1. Regulatory context

The ring fence cannot be examined in isolation of its regulatory context. It is the second string of Ofgem's pre-administration process,¹² operating alongside ongoing monitoring of financial health. Together they form a structured line of defence against the eventualities of price control re-openers or Energy Administration.

There is a fair degree of overlap between the ring fence and monitoring that takes place as part of wider price control regulation. PEC licences include the legal requirement to provide discrete pieces of information on cost, revenues and quality of service. Ofgem also observe licensees on a more continuous basis through monitoring information such as share prices, bond issuances, credit ratings and refinancing requirements. Therefore, although the ring-fence is established to provide an early warning of financial distress, its greatest additionality is in the way that it focuses the use of resources on the licensed business. There are also restrictions on asset disposals which do not form part of the ring fence conditions.¹³

UK corporate law also places restrictions on the actions of directors of PECs, who must act in the interests of their own company. However, in the case of wholly owned subsidiaries in particular, this may not provide any practical limitation on directors acting only in the interests of their Ultimate Controller (where there is only one shareholder), rather than the company because the duty of directors towards the interests of its shareholders (where there are two or more shareholders the interest of the company and its shareholders may be different). Even where insolvency is imminent and the duty of Directors switches to the interests of creditors, it could also mean that related parties get repaid.

¹² It is the second stage in the (non-consecutive) pre-administration process for PECs: 1. Monitoring financial health; 2. Financial ring fence; 3. Price control reopener; 4. Trade sale; and 5. Energy administration.

¹³ For example Condition 26 of DNO Licences.

A further method of enforcement is the provision for prosecution of individuals under section 59 of the Electricity Act 1989.¹⁴ This is not directly a matter for Ofgem, although clearly it could provide advice to the Secretary of State or DPP recommending prosecution and providing evidence for it if appropriate.

3.2.2. Corporate context

There have been a number of developments since the initial development of the ring-fence conditions that are relevant to the evaluation:

- Outsourcing (including within the same corporate group). Outsourcing of operations has been an important way for network companies to control costs. The extent of outsourcing has gone far further than envisaged, and it is now possible for a licensee to have only very limited operations with almost all services contracted out. The lower costs associated with these innovations which have lower operating costs are desirable. However, for such companies the nature of the regulated business has changed, and customers are exposed to risks from outside the regulated company (e.g. the failure of a major supplier).
- Ownership. Major international utility groups and private equity funds now own the majority of the PECs. This has implications for the way in which these companies are now financed, with greater creativity in type of debt and equity finance. The international ownership of the companies also means that many corporate functions (such as the Treasury function) are not undertaken in the UK.
- Perceptions of risk. The financial crisis has changed the perception of risk, and in particular it has highlighted how risks that appeared to be separate may unwittingly be concentrated. Indeed, the current review is in part a response to a heightened awareness of risk, to ensure that the ring fence conditions are appropriate in the light of conditions in the aftermath of the crisis.
- Growth of independent network businesses. In the gas and electricity distribution sectors there are now a number of relatively large independent network businesses. While covered by the ring fence provisions the independent networks do not generally have a credit rating so make alternative provisions, generally through the provision of cash in an escrow account to comply with the ring fence provisions. The independent network companies do not have RAB based price controls, but instead have a relative price control that links their charges to those of the local gas and electricity distribution companies.

The financial ring fence conditions need to be appropriate to these changes and robust to future change.

¹⁴ Section 57 (1) (a) provides for summary conviction with a fine up to the statutory maximum £5000, but subsection (b) provides for conviction on indictment, and the Crown Court has the power to unlimited fines.

The ring fence is not, however, intended unduly to restrict PECs from innovation in the way they deliver services, which can lead to lower operating and financing costs.

3.2.3. The linkage with Energy Administration

One issue which will affect the evaluation of the ring fence conditions is how Energy Administration is considered. The Energy Administration arrangements are intended to prevent harm to customers from financial distress.

- Would an Energy Administration order damage investor confidence in the industry?
- Are the conditions of Energy Administration sufficiently tight to prevent harm to customers?
- What are the costs of Energy Administration?

If an Energy Administration order can be arranged sufficiently quickly and effectively, harm to customers may be minimal. But if there are risks that the process will be slow, and that business operations could be negatively affected, then Energy Administration could lead to material harm to customers. The way in which the Energy Administration can be expected to work may therefore have an impact on the evaluation, depending on the interpretation of the purpose of the ring fence conditions (see below).

Compared to ‘ordinary’ forms of administration, creditors have fewer rights under Energy Administration. Other things being equal, this leads to increased risks for investors, with an associated increase in the cost of capital. This, together with the potential damage to investor confidence and customers from an Energy Administration order means that it should be a last resort, with very low probability of being required.

However, it may well be that at times of real financial distress, when fines simply exacerbate financial difficulties, the threat of Energy Administration may be the only effective way of forcing a company or its Ultimate Controller to act. So although Energy Administration should be a last resort, the threat of its use must be credible, and Ofgem should act in a manner that suggests that it is prepared to go to Court to seek an order in the appropriate circumstances.

3.2.4. Is the ring fence broader than financial?

The ring fence conditions require PECs to act in a way so that they have the resources (financial and other) that allow them to fulfil their Licence duties. They are also required to provide a certificate concerning the availability of financial resources over the next 12 months. There is no such formal requirement for the non-financial resources. However, any potential harm to customers is likely to arise from the failure to access appropriate physical and other resources.

This means that the ring fence is effectively broader than financial in its scope. However, the name ‘financial ring fence’ may mean that the scope and purpose of the conditions may be misinterpreted.

3.3. Stated purpose of ring fence conditions

Ofgem has stated that the purpose of the financial ring fence is two-fold:¹⁵

- To restrict the operation and financing of the regulated business to ensure that resources are not applied for other purposes, or expose the regulated company to unrelated risks. This includes insulating the network company from financial distress at a parent or related company.
- To provide Ofgem with information on financial position of licencees, which may provide early warning of possible financial distress and facilitate early action.

Perhaps a more compelling description is contained in the combined Ofwat/Ofgem 2006 report on financing networks:¹⁶

These arrangements have been designed to reduce the risk of financial distress by constraining the conduct of the company, ensuring its resources are not diverted and that it is not exposed to undue risk. Their presence helps to reassure the regulator that companies remain in a position to finance their functions and consumers interests are not adversely affected by a company's capital structure.

It is important to recognise that the ring fence conditions are not intended to prevent a network company from entering Energy Administration under all circumstances. In particular, Ofgem has stated that it would not wish to provide additional support to network companies which have not been operated or financed efficiently, as this would give rise to moral hazard. In contrast, if a network company has been operated and financed efficiently, Ofgem would consider whether there might be appropriate measures to provide support. The regulatory framework is rather intended to protect customers (current and now future), in line with Ofgem's primary statutory duty, while recognising the reasonable interests of shareholders.

3.4. Options for interpreting objectives of ring fence conditions

None of the stated purposes of the ring fence conditions provide unequivocal guidance as to the outcomes that the ring fence is intended to prevent. As noted above, the ring fence is not intended to lead Ofgem to take action that would prevent financial distress in all circumstances. In some cases financial distress may be relatively mild, and affect only shareholders and not customers. In other circumstances financial distress may arise from poor management decisions and only affect shareholders. We have identified three possible interpretations of the objectives of the ring fence conditions:

- A 'low restriction' option based on Ofgem's stated purpose of the condition, including the PEC taking unrelated or unwarranted risks, and regarding providing an early warning of potential difficulties.
- A 'high restriction' option based on no harm to customers.

An intermediate option, which is harder to define, but would reflect no significant harm to customers.

¹⁵ Arrangements for responding in the event that a network company experiences deteriorating financial health, Ofgem Position Paper 158/08, December 2008.

¹⁶ <http://www.ofgem.gov.uk/NETWORKS/POLICY/Documents1/12890-FinancingNetworks080206.pdf>

3.4.1. Low restriction option

Under this option, the ring fence conditions would be designed to ensure that if Energy Administration occurred and the company had complied with licence conditions it could not be the case that:

- a) The PEC had somehow used resources in an inappropriate way, or took unrelated or unwarranted risks; or
- b) Ofgem was not aware of the potential financial distress and/or could have taken some appropriate steps to avoid it but did not.

The aim would be to ensure that were Energy Administration to occur, Ofgem would not have been at fault in allowing the situation to arise and should not have prevented it. It would be able to demonstrate that it had made reasonable restrictions on the way that PECs conduct their operations that restrict the application of its resources, was continually monitoring the PECs to anticipate potential distress, and if didn't take action to prevent Energy Administration that was appropriate in the circumstances.

This interpretation is probably the simplest to evaluate. The test of the ring fence conditions is whether they are effective at preventing the outcomes. It is relatively 'light touch' in its approach.

3.4.2. High restriction option

The low restriction option described above would not, however, prevent conditions arising under which customers suffered. For example, a company might restrict capital or operating expenditure to conserve cash. This could lead to situations where customer interests were placed at risk even though there is no prospect of Energy Administration.

It therefore seems appropriate to consider a more restrictive interpretation of the conditions. Given Ofgem's primary statutory duty to protect customers, we define this option as there being no prospect of harming customers. In this context and more generally when we discuss harm to customers we are thinking of two aspects. First, whether customers suffer through a lack of continuity or quality of service, including any consequences of delays in capex. Second, whether customers pay additional costs as a result of a company entering financial distress, as distinct from shareholders and bondholders bearing these costs.

This is likely to be the most interventionist of the approaches considered here, with more intrusive monitoring of activities and risks at increased cost.

3.4.3. Intermediate option

Imposing conditions ensuring no prospect of customer harm may, however, be too onerous. It could stifle innovation, and lead to unwarranted additional costs for PECs. However, the Low Restriction option may not be considered to be sufficiently robust, as there may be conditions under which harm occurs to customers which could have been prevented.

It is harder to define the intermediate option, but nevertheless we think it would be worthwhile in this evaluation of the ring fence. We propose an objective of no significant harm to customers.

Under this option, outcomes that might be acceptable could include: the failure of a small independent DNO; a minor breach to operating standards for a limited period; a small shortfall in a capital expenditure programme; or customers bearing a small additional cost as a result of a company suffering financial distress. Other outcomes would not be considered acceptable such as: major interruptions to service; significant interruption or delay to a capex programme with substantial follow on implications for the industry and customers; customers bearing substantial additional costs as a result of a company being in financial distress; or correlated failures at a group of DNOs.

The approach is intended to strike a balance between the interests of customers and other stakeholders and investors. Arguably this might summarise the general position that Ofgem is trying to reach with regard to the ring fence conditions, and the general financial framework to protect against companies in or suffering financial distress.

3.5. Conclusion

Although there are stated objectives for the financial ring fence conditions, the precise outcomes which the conditions are intended to prevent are not clear. We have developed three possible sets of outcomes against which to measure the effectiveness of the conditions. In our scenario analysis to test the conditions, we test effectiveness against each of the interpretations of the objective.

It should be noted that the existing ring-fence conditions were drawn up with some care. A balance was struck between protecting customers, and ensuring that there was no undue restriction on the activities of network companies. It is possible, though, that the heightened awareness of risk in the aftermath of the financial crisis will have changed the appropriate trade-off.

4. TESTING THE ROBUSTNESS OF THE RING FENCE CONDITIONS

4.1. Introduction

A key part of considering the potential robustness of the financial ring fence conditions is to consider circumstances and situations (which we broadly describe as scenarios) that could cause or result in companies' suffering financial distress, and assessing how the ring fence conditions would help to achieve the objectives for the ring fence conditions that are discussed in Section 3. This section describes the scenarios that we intend to test to consider the robustness of the ring fence conditions.

4.2. Developing the scenarios

We intend to use the main purposes and objectives of the ring fence conditions discussed in the previous section to frame the scenarios that we will consider to test the robustness of the ring fence conditions.

While defining what can be broadly called input based scenarios is in our view necessary to consider the robustness of the ring fence conditions, it is also important to bear in mind the outcomes that the ring fence conditions are intended to prevent. As discussed in Section 3, we have developed three outcomes or objectives for the ring fence conditions:

- Low restriction – The ring fence conditions are intended to provide sufficient warning that a company may be suffering financial distress for Ofgem to decide what action to take, and prevent PECs from taking unwarranted risks.
- Intermediate restriction – The ring fence conditions are intended to prevent significant harm to customers as a result of a company experiencing financial distress.
- High restriction – The ring fence conditions are intended to prevent any harm to customers as a result of potential financial distress by a company.

We have based the scenarios we have developed around three aspects of the ring fence conditions, which are:

- Engaging in non-core risky activities.
- Wider corporate group financial difficulties.
- Financial difficulties within the regulated company

These three aspects capture the main behaviours that the ring fence conditions restrict or affect. Difficulties arising from engaging in non-core risky activities can only really arise from a conscious management or staff effort to circumvent or avoid regulatory restrictions. They are probably most likely to be financial or trading related activities, which may also be undertaken out of site of the Board of the company. Financial difficulties in the wider corporate group or within the regulated company could arise for a range of reasons some of which are directly controlled or influenced by the management or staff, while others can arise from wider economy or financial system affects.

We considered also developing further scenarios which are premised on deliberate management action to circumvent the ring fence conditions or to recognise that in some circumstances the management of a company may place greater weight on objectives other than regulatory compliance. However, we have decided to address this issue by considering under each of the core scenarios what effect bad faith in the behaviour of the management could have on the effectiveness of the ring fence conditions. We are not intending to imply that there is any evidence that energy companies have engaged in such behaviour, but in recent years there have been examples of major corporate failures that have involved misleading regulatory authorities. Furthermore, to assess the robustness of the ring fence conditions it is necessary to consider whether the sanctions for non-compliance are appropriate. Even if we conclude that the ring fence conditions are not robust to attempts to deliberately mislead Ofgem, there is an important question about whether any ring fence conditions or other conditions could reasonably be expected to address deliberate attempts to mislead the regulator by the company. This issue will be considered when developing recommendations.

In developing the scenarios we have sought to choose a range that represent at least a broadly plausible set of possible events, and therefore, we have not just chosen scenarios where there is a high probability that aspects of the ring fence conditions will not be adequate. We anticipate that the scenarios will show that the ring fence conditions are more robust in some circumstances than others. We also anticipate that in some cases we might conclude that the ring fence is not fully robust, but this is appropriate, e.g. if a company has performed very poorly and shareholders have failed to address these issues then it is likely to be appropriate for Energy Administration to be appropriate as an ultimate signal to shareholders about the need to ensure that a company is managed well.

4.2.1. Engaging in risky activities

We have identified one scenario to represent this type of issue:

- The network company trades energy (gas or electricity), and incurs a substantial financial loss. The financial loss occurs very quickly because of external events that cause a sudden and large change in prices. For the purposes of the scenario we assume that the trading is by a “rogue” trader operating outside of permitted limits.

4.2.2. Wider corporate group financial difficulties

We have identified two scenarios that are:

- The parent company of the network company faces a cash shortage and needs to access as much cash as possible at short notice. Treasury functions within the corporate group are run centrally, so the parent company is able to access cash generated by the network company from centrally controlled accounts. The cash shortage for the network company could arise over a long or short period of time.
- The network company contracts out a significant proportion of delivery of its obligations, including delivery of capital expenditure. The service provider enters into financial difficulties and ceases to provide the services to the network company. The

network company receives no prior notice from its service provider. The lack of service provision leads to an immediate and severe deterioration in quality of service, with consequent financial consequences.

4.2.3. General financial difficulties

This is the example where it is arguably easiest to consider a wide range of scenarios. We have focused on five scenarios:

- The network company is unable to re-finance a material proportion of its debt at a reasonable cost possibly due to a lack of liquidity in the debt markets. This issue would probably be more severe for a more highly geared company. This scenario is likely to play itself out over a period of time rather than be a very short term event.
- Input costs for the network companies are persistently substantially above those assumed by Ofgem when the price control was set, causing at least one network company to have financial difficulties because it has not hedged these costs to any significant degree. Again this scenario is likely to play itself out over a period of time.
- The network company is delivering persistently poor service and failing to invest at the levels considered necessary to maintain performance by Ofgem. This leads to penalties under incentive schemes and may lead to fines, all of which contributes to the company experiencing financial difficulties.
- A large deficit arises rapidly in a company's pension scheme, with gross pension assets falling in value, and liabilities rising in value (for example as a result of changing discount rates and mortality assumptions). This is sufficiently large to cause concern in financial markets and has an impact on corporate financing.
- The network company takes positions in financial derivatives, which lead to significant losses on a mark to market basis that create significant financial difficulties in a relatively short period of time.

4.3. Testing the scenarios

To test each of the scenarios, we are going to consider how the scenario may play out, and what if any impact any of the ring fence conditions would have. In some cases this requires us to also take a view about the actions of parties other than Ofgem, e.g. credit rating agencies and auditors. In these circumstances we will flag up the risks associated with the potential actions of third parties, but start with the presumption that they will act in their own best interests.

As well as considering how the ring fence conditions may work under each scenario, we will also note the potential other consequences of the scenarios, and the other measures that might address the issues arising. For example, how shareholders may behave to address a problem. We will also identify the consequences for customers and the industry more generally under each of the scenarios.

The ring fence conditions cover the large network companies, including the DNOs and GDNs, as well as the smaller IDNOs and IGTs. It will be necessary to consider whether any of the scenarios will affect companies of different types and scale differently.

For each scenario that is tested we will attempt to reach a conclusion that identifies:

- Whether the ring fence conditions are likely to have been sufficiently robust against each of the outcomes explained in Section 3?
- What weaknesses are there in the ring fence conditions?
- If there are weaknesses in the ring fence conditions is it reasonable to expect that other regulatory measures would have addressed the problem in a timely manner?
- What impact on customers arose from the scenario taking account of the impact of the ring fence conditions.
- For the scenarios where this is appropriate, how would the conclusions have changed if more than one network company faced the scenario at the same time? Coincident scenarios are most likely to be those caused by general economic or financial issues, rather than ones associated with undertaking risky non-core activities or deliberately misleading the regulators.

We will also begin to consider the options that might be considered to address any weaknesses identified by the scenarios. As discussed earlier, we anticipate that some of the scenarios tested will show that the ring fence conditions are robust to the circumstances considered, so it will be important to recognise that any options for change clearly identify the types of scenarios that they would address.

The next section presents the conclusions of our analysis of the scenarios.

5. OUTCOMES OF THE SCENARIOS

5.1. Introduction

In this section we explain the present each of the scenarios we have considered and draw together the results of each scenario. We initially consider the results of the scenarios under each of the three categories of the scenarios set out in Section 4, before drawing them together to reach overall conclusions.

5.2. Engaging in risky activities

Table 5.1 below presents this scenario. Under this scenario a network company faces a significant financial loss as a result of trading outside agreed limits by an individual trader. While unlikely this is not necessarily implausible given that it has occurred in financial institutions. For the robustness of the ring fence we reach the following overall conclusions about this scenario:

- By definition the earliest warning that Ofgem will get that this has occurred is when the company makes a public statement and/ or notifies Ofgem, or a third party notifies Ofgem. There is a risk that the company will choose not to notify Ofgem at an early stage, but there would be scope to fine the company in such circumstances. Inevitably significance reliance cannot be placed on notification by third parties.
- If Ofgem wished to institute a cash lock-up it would be dependent on when the credit ratings agencies became aware of the issue and if they decided to downgrade the company.
- The degree of financial loss will help determine the impact of the scenario, but in general there should not be a major impact on customers unless the financial loss leads to cut backs in expenditure, but that would raise the option for Ofgem to consider other enforcement measures. There are circumstances in which Ofgem could be faced with a decision as to whether to re-open the price control or allow the company to enter Energy Administration, with a consequent potential impact on customers.

Table 5.1: Scenario based on a company suffering a significant financial loss as a result of trading outside limits

Substantial financial loss as a result of a “rogue trader” situation	
Assumptions	<ul style="list-style-type: none"> • Trading is permitted as being in support of the licensed business. • Either by accident or through a “rogue trader” type situation, the company accrues a large un-hedged position, with directors being unaware of it. • The financial loss occurs very quickly because of external events that cause a sudden and large change in prices.
How does the scenario develop	<ol style="list-style-type: none"> 1. Company incurs the loss and directors are notified 2. Directors are concerned that they believe that the company will not have sufficient financial resources as outlined in their latest availability of resources statement. Therefore they are required to inform Ofgem of their status. 3. Ofgem can then prepare contingencies for price control re-opening (although unlikely to be appropriate in these circumstances) or energy

	<p>administration. It could also start investigation into whether fines were required given submission of any false information or breach of licence conditions.</p> <p>4. If information becomes public, rating agencies may downgrade credit ratings to below investment grade, triggering cash lockup. If the credit rating agency took some time to be aware of the issue then there may not be any cash to lock-up.</p> <p>5. There is a risk that if the financial position was very bad it would end with Energy Administration. However it is probably more likely that the outcome would be a takeover if the activity that caused the financial distress was unrelated to the underlying profitability of the business, although the size of the business could also be a factor in the likelihood of a takeover.</p> <p>6. In the case of a “rogue trader” situation, fraud charges could be brought against the offending employee.</p>
Which ring fence conditions are relevant?	
Disposal of relevant assets	X Credit rating
Availability of resources	X Indebtedness X
Restriction on activity & financial ring-fencing	Undertaking from ultimate controller
<ul style="list-style-type: none"> • Disposal of relevant assets - A fast inappropriate disposal of regulated network assets to a third party in order to raise cash is prevented. Although vehicles and property can be sold. • Availability of resources - Directors are required to inform Ofgem of occurrences that are likely to change its ability to obtain necessary resources. • Indebtedness – Once information of the loss became public it is likely that the credit rating would fall below investment grade level, which would trigger the cash lock-up. 	
How robust are the ring fence conditions against the three levels of tests?	
Low	This is not a failure of the ring fence but of management and internal monitoring. It is not clear that any ring fence conditions could fully prevent such a situation occurring.
Intermediate	<p>There is a possibility of some minor harm to customers, particularly if the crisis results in Energy Administration. However this is smaller than would be in the absence of the ring fence.</p> <p>However this likelihood of any harm to customers is likely to be low as this is essentially a financial issue, where the shareholders will bear the cost. There is a risk of some cost to customers if the company enters Energy Administration.</p>
High	See discussion above.
Scenario variants	
How would bad faith on the part of company Directors affect the outcome?	Directors could conceal the loss in the hope that the damage is temporary and could mean that cash leaves the business even though it requires more to ensure ongoing operations. Directors could cut capex.
Could more than one company experience difficulties at the same time?	Unlikely. However it could lead to markets questioning the effectiveness of monitoring systems, increasing the cost of finance to other companies or reducing their credit ratings.
Most	Those with active energy trading or other trading activities (e.g. as part of

vulnerable/susceptible PECs	treasury management).
Lessons	
Implications for Ofgem's activities	Given there can be no absolute guarantee of inappropriate management or staff action, the key issues for Ofgem are probably about ensuring that corporate governance arrangements are robust, and that penalties for false or misleading declarations to Ofgem are sufficient.
Issues to consider with the ring fence conditions	Periodic monitoring of company risk exposure in any "relevant activities" could ensure that large positions do not arise over time. However the difficulty for the regulator to identify fraudulent positions means that responsibility to uncover such deviations must lie with company Directors.

5.3. Wider corporate group financial difficulties

5.3.1. Cash shortage at the parent company

Table 5.2 below presents this scenario. Under this scenario the parent company of a network company faces a severe cash shortage. Given the recent financial crisis, and previous difficulties at energy companies such as Enron and TXU, this can be considered to be a plausible scenario. For the robustness of the ring fence we reach the following overall conclusions about this scenario:

- There is a risk that Ofgem would not get early warning of these difficulties if the parent company is privately owned.
- The triggering of the cash lock-up is reliant on action by the credit rating agencies that may not happen. If Treasury functions are managed at a group level it is not clear that there would be cash available to lock-up. There may be further difficulties if the Group Treasury function is undertaken outside the UK.
- This is a scenario where there is a severe risk of bad faith on the part of company Directors because of conflicts of interest, but also a view that any penalties Ofgem could impose are less serious than the consequences of failing to address the cash shortage quickly.

Table 5.2: Scenario based on a cash shortage at the parent company

Severe cash shortage within parent company	
Assumptions	<ul style="list-style-type: none"> • Parent company or a group subsidiary requires rapid access to cash. • Possible reasons include an inability by an affiliated company to re-finance debt as expected, or an unexpected large margin call resulting from energy trading activities within a group company.
How does the scenario develop	<ol style="list-style-type: none"> 1. The ultimate controller would wish to find a quick way to raise cash from its subsidiary that is a PEC. There are a number of ways in which it might achieve this: it could request payment of a special dividend or withdraw equity, which in turn would reduce cash balances or require raising of new debt at the subsidiary. Ofgem is aware that some PECs have liabilities that are repayable on demand. 2. If the PEC is well within investment grade territory, and the actions would

	<p>not lead to a downgrade to below investment grade, this should be acceptable. However, even though the move down in the rating may be acceptable in the short term, it may not guarantee capital expenditure plans in the medium term, and may still prompt a scaling back of these plans or unwarranted cuts in operating expenditure.</p> <p>3. If the action precipitates a move to a sub-investment grade rating, then cash lock up provisions would apply immediately the rating downgrade or move to the watch-list occurs. However, there may be a delay before this occurs, and Ofgem is reliant on third parties (the rating agency) for this enforcement.</p> <p>4. Even if cash lock up provisions are effective, there may be ways to circumvent these (e.g. through the activation of particular terms on existing debt instruments, or structuring of new instruments). The existence of centralised Treasury functions within a group, including based outside the UK may also circumvent these provisions.</p> <p>5. Shortage of cash could lead to a disposal by the ultimate controller of the PEC in its entirety. Provided that the new ultimate owner satisfies the necessary conditions and makes the necessary undertakings, this is a good outcome for Ofgem.</p>
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Which ring fence conditions are relevant?

Disposal of relevant assets	X	Credit rating	X
Availability of resources	X	Indebtedness	X
Restriction on activity & financial ring-fencing	X	Undertaking from ultimate controller	X

- **Restriction on activity & financial ring fencing.** This condition ensures that cash is not extracted from the group using inappropriate contracts (these must be for a regulated purpose and at market rates).
- **Indebtedness.** Inappropriate grant of rights (e.g. security over assets) is prevented without authorisation from Ofgem.
- **Undertaking from ultimate controller.** This condition should prevent the parent company from withdrawing cash or other resources that threaten the licence obligations, e.g. through capex plans. However, an ultimate owner could reasonably argue that extracting cash within limits, or deferring capex for a short period would not be a breach of this condition.
- **Disposal of relevant assets.** A fast inappropriate disposal of regulated assets to a third party is prevented.
- **Credit rating.** Company must act to maintain a credit rating which provides limits on the extent to which cash can be withdrawn.
- **Availability of resources.** Provides a further limit on the extent to which resources can be sent to parent company.

How robust are the ring fence conditions against the three levels of tests?

Low	<p>Where the parent company is listed or has other disclosure obligations, Ofgem would become aware of the cash shortage at the parent company through news monitoring but not licence conditions. For a private company, Ofgem may not become aware of the situation.</p> <p>The ring fence conditions do limit financial risk to which the PEC will become exposed. There may be ways in which the ring fence terms become circumvented.</p>
Intermediate	For early warning, see discussion above. There is a risk that financial

	pressures at group level could manifest itself in the PEC despite the licence obligations.
High	See discussion above.
Scenario variants	
How would bad faith on the part of company Directors affect the outcome?	There appear to be material risks associated with this. In particular, if treasury management operations are centralised at group level, then it is possible that the daily availability of finance is effectively controlled by the parent circumventing instructions from the subsidiary. In addition, loopholes in the ring fence conditions could be effectively exploited.
Could more than one company experience difficulties at the same time?	A proximate cause of the cash shortage may also affect other groups (e.g. sustained low wholesale electricity prices affecting generation businesses). However, immediate causes of a cash shortage are likely to be individual.
Most vulnerable/susceptible PECs	Highly geared PECs with external finance are likely to be closely monitored by external finance providers. Interestingly the issue may well be focused on companies where from the outside the risk appears to be low, such as privately owned companies.
Lessons	
Implications for Ofgem's activities	Existing monitoring of parent companies needs to be maintained to ensure that potential risk events are known.
Issues to consider with the ring fence conditions	Loopholes in cash lock up (e.g. 'dividends' provided by non-equity securities). Reliance on rating change or watch list for cash lock up provisions. Potential issues arising from centralised group Treasury functions, including if they are based outside the UK.

5.3.2. A major contractor for a network company gets into financial difficulties

Table 5.3 below presents this scenario. Under this scenario a network company outsources a significant amount of its activities and the contractor gets into major financial difficulties such that it ceases to provide services in the short term to the network company because it enters administration. This scenario reflects changes in company structures in recent years. For the robustness of the ring fence we reach the following overall conclusions about this scenario:

- It is unlikely that Ofgem would get an early warning of this scenario as it has no direct relationship or jurisdiction over the contractors for network companies. Any early warning for the network company would depend on any contractual provisions with its contractor.
- The availability of resources certificate does not identify these out sourcing risks, although from price control reviews Ofgem may be aware of the out sourcing strategies of the network companies.
- It is probable that any impact on customer service would be short lived because other contractors or the staff of the contractor that went into administration could be employed quickly.

Table 5.3: Scenario based on financial difficulties at a major contractor for a network company

Financial Difficulties in significant service provider			
Assumptions	<ul style="list-style-type: none">• PEC contracts out a significant portion of operations to a single service provider.• An unrelated event causes financial difficulties at this service provider, leading to bankruptcy and thus withdrawal of service from that company.		
How does the scenario develop	<ol style="list-style-type: none">1. There are a number of ways in which the scenario could play out which would depend on the contractual arrangements made by the PEC, on decisions made by the operator of the service company, and other factors.2. It may be possible for the PEC to take control of relevant personnel with support from the administrator of the service company. However, there may be difficulties in negotiating this, depending on how quickly the administrator is appointed, and how effective the administrator is. If a transaction is achieved quickly, there need be no impact on customers.3. Using an alternative service company as back up, e.g. by buying in the services from another PEC, or from another group company (could be international). The effectiveness of this will depend on the availability of resource at alternative providers and whether such a provider is able to somehow make use of operating staff at the existing provider (e.g. by buying part of the company from the administrator or using staff under an alternative arrangement).4. To meet its commitments, the PEC must make some form of alternative arrangements to replace the failed service company. But it may not be able to make the necessary arrangements (either under 2 or 3 above) quickly. There is therefore a risk of significant harm to customers arising from the handover of control and changes in personnel. There may, for example, be insufficient staff to respond to emergencies (such as major unplanned outages), a backlog of routine maintenance may arise, or a major delay to necessary enhancement capital expenditure.5. Over the longer term, the interruptions to maintenance and other activities may increase costs. Depending on the approach taken to these costs in a future regulatory review, this could affect customer prices in addition to the impact on service highlighted above.		
Which ring fence conditions are relevant?			
Disposal of relevant assets	X	Credit rating	
Availability of resources	X	Indebtedness	
Restriction on activity & financial ring-fencing		Undertaking from ultimate controller	
<ul style="list-style-type: none">• Availability of resources. The PEC is required to declare that it has available resources (financial and other) in place. There are some issues with this, though. First, the annual formal declaration is only for financial resources. Second, there is no interpretation of what adequate resources is – such a guarantee cannot be given for all circumstances. Third, no evidence of resource availability needs to be provided to Ofgem.• Disposal of relevant assets. Although operations can be subcontracted, disposal of assets will be restricted which protects the access of the PEC to relevant assets under this type of scenario.			
How robust are the ring fence conditions against the three levels of tests?			
Low	The ring fence conditions do not prevent this scenario occurring or to		

	remedy it.
Intermediate	There is a material risk of significant harm.
High	There is a material risk of significant harm.
Scenario variants	
How would bad faith on the part of company Directors affect the outcome?	Mismanagement rather than bad faith is probably the main concern here. Mismanagement could imply an inappropriate contracting arrangement with insufficient safeguards under these circumstances.
Could more than one company experience difficulties at the same time?	This is possible where PECs have the same service provider. It is also possible that the same proximate cause of financial difficulty could affect all service providers, again with the possibility of a service interruption to more than one PEC simultaneously. If this were to occur, the resolution of the problem would be harder, because there would be more pressure on resources available to the PECs as a group.
Most vulnerable/susceptible PECs	Those with a business model with large proportion of contracted out activity.
Lessons	
Implications for Ofgem's activities	Third parties providing services may not be monitored directly by Ofgem, and it may not get early warning of the scenario.
Issues to consider with the ring fence conditions	If a deal can be done quickly with an administrator of the service provider to take over resources supplying services to the PEC, then there is a limited risk of harm. However, if this does not occur, the risk of service interruption and associated customer harm is high, and there may also be an impact on prices. It is therefore appropriate to consider whether it may be sensible to enhance the availability of resources condition to extend to the operational resources provided by third parties.

5.4. General financial difficulties

5.4.1. Lack of liquidity in the financial markets prevents re-financing

Table 5.4 below presents this scenario. Under this scenario a company or companies cannot re-finance a material proportion of debt due to a lack of liquidity in debt markets. Given the recent financial crisis this can be considered to be a plausible scenario. For the robustness of the ring fence we reach the following overall conclusions about this scenario:

- In most cases Ofgem is likely to get an early warning that a problem may arise because it will be public knowledge when bond debt is due to expire and be re-financed. Disclosures required to the stock exchange and credit rating agencies may provide further visibility of issues. To ensure it is fully appraised of these issues Ofgem may need to undertake some additional monitoring of bond debt maturity dates.
- If a company is privately owned or has significant bank finance to re-finance it is less clear that publicly available information would alert Ofgem to the issue. Furthermore,

the Availability of Resources certificate does not provide sufficient information to highlight such risks and it is also not clear whether credit rating agencies would be more aware of the issue.

- This potential lack of early warning about the issue creates the risk that in some circumstances a company may breach other ring fence conditions, such as offering security on network assets to aid re-financing. If financing is done at the corporate group level then there may be little or no cash available to lock-up once Ofgem became aware of the issue.
- If the difficulties of re-financing are due to issues in financial markets that are largely beyond the companies' control they may be more likely to approach Ofgem to seek a re-opening of the price control. At this point Ofgem would be able to influence how the process played out.

Table 5.4: Scenario based on lack of liquidity in the debt markets creating refinancing difficulties

A network company is unable to refinance a significant amount of its debt due to a lack of liquidity in debt markets, having previously submitted an Availability of Resources certificate	
Assumptions	<ul style="list-style-type: none"> • Company could be refinancing conventional bond debt or bank finance. • Company could be publicly listed or privately owned.
How does the scenario develop	<ol style="list-style-type: none"> 1. The company seeks to refinance debt as it comes due, but is unable to do so due to a lack of liquidity in the market. Where the company is publicly listed and/ or the debt is bond finance the timing of refinancing and/ or a failure to refinance would be likely to be publicly known. 2. If the company was privately owned and/ or the debt to be refinanced was bank debt it is less clear that a failure to refinance debt would be publicly known. However, Ofgem does receive some of the relevant information in the annual Regulatory Reporting Pack. 3. If the company cannot refinance a material proportion of its debt then it would have a number of options, including approaching shareholders, approaching Ofgem to seek a re-opening of the price control, cut expenditure including capex, breach some of the ring fence conditions to make re-financing easier, e.g. offering network assets as security. It is unclear that shareholders would be prepared to make an injection and Ofgem may not be aware of such discussions for a privately owned company. While Ofgem would in time identify cuts in expenditure it may not realise the cause. Banks and bondholders may be aware of the ring fence provisions, so be reluctant to enter into financing agreements that breach those conditions. 4. Ofgem would need to consider whether any request to re-open the price control was consistent with its statutory duties, including relating to the financing of licensed activities. Judgements may include whether the financing structure of the company was reasonably efficient, but Ofgem might be more likely to re-open the price control if the failure to refinance is due to the general state of the financial markets. 5. Once Ofgem became aware of the difficulties it may want to consider applying the cash lock-up, but as discussed below, it is not clear if the conditions to do this would be met.
Which ring fence conditions are relevant?	

Disposal of relevant assets		<u>Credit rating</u>	X
<u>Availability of resources</u>	X	<u>Indebtedness</u>	X
Restriction on activity & financial ring-fencing		Undertaking from ultimate controller	
<ul style="list-style-type: none">• The Availability of Resources certificate – It is not clear that this would necessarily provide sufficient information for Ofgem to be aware of material re-financing requirements in the coming year, particularly where this relates to privately owned companies or bank finance.• Maintaining investment grade credit rating – Credit rating agencies would only take action if they become aware that a company is having difficulties refinancing. Unless there are specific provisions to notify rating agencies they may be unaware of the issue for privately owned companies or bank finance.• Cash lock-up – It is not clear that in all cases the conditions to apply the lock-up would be met, particularly if the credit rating agencies did not act.			
How robust are the ring fence conditions against the three levels of tests?			
Low	In most cases Ofgem would have an early warning that a company was or was at risk of failing to refinance a material proportion of its debt. However, it is not clear that in all circumstances Ofgem would be aware, particularly for privately owned companies or companies with significant bank financing. The Availability of Resources certificate does not provide sufficient information and the credit rating agencies may not be aware of the issue early enough, such that action by them would bring the issue to Ofgem’s attention.		
Intermediate	Given that we cannot be sure that Ofgem would have early warning of the event we cannot be sure that there would not be some harm to customers. Again, the risk is focused on privately owned companies or companies with significant bank finance. However, if the cause of the refinancing difficulties is a lack of liquidity in the debt markets there is a strong possibility that the company would approach Ofgem to seek a re-opening of the price control, which would allow Ofgem to consider the issues. Nevertheless, there is a risk that by then there is limited cash to lock-up, even if the triggers for the cash lock-up are met.		
High	See the discussion above.		
Scenario variants			
How would bad faith on the part of company Directors affect the outcome?	A risk that company Directors may try to refinance by offering security against network assets. Banks and bondholders may be aware of ring fence conditions and be reluctant to do this.		
Could more than one company experience difficulties at the same time?	Yes, if there is a general lack of liquidity in the debt markets. However, it is unlikely that the timing of companies’ major refinancing would perfectly coincide.		
Most vulnerable/susceptible PECs	Independent networks may be the most likely to be relying on bank rather than bond market finance.		
Lessons			
Implications for Ofgem’s activities	We are assuming that Ofgem’s monitoring extends to identifying publicly traded bonds and their expiry dates to understand key re-financing risks		

	based on publicly available information. We know that Ofgem monitors credit ratings.
Issues to consider with the ring fence conditions	<p>Is more information required in the Availability of Resources certificate, particularly for privately owned companies or companies with significant bank finance?</p> <p>It may be helpful for Ofgem to understand more about the requirements of credit rating agencies for companies to notify them about bank finance difficulties.</p> <p>Are the triggers for cash lock-up appropriate for privately owned companies or companies with significant bank finance?</p>

5.4.2. Input costs are persistently above the level assumed in the price control

Table 5.5 below presents the outcomes of this scenario. Under this scenario a network company faces increased costs because the costs of key inputs (such as materials) are persistently much higher than assumed under the price control, and it has not substantially hedged the risk in advance. This scenario assumes that the price control is not set in such a way that revenues automatically increase if input costs increase. This scenario would be most severe if input costs rose substantially quite shortly after a price control was set and therefore a long time before the next review. For the robustness of the ring fence we reach the following conclusions:

- It will be public knowledge that input costs are substantially above those assumed when Ofgem set the price control. However, the Availability of Resources certificate is unlikely to provide Ofgem with information about the exposure of individual companies because it does not include information about hedging strategies. Credit rating agencies may begin to become concerned about companies' financial positions.
- Ofgem could become aware of the severity of the issue for some companies through the annual cost reporting, although some companies may present the issue as temporary and argue that any cuts in expenditure is re-profiling rather than longer term.
- Companies may be quite likely to approach Ofgem to seek a price control re-opening or disapplication if they consider that the input cost increases are largely beyond their control and their hedging strategy was reasonable. At this point Ofgem would have an ability to influence outcomes.
- This scenario could affect a number of network companies at a similar time, although it is unlikely a lot of companies would have very similar contracting or hedging strategies.

Table 5.5: Scenario based on input costs being persistently above those assumed by Ofgem when the price control was set

Input costs for the network companies are persistently substantially above those assumed by Ofgem when the price control was set, causing at least one network company to have financial difficulties because it has not hedged these costs to any significant degree	
Assumptions	<ul style="list-style-type: none"> • Price controls are not indexed to automatically adjust allowed revenue as input costs change, and there is no specific price control re-opener that is triggered when input prices rise.
How does the scenario develop	<ol style="list-style-type: none"> 1. Input prices for the network companies are persistently above the assumptions made by Ofgem when the price controls were set, which can

	<p>be observed through market and factory gate prices for key materials.</p> <ol style="list-style-type: none"> Given the lack of indexation of materials prices in the price controls the companies are incurring opex costs significantly above the price control allowance and unit costs for capex are persistently above the price control assumptions. Unless a company had very limited cash reserves this would only be an issue if it was persistent. Companies may begin to cut back on expenditure, particularly capex, where they believe that at least in the short term the impact on quality of service or delivery of outputs may be limited. Any cuts should be evident to Ofgem in annual cost reporting. Companies may initially argue that any cut backs in capex are re-profiling in the expectation of price falls in the future for materials. A company may approach Ofgem with a request to re-open its price control. It is not clear that such a request would satisfy the specific re-opening provisions in a number of the price controls currently in place, including for the independent networks. In this case a company could request a disapplication of its price control, which gives Ofgem up to 18 months to review the issue. Amongst the matters Ofgem would need to consider is whether the company could have more effectively hedged its exposure to input price rises. The credit rating agencies may pay particular attention if a company makes such a request to Ofgem. Any potential downgrade might give Ofgem an opportunity to use the cash lock-up. If Ofgem did not re-open the price control then the company may consider it is faced with a choice between cutting expenditure (which could lead to regulatory penalties) or facing a credit rating downgrade, which could lead to other regulatory penalties or costs associated with raising additional finance to boost its financial position.
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Which ring fence conditions are relevant?

Disposal of relevant assets		Credit rating	X
Availability of resources	X	Indebtedness	
Restriction on activity & financial ring-fencing		Undertaking from ultimate controller	

- **The Availability of Resource certificate** – This does not require any disclosure by the network companies of hedging strategies for input costs, so it may not be evident to Ofgem which companies are most exposed to increases in input costs.
- **Credit rating** – The agencies may make a downgrade if it is evident that a company is exposed and Ofgem will not re-open the price control.

How robust are the ring fence conditions against the three levels of tests?

Low	It is not automatically the case that the ring fence conditions would make Ofgem aware that a company had significant exposure to input costs, but it would be publicly known if input costs were persistently high, so Ofgem would become aware of the issue through annual cost reporting or could make an ad hoc information request.
Intermediate	It seems very likely that a company would have sought a price control re-opener from Ofgem that would allow Ofgem to determine whether to take action. This should allow Ofgem to prevent any significant harm to customers or make a judgement that it was prepared to allow the company to enter Energy Administration.
High	It is possible that a company may initially react to the persistently high input

	costs by cutting expenditure until a decision was made by Ofgem about a price control re-opener. However, this harm is unlikely to be significant for customers, unless Ofgem makes a judgement that it is prepared to allow the company to enter Energy Administration.
Scenario variants	
How would bad faith on the part of company Directors affect the outcome?	This would only be likely to be an issue if companies did not have the option to seek a price control re-opener or disapplication request.
Could more than one company experience difficulties at the same time?	While it is unlikely that all companies will have the same contracting and hedging strategies, persistently high input costs would be likely to affect all companies to some degree.
Most vulnerable/susceptible PECs	Companies who have contracted out a large proportion of their costs may have less short term visibility of cost increases depending on the timing of costs being passed on.
Lessons	
Implications for Ofgem's activities	<p>There would be a lot of public information about rises in input costs that should be visible to Ofgem. Ofgem may be prepared to agree to an NPV neutral re-scheduling of capex if the increase in input costs was expected to be transitory and the impact on customers low.</p> <p>As the impact on companies' finances would emerge slowly Ofgem would need to ensure that its annual cost reporting or ad hoc information requests identified robustly the causes of any expenditure reductions.</p>
Issues to consider with the ring fence conditions	<p>Would Ofgem's visibility to the problem be improved if the Availability of Resources certificate identified more clearly major input cost exposures?</p> <p>The conclusions reached for this scenario would be different if the opportunity to re-open price controls was substantially limited, such that rises in input costs would never be considered for a re-opener or disapplication.</p>

5.4.3. Persistently poor service quality

Table 5.6 below presents the outcomes of this scenario. Under this scenario a network company persistently under performs relative to the regulatory requirements through providing poor service quality and overspending. In a way this can be seen as a "Railtrack" type scenario, where financial difficulties are caused as a result of operational failures that are not addressed quickly or are too difficult to address quickly because they have arisen over a long period of time. For the robustness of the ring fence we reach the following conclusions:

- Regulatory tools other than the ring fence conditions are likely to provide the early warning to Ofgem of problems, e.g. annual cost and performance reporting. This is not necessarily a shortcoming of the ring fence conditions, but instead a recognition that other regulatory tools are more appropriate to provide an early warning.
- The ability to effectively reject the Availability of Resources certificate or Undertaking from the ultimate controller (probably through licence enforcement provisions) provide strong tools for Ofgem under the ring fence to effectively force the shareholders to address the poor management of the company before facing even more severe

consequences. While under this scenario the conditions to apply a cash lock-up may be triggered it is questionable how much cash will be available in a poorly run company.

- This is a scenario where it may be appropriate for the company to be allowed to enter Energy Administration even if there is harm to customers. This is because otherwise there is a risk of the moral hazard arising whereby shareholders do not face the full financial consequences of failing to ensure that the management of the company is performing well. Therefore, it is not necessarily a failure of the ring fence conditions that they fail to prevent harm to customers under this scenario.

Table 5.6: Scenario based on a network company delivering persistently poor service

The network company is delivering persistently poor service and failing to invest at the levels considered necessary to maintain performance by Ofgem. This leads to penalties under incentive schemes and may lead to fines, all of which contributes to the company experiencing financial difficulties.			
Assumptions	● Price controls include automatic penalties for poor service.		
How does the scenario develop	<div><div>1.</div><div>The company begins to under perform against the price control, including incurring penalties for failing to meet quality of service targets and failing to deliver expected levels of capex, while overspending against opex. Although these indicators may not be particularly early.</div></div> <div><div>2.</div><div>Initially Ofgem allows the automatic penalties for under performance to apply and makes clear its concerns to the management. Ofgem issues Provisional and Final Orders to require the company to address the poor performance, probably following extensive information requests and investigations.</div></div> <div><div>3.</div><div>As the performance remains poor Ofgem rejects the Availability of Resources certificate and the Undertaking from the ultimate controller. This leads to Ofgem considering imposing additional financial penalties. However, there is a danger that the penalties only make the position of the company worse.</div></div> <div><div>4.</div><div>The credit rating agencies downgrade the company.</div></div> <div><div>5.</div><div>Ofgem imposes the cash lock-up, although given the poor performance there is limited cash available to lock-up.</div></div> <div><div>6.</div><div>Shareholders address the failure of the management, it is taken over, or there is a real risk it enters Energy Administration.</div></div>		
Which ring fence conditions are relevant?			
Disposal of relevant assets		Credit rating	X
Availability of resources	X	Indebtedness	
Restriction on activity & financial ring-fencing		Undertaking from ultimate controller	X
<div><div>●</div><div>Availability of resources – Ofgem could reject this certificate in circumstances of persistent poor service and under performance.</div></div> <div><div>●</div><div>Undertaking from ultimate controller – Ofgem could reject this certificate in circumstances of persistent poor service and under performance.</div></div> <div><div>●</div><div>Credit rating – Given the annual cost and performance reporting the credit rating agencies may consider a downgrade once it became known that Ofgem was concerned about the company performance.</div></div>			
How robust are the ring fence conditions against the three levels of tests?			

Low	Ofgem would be likely to get the early warning of service problems from other regulatory tools like cost and performance reporting. However, this seems an appropriate approach.
Intermediate	The ability to reject an Availability of Resources certificate and an Undertaking from an ultimate controller are very strong powers that should force shareholders to address the issue. If shareholders did not address the issue then it would probably be appropriate for Energy Administration to be allowed to happen.
High	By definition in this scenario customers would suffer some harm.
Scenario variants	
How would bad faith on the part of company Directors affect the outcome?	The scenario is premised on the management failing to meet regulatory requirements.
Could more than one company experience difficulties at the same time?	It is unlikely that more than one company would experience the difficulties at the same time, but some companies own more than one network.
Most vulnerable/susceptible PECs	Not clear.
Lessons	
Implications for Ofgem's activities	It is important to closely monitor service and cost performance to identify persistent poor performance.
Issues to consider with the ring fence conditions	<p>This scenario is one of the clearest examples where it may be appropriate for Energy Administration to be allowed to happen if the service failures are significant enough and shareholders have failed to address the issue. Although this leads to some harm for customers it acts to provide a wider signal that if shareholders fail to ensure that the company is well managed they will suffer severe financial consequences.</p> <p>Therefore, although the ring fence conditions fail to protect customers from all or even potentially significant harm, this may not signal anything significantly wrong with the conditions in this case.</p>

5.4.4. Increased pension deficit

Table 5.7 below sets out the consequence of this scenario.

In principle, Ofgem's current regulatory policy on pensions insulates pension scheme members from market and other pension risks:

- If financial markets are fully aware of Ofgem's policy, and believe it, then the company will be evaluated on the basis of this promise and ignore the deficit.
- However, rating agencies may respond on the basis of shorter term financial ratios which will become more challenging, and/or the markets may have doubts about the sustainability of Ofgem's current pension promise.

It is therefore possible for harm to customers to arise. This, however, is an issue for general regulatory policy rather than the ring fence conditions.

Table 5.7: Scenario based on development of a large pension deficit

Development of significant pension deficit			
Assumptions	<ul style="list-style-type: none">• Pension deficit develops from a combination of asset falls and liability increases (e.g. resulting from a combination of fall in the appropriate bond yield and mortality changes).• Warning of the deficit is unlikely to arise from the triennial review, but more likely from interim reporting of deficits at group level. However, it should be noted that the full (IFRS style) notes on gross and net pension liabilities are not reported by all PECs.• We assume that the sponsor covenant is relatively strong.		
How does the scenario develop	<ol style="list-style-type: none">1. Ofgem’s policy on pensions, reiterated in DPCR5 (although subject to amendment as part of RPI-X@20) is essentially to fund that portion of a deficit that is attributable to a regulated business. Provided that this policy continues, any additional contributions required to meet the sponsor promise will probably be funded from customers. Ofgem is currently consulting on options to change its approach to the treatment of pension costs.2. There is no immediate cash flow pressure on the company as this would require a revised agreement between trustees and the company about contribution rates. Nevertheless, the developments could be significant to have caused an opening of discussions between trustees and the company.3. In this scenario, the market becomes concerned about the prospect of a deficit. The market may doubt that Ofgem will deliver on the pension policy, or may have short term concerns for accounting reasons irrespective of the promise that will ensure that pension promises can be maintained.4. There are a number of possible consequences: (a) announcements by Ofgem concerning pensions reassure the market, and there are no adverse consequences (b) there is an impact on the credit rating and/or the ability of the PEC to raise finance, and operating and capital expenditure are therefore restricted (c) the parent company of the PEC injects additional capital (the ultimate controller upholds its undertakings) (d) the PEC seeks additional financing from Ofgem through a price control re-opener to sustain the business (e) the company renegotiates with scheme members to limit the deficit (although its ability to do this is limited because of protected status of certain employees).5. In extremis, it would be possible for trustees to threaten administration.		
Which ring fence conditions are relevant?			
Disposal of relevant assets		Credit rating	X
Availability of resources		Indebtedness	
Restriction on activity & financial ring-fencing		Undertaking from ultimate controller	X
<ul style="list-style-type: none">• Credit rating – the impact on financial ratios may raise concern at rating agencies. The company would be required to act to maintain the rating.• Undertaking from ultimate controller – If there is a threat that the rating could move below investment grade, the ultimate controller may be obliged to provide additional funding.			

How robust are the ring fence conditions against the three levels of tests?	
Low	Company with a defined benefit scheme is not taking unwarranted risks as currently defined.
Intermediate	There is a risk of harm to customers if the events lead to constrained operating and capital spending. Ofgem's current policy, however, essentially insulates regulated activities from pension risk and so the duration of any spending restrictions should be relatively short.
High	There is a risk of harm to customers if the events lead to constrained operating and capital spending.
Scenario variants	
How would bad faith on the part of company Directors affect the outcome?	Directors may seek to avoid meeting the obligations under the sponsor covenant or defer required contributions. This may harm pension scheme members, to the benefit of customers.
Could more than one company experience difficulties at the same time?	The changes affecting any company are likely to affect all companies (some of the pension obligations are organised through joint industry arrangements) although the impact will be different.
Most vulnerable/susceptible PECs	Those PECs with a large defined benefit scheme, defined by large gross pension liabilities/ RAV, where hedging of liabilities / assets has not been possible. The vulnerability will also depend on the asset mix held in the pension scheme, and the age profile of scheme members.
Lessons	
Implications for Ofgem's activities	Continued and detailed monitoring of pension assets and liabilities is essential. A good understanding of emerging pension practice and the impact this has on Trustees and potentially on PEC operations is also required.
Issues to consider with the ring fence conditions	<p>This is clearly an area where confidence in Ofgem's policy is key. However, Ofgem is naturally concerned about customers continuing to bear pension risk and the market for hedging pension risks is probably not sufficiently liquid for these to be crystallised today.</p> <p>The ring fence conditions probably provide sufficient protection, given that it is the Ofgem commitment to removing pension risk that provides the protection from administration rather than the financial ring fence conditions.</p>

5.4.5. Trading in financial derivatives

Table 5.8 below sets out the consequence of this scenario.

This is a scenario where legitimate activity by a PEC has serious adverse consequences due to factors largely outside the direct control of the PEC, such as movements in financial markets, although the PEC will determine the level of exposure. Amongst the key issues to note are:

- The current ring fence conditions would not give Ofgem much visibility about these activities, but an enhanced set of ring fence conditions may improve visibility.

- If a number of PECs are trading in financial derivatives there is a material possibility that this scenario could happen to more than one PEC at the same time.

Table 5.8: Scenario based on a company suffering a significant financial loss as a result of trading financial instruments

Financial loss as a result of a derivative trading			
Assumptions	<ul style="list-style-type: none">Derivative trading is permitted as part of PEC's treasury management functions and as being in support of the licensed business.Directors are open about this activity and comply with license conditions.Due to unforeseen circumstances a significant loss is incurred on derivative trades over a short period of time, leaving the regulated business short of cash following a mark-to-market loss.The financial loss occurs very quickly because of external events that cause a sudden and large change in prices.		
How does the scenario develop	<div>7. Company incurs the loss and directors are notified</div> <div>1. Directors are concerned that they believe that the company will not have sufficient financial resources as outlined in their latest availability of resources statement in the short-run. Therefore they are required to inform Ofgem of their status.</div> <div>2. Ofgem can then prepare contingencies for price control re-opening (although unlikely to be appropriate in these circumstances) or energy administration. It could also start investigation into whether fines were required given submission of any false information or breach of licence conditions.</div> <div>3. If information becomes public, rating agencies may downgrade credit ratings to below investment grade, triggering cash lockup. If the credit rating agency took some time to be aware of the issue then there may not be any cash to lock-up.</div> <div>4. There is a risk that if the financial position was very bad it would end with Energy Administration. However it is probably more likely that the outcome would be a takeover if the activity that caused the financial distress was unrelated to the underlying profitability of the business, although the size of the business could also be a factor in the likelihood of a takeover.</div>		
Which ring fence conditions are relevant?			
Disposal of relevant assets	X	Credit rating	
Availability of resources	X	Indebtedness	X
Restriction on activity & financial ring-fencing		Undertaking from ultimate controller	
<ul style="list-style-type: none">Disposal of relevant assets – A fast inappropriate disposal of regulated network assets to a third party in order to raise cash is prevented, although vehicles and property can be sold.Availability of resources – Directors are required to inform Ofgem of occurrences that are likely to change its ability to obtain necessary resources.Indebtedness – Once information of the loss became public it is likely that the credit rating would fall below investment grade level, which would trigger the cash lock-up.			
How robust are the ring fence conditions against the three levels of tests?			
Low	This scenario considers a scenario where Ofgem has allowed PECs to expose themselves to certain risks not directly related to their licence conditions, letting a potential ‘Trojan horse’ through the ring fence. This scenario imagines that for some reason, Ofgem do not comprehend the risk they are allowing companies to take. It is possible that ring fence conditions		

	<p>are not fully water tight particularly in relation to financial innovations, that companies may be quick to adopt, but would take time to prohibit.</p> <p>It is not clear that any ring fence conditions could fully prevent such a situation occurring or automatically alert Ofgem of its occurrence. The ring fence fails to prevent companies from exposing themselves to these inappropriate risks.</p>
Intermediate	<p>There is a possibility of some minor harm to customers, particularly if the crisis results in Energy Administration. However this is smaller than would be in the absence of the ring fence.</p> <p>However this likelihood of any harm to customers is likely to be low as this is essentially a financial issue, where the shareholders will bear the cost. There is a risk of some cost to customers if the company enters Energy Administration.</p>
High	See discussion above.
Scenario variants	
How would bad faith on the part of company Directors affect the outcome?	Directors could conceal the loss in the hope that the damage is temporary and could mean that cash leaves the business even though it requires more to ensure ongoing operations. Directors could cut capex.
Could more than one company experience difficulties at the same time?	Possible if the use of the use of the financial instruments was wide-spread. The financial shock to the particular instrument is likely to occur without losses being incurred on other assets.
Most vulnerable/susceptible PECs	Those with active derivative or other trading activities (e.g. as part of treasury management).
Lessons	
Implications for Ofgem's activities	<p>Although it is unlikely that large exposures could emerge without bad faith or a 'rogue trader,' derivative losses could be a contributing factor in a 'perfect-storm.'</p> <p>Ofgem may wish to consult with PECs on the type of financial instruments they use as part of their corporate treasury arrangements to help them understand the risk exposures they have.</p> <p>Given that there is no absolute guarantee of full disclosure on unrelated risks, especially if undertaken within an international group, the key issues for Ofgem include ensuring that it is aware of companies where such behaviour is likely and being more explicit about the risks it wishes to prohibit.</p>
Issues to consider with the ring fence conditions	<p>Periodic monitoring of company risk exposure in any "relevant activities" or reviews of corporate treasury arrangements could ensure that large positions do not emerge over time. However the difficulty for the regulator to identify any potentially fraudulent positions means that responsibility to uncover such deviations must lie with company Directors or internal informers.</p> <p>Once Ofgem understand the risks PECs take in financial instruments, they may wish to limit their exposure through limits similar to de minimis conditions on unrelated activities.</p> <p>As the ring fence would be slow to automatically detect distress, Ofgem may wish to ensure that penalties for false or misleading declarations to</p>

	Ofgem are sufficient, that it is clear when Directors must contact Ofgem, and that there are mechanisms for internal informers to come forward.
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5.5. Conclusions

We consider that the analysis of the scenarios discussed above illustrates that there are plausible scenarios in which the current ring fence conditions may not fully achieve the range of objectives we identified in the previous section. Furthermore, there are plausible scenarios that may not achieve the weakest of the three objectives about providing an early warning to Ofgem of companies entering financial difficulties. However, we do not believe from the review of the scenarios or the other analysis we have undertaken of the ring fence conditions that they are fundamentally not fit for purpose. The general intentions and coverage of the conditions appears appropriate, but there are plausible circumstances that test the robustness of elements of the conditions.

There appear to be four broad reasons for why the ring fence conditions may not be fully effective even against the weakest of three objectives. These are:

- Limitations of the conditions, such as the very limited identification of key risks in the Availability of Resources statement. The ability to use the cash lock-up is also potentially problematic because it is not clear that the triggers to use it would necessarily be met in a timely manner. It is also possible that there are legitimate ways for parent companies to extract cash from a PEC without breaching licence conditions.
- Changes in company and financial structures since the ring fence conditions were put in place, which may allow important risks to fall outside the ring fence conditions, e.g. risks associated with significant outsourcing by network companies.
- The speed of events. It is possible that a company may get into financial difficulties in a relatively short period of time such that Ofgem does not get an early warning of problems. Although this would partly arise from a failure on the part of management to notify Ofgem.
- Bad faith by management. While there are significant financial penalties for failing to comply with the financial penalties, there may be circumstances in which other pressures on Directors of companies create the risk that the regulatory penalties are considered less important than other concerns.

Table 5.7 summarises the conclusions of the scenarios under the three categories of scenarios.

Table 5.7: Summary of the conclusions of stress testing the scenarios

	Risky activities	Wider corporate group difficulties	General financial difficulties
Robustness of the ring fence	Unlikely to prevent deliberate bad faith by management, but management are likely to notify Ofgem early	Risk that difficulties in privately owned companies may not be signalled early. This risks cash being taken from the regulated company. Centralised Treasury functions may undermine the ring fence Not clear if the ring fence adequately addresses the failure of a major contractor for a network company	Likely to get an early warning in most cases, but risk of no early warning for privately owned companies. Without early warning there is a risk that cash lock-up is ineffective
Issues arising	Limited options to improve early warning	Need more information to get early warning. Centralised Treasury functions may undermine aspects of the ring fence	Need more information to get early warning
Overall conclusion	Concerns about these issues are primarily based on bad faith by management		Key issue is ability to get early warning as Ofgem can influence events

We draw together in the conclusions section our overall views about the robustness of the ring fence conditions taking account of all the analysis in this report. The stress tests against the scenarios carried out in this section suggest to us that while the conditions are broadly fit for purpose, there are some issues that may need to be addressed by Ofgem.

6. OTHER APPROACHES TO RING-FENCE CONDITIONS IN THE UK

6.1. Introduction

This section provides analysis of other regulatory ring fencing arrangements in the UK, and how they compare to Ofgem's approach. As this section discusses, the other regulators that have ring fence conditions have very similar provisions to Ofgem. We also briefly discuss international comparisons.

6.2. Comparisons with Ofwat and ORR

Motivated by shared concerns about leveraged buyouts of network operators, Ofgem has not been the only UK regulator to impose ring fence conditions on its licensees. Two other regulators, Ofwat and ORR, rely on ring fences to protect the interests of customers in their industries. Ofwat started introducing ring fence conditions into the licences of companies involved in mergers and financial restructurings from the mid-1990s. These were extended to all companies in 2001 and subsequently harmonised across the industry. ORR has included a number of ring fence conditions in the licence of Network Rail. Most of these were inherited from Railtrack. They have since been strengthened and extended to include Network Rail's securitisation vehicle, National Rail Infrastructure Finance.

Table 7.1 below compares Ofwat and ORR's ring fence conditions to Ofgem's, as set out in Table 2.1 above. Although some differences remain, the approaches taken in each of these industries has converged over time.

Many of the ring fence licence conditions used by these regulators are substantially the same. For example they all require submission of annual statements regarding the availability of resources for the next year and the maintenance of an investment grade credit rating. Some parts of the licence conditions even use the same wording. This is not surprising given the similarity of the issues they attempt to deal with. However it is not clear whether this is the result of robust consensus on the best way to regulate, or imitation.

Despite the similarities there are differences in their approaches given the need to tailor conditions to the respective firms and operating conditions. Beyond these relatively minor adaptations, Ofwat and ORR add some supplementary elements to their ring fences:

- Ofwat requires companies to act as if they are not part of a group and to appoint no less than three independent board members – placing an emphasis on governance structures; and
- ORR impose specified limits on the levels of debt that Network Rail may incur as a percentage of RAB.

These additions are not radical deviation from Ofgem's approach, but provide useful examples of alternative licence conditions in practice.

Table 7.1: Comparison of UK ring fence conditions

Condition	Ofgem (as above in Table 2.1)	Ofwat	ORR
Disposal of (relevant) assets	<ul style="list-style-type: none"> • Provide two months written notice to Ofgem of any proposed disposal of operational control of (or granting security over) any assets forming part of its network (with certain exemptions). 	<ul style="list-style-type: none"> • Must provide notice and gain approval for most land disposals. 	<ul style="list-style-type: none"> • Require permission from ORR to dispose any land.
Availability of resources	<ul style="list-style-type: none"> • Ensure it has sufficient resources to carry on its licensed activities and to submit a report to the Authority annually, supported by the licensee's external auditors, confirming availability of financial resources. 	<ul style="list-style-type: none"> • Similar annual availability of resources statement must be submitted to Ofwat. • Must notify Ofwat as soon as they are aware that they may not be able to make the statement the next year. 	<ul style="list-style-type: none"> • Similar annual availability of resources statement must be submitted to ORR. • Must notify ORR immediately of any changes to this statement.
	<ul style="list-style-type: none"> • Not make or pay any dividend that would cause it to be in breach of its financial ring fence conditions at any future time. 	<ul style="list-style-type: none"> • Not to declare or pay any dividend that will impair their ability to finance their appointed business. 	<ul style="list-style-type: none"> • Not to pay dividends without declaring that they will not put it in breach of any obligations or impair ability to finance the permitted business.
Restriction on activity and financial ring-fencing	<ul style="list-style-type: none"> • Not conduct any activities other than those of its core business, subject to certain exceptions and specific limitations on the turnover and investment of permitted non-core activities. 	<ul style="list-style-type: none"> • Only one company (Welsh Water) may not engage in non-core activities. • Most activity of significant value is usually undertaken by a subsidiary outside the ring fence. 	<ul style="list-style-type: none"> • Must not without consent run railway vehicles or invest in train operators not associated with operation of the network. • May engage in non-core activities up to £140m annual de minimis turnover limit or £210m investment limit (inflation linked).
	<ul style="list-style-type: none"> • Not enter into an agreement incorporating a cross-default obligation without consent from Ofgem. 	<ul style="list-style-type: none"> • May not enter cross-default obligations without permission 	<ul style="list-style-type: none"> • Prohibited, but may ask for permission for cross-default obligations within the ring-fence.
Credit rating	<ul style="list-style-type: none"> • Maintain an investment grade credit rating i.e. not less than equivalent to: <ul style="list-style-type: none"> ○ BBB- by Standard & Poor's; ○ Baa3 by Moody's; or ○ BBB- by Fitch Ratings 	<ul style="list-style-type: none"> • Similar requirement to take "all reasonable endeavours" to maintain an investment grade credit rating. 	<ul style="list-style-type: none"> • Similar requirement to take "all reasonable endeavours" to maintain an investment grade credit rating. • However this is ensured by the Strategic Rail Authority debt guarantee.

Condition	Ofgem (as above in Table 2.1)	Ofwat	ORR
Indebtedness	<ul style="list-style-type: none"> Not incur any indebtedness nor create any security, nor guarantee any liability of another person, other than on certain specified terms and for a permitted purpose, or otherwise with the consent of Ofgem. 	<ul style="list-style-type: none"> May not guarantee the liabilities of or make loans to any associated company without permission. 	<ul style="list-style-type: none"> May not guarantee the liabilities of or make loans to any associated company without permission other than on an arm's length basis, on normal commercial terms and for a relevant purpose
	<ul style="list-style-type: none"> Cash lock-up provisions ensure that the licensees conserve cash and other sources of value when its investment grade credit rating is jeopardised. 	<ul style="list-style-type: none"> Cash lock-up provisions when investment grade credit rating is threatened. 	<ul style="list-style-type: none"> No lock-down as they are a not-for-dividend company
Undertaking from ultimate controller	<ul style="list-style-type: none"> Obtain an undertaking from its parent company and any other ultimate controllers that they will refrain from taking any action which may cause the licensee to breach its obligations under the Gas Act or the Electricity Act or its licence. 	<ul style="list-style-type: none"> Similar to Ofgem. 	<ul style="list-style-type: none"> Similar to Ofgem.
Extras		<ul style="list-style-type: none"> Must conduct the business as if it were their sole business and a separate publicly limited company. The Board of Directors must act independently of parent company or controlling shareholder. Rights and assets would be in place to enable a special administrator to manage the affairs, business and properties They must have no less than three independent non-executive directors Directors must disclose conflicts of duties. 	<ul style="list-style-type: none"> Securitised debt limited to 90% of RAB. If above 85% they must set out a plan of how to reduce it. All borrowings limited to 100% of RAB. The regulator may permit to higher levels in certain unforeseen circumstances. Must not give or receive any unfair cross-subsidy between the network and any other business.

Source: Ofgem/Ofwat/ORR

6.3. Testing the conditions

Both Ofwat and ORR have had to deal with distressed or failing network companies over the last ten years. Railtrack failed despite a ring-fence being in place. However, government intervention in the decision to place them in administration probably makes it difficult to draw particularly useful conclusions regarding the ring fence. However, the sale of Wessex Water following the bankruptcy of its owner, Enron, in 2002, is hailed as a success of Ofwat's ring fence arrangements. The conditions that had been introduced to its licence on its acquisition in 1998 protected its services and investment plans from any interruption, and enabled a smooth transition to new ownership. This is evidence of a ring fence similar to Ofgem's working to deal with the archetypal risk that it is designed to manage.

Despite this example of the ring fence in practice there are few examples of these ring fences in action. This is partly a stamp of approval of their preventative effects. However, it does not show how well they can stand up to the more exotic risks or decentralised operational structures that have emerged in more recent years.

6.4. Alternative arrangements in the absence of a ring fence

While Ofgem, Ofwat and ORR have the ring fence arrangements it is notable that a number of other UK regulators do not have similar arrangements for the companies that they regulate. In some cases this appears primarily to be because the regulated company is Government owned, and therefore issues of financial distress do not arise in the same way as they might with privately owned companies. For example, Postcomm does not apply any financial ring fence conditions to Royal Mail.

The absence of such arrangements for the price regulated airports in the UK appears to arise for two reasons:

- Limited legislative powers for the CAA – The CAA does not appear to have the powers under the Airport Act 1986 to impose such conditions on an airport. The Department for Transport's current review of the airport regulatory framework acknowledges this.¹⁷
- Substitutes for airports – To varying degrees for different airports, passengers have alternatives to any particular airport if it ceased to operate due to financial difficulties, including other airports and other forms of transport.
- Policy decision of the CAA – Notwithstanding the lack of legislative powers, the CAA's submissions to the DfT's review appear to indicate that it would not necessarily support such arrangements even if it had the power to introduce them.¹⁸

In very broad terms the CAA is concerned that the combination of a specific duty to allow airports to finance licensed activities in the future, ring fence conditions and Special Administration provisions would not be in the interests of customers because they could imply obligations to financially assist a poorly run or inefficiently financed company.

¹⁷ <http://www.dft.gov.uk/consultations/closed/ukairports/>

¹⁸ <http://www.caa.co.uk/docs/5/ergdocs/20090522FrameworkEcRegCAA.pdf>

The example in the airports sector and the issues raised are more relevant to the overall question of whether a ring fence is appropriate, than the most appropriate design of the ring fence, having taken a decision that it is appropriate.

6.5. International comparisons

Some other jurisdictions have introduced ring fence conditions. In most countries, though, the ring-fence has mainly been for operational purposes, to prevent unwarranted information flows between regulated and competitive segments of the energy industry, and to prevent cross-subsidies. This is particularly the case in Europe, where creating competitive markets and facilitating third party access has been the focus of the implementation of the Energy Directives rather than protecting consumers from the type of events at network companies analysed in this report. It also appears to be the case in New Zealand and Australia.

In the US there has been analysis of ring fence conditions, for example work done for the Maryland regulator (Ring fenced measures for investor-owned electric and gas utilities, 2005, <http://webapp.psc.state.md.us/Intranet/Reports/RevisedRing-FencingReport.pdf>). The type of measures considered here very much echo Ofgem's ring fence conditions: restrictions on capital structure, limits to dividend pay out, limits on asset transfers, limits on investment in non-utility assets, and limits on cross-default obligations. It is reassuring that there appears little further to learn from international analysis of ring fence conditions.

6.6. Conclusions

The ring fence provisions in the rail and water sectors are generally very similar to those used by Ofgem. The most notable differences are the supplementary conditions on governance (for water companies) and borrowing limits (for rail companies) highlighted above. Given these other UK examples, it may be appropriate to consider whether customers gain appropriate additional protection for these that is worth the additional cost. Any tightening of the conditions would probably need to apply to all companies at the same time.

7. CONCLUSIONS AND OPTIONS FOR REVISING THE RING FENCE

7.1. Introduction

This section brings together the analysis set out in the previous sections to reach overall conclusions about the robustness of the ring fence conditions, and then considers some options for revising the ring fence to address the issues identified.

7.2. Assessment of the financial ring fence

The focus of this report is the identification of potential failures in the financial ring fence conditions. While parent companies of energy network companies (or the companies themselves) have not experienced extreme financial difficulties, and so ring-fence conditions have not been tested in earnest, the following factors suggest that the ring fence conditions have worked well:

- The energy network businesses have continued to operate and finance themselves through periods of challenging financial markets.
- Network businesses may enjoy a better credit rating than their parent companies¹⁹ which may reflect the strength of the ring fence.²⁰
- The limitations on involvement in non-core activities have prevented any impact on network activities of other riskier activities.
- Limitations on asset disposals have also prevented undesirable or risky corporate restructuring of network businesses.
- Operations have continued effectively through periods of restructuring or transfer of ownership.

Despite this apparent success, though, our analysis points to several weakpoints in the ring fence conditions which we discuss in more detail in the sections below:

- A potential lack of early warning of impending financial distress.
- The ineffectiveness of the cash lock up provisions
- Inadequacy of sanctions.
- Scope of coverage of conditions too limited.

¹⁹ For example, National Grid, SSE, and WPD have recently had higher ratings for network subsidiaries for at least one of the three major rating agencies than the parent. It can also be the other way round: EDF's UK network businesses have lower ratings than the ultimate parent: in this case the relationship with the French government of the parent positively influences the rating.

²⁰ Credit rating agencies do explicitly consider ring-fence conditions in their credit rating methodology. For example, Moody's in its 2009 methodology statement (*Rating methodology, regulated electric and gas networks*, August 2009), give a higher rating when there are legal restrictions on activities. "Issuers will score either "Aaa" or "Aa" [on this factor] if they are subject to some contractual, statutory or regulatory restrictions that prohibit investments outside the core regulated business" (page 16 of Moody's (2009)).

7.2.1. Lack of early warning

Ofgem already undertakes regular monitoring of financial information on energy network companies and their parent companies. This combined with the existing regulatory reporting requirements, the requirements for disclosure of information to stock markets, and the openness with which companies deal with Ofgem mean that Ofgem is likely to receive early warning of many situations where companies are at risk of or are entering financial difficulty.

But early warning is not guaranteed, and our scenario analysis suggests that information flow may be restricted for some companies:

- UK network operations are small in the context of the larger international utility groups. This means that regular detailed financial information on the network operations may not be communicated to the markets. Network profits may simply be bundled with other UK or even northern European operations in quarterly reports, and there is unlikely to be any balance sheet reporting.
- Privately owned or non-quoted energy companies do not have the same regular reporting requirements as plcs, again restricting the flow of information and obligations to disclose information on events that may be material for network operations.
- The use of bank finance and loan facilities rather than listed bonds may also hide the potential for financial risk. Covenants and the terms of loan facilities need not be made public, which may mean that an apparently well financed company with good access to cash may rapidly enter distress.

This means that there is a potential delay before Ofgem is able to act in response to any financial distress, and Ofgem would only obtain some important information through specific *ad hoc* information requests.

7.2.2. Ineffectiveness of cash lock up

The term “Cash lock up” sounds very impressive, but our analysis suggests that the provisions of this have significant weaknesses. First, the mechanism triggering cash lock up is weak, and second the terms of cash lock up can be circumvented.

Cash lock up is triggered when rating agencies downgrade a company to a non-investment grade rating, or place a company on a negative credit watch with a risk to a downgrade to such a rating. There are a number of problems with this:

- Ofgem is relying on third parties to assess information. While there is no evidence of negligence by rating agencies in rating energy networks, rating agencies have been widely criticised in their assessment of other securities (in particular asset backed securities and other securitised obligations).
- Rating agency assessments rely in large part on backward looking information. While stated methodologies do take into account the future, they are less dynamic than the methods used for example to value securities.

- Issuers pay for ratings which may lead to a conflict of interest (for example an issuer could decide to use the two agencies which are most favourable to it).

The ineffectiveness of cash lock up relates inter alia to the following issues:

- Companies may issue securities that transfer cash to parent companies other than by dividend (e.g. forms of variable or discretionary interest).
- Debt from parent companies may be repayable on demand, and so on cash lock up such a demand could be made.
- Financing on non standard instruments would make it difficult to calculate whether payments were on normal commercial terms (restriction used for example in DNO conditions 41.1 (b)).
- Treasury operations may be operated via a central group function, so that cash owned by the network business is effectively held in a corporate treasury.

7.2.3. Sanctions

Ofgem has a relatively limited array of sanctions against a failing company. Financial sanctions against a failing company may make little difference to the actions of directors of that company, in particular if they were subject to pressure to act in a particular way by a parent company.

Prosecution for certain actions may be possible under section 57 of the Electricity Act. However, the circumstances for this relate to failure to provide information rather than prosecution for contributing to breach of the licences.

7.2.4. Coverage

Since the ring fence conditions were established, network companies have become far more creative in the way they organise their business. One route to efficiency improvements has been the contracting out of service and operations. This has led to both lower costs and better quality service. However, it also means that companies are exposed to the risk of failure of a major supplier.

7.3. Why make a change?

There are a number of reasons why a change to the ring fence conditions should be considered:

- Our scenario analysis suggests that although the ring fence conditions have protected customers from a range of possible risks, they fall short in a number of respects identified above. Customers are exposed, and the conditions do not fully satisfy even the lowest level of protection we defined.
- The ring fence conditions were well thought through when they were put in place. Since then, though, there have been significant changes both in corporate structure (with a greater role for contracting out than envisaged), and in corporate ownership.

- The financial crisis has brought a greater awareness of events occurring that were previously considered vanishingly small.
- The financial crisis has also lowered tolerance of risk. Acceptance of a perceived failure of the regulatory regime to protect customers is lower.

Given these factors, a reconsideration of the ring fence conditions by Ofgem is appropriate.

7.4. High level approaches to change

As discussed above, the precise objectives of the ring-fence conditions is not clear. The extent of any changes to them will depend on how much and what kind of protection Ofgem would like them to achieve.

Whatever judgement Ofgem makes on the objectives of the ring fence, though, there are different ways of achieving the desired level of protection. We have identified two broad approaches to consider in making changes to the conditions:

- Increase the level of monitoring and give strong powers to lock up cash.
- Make provision to ensure that sufficient financial resources are available to prevent harm to customers

The first option therefore involves greater regulatory involvement, which may be quite intrusive (and indeed may need to be if it is to be effective).

The second approach is a more hands off approach. The aim of this approach is to rely far less on monitoring and intervention by Ofgem on a regular basis (thus reducing regulatory burden, and allowing companies greater freedom of action) but to put in place measures that ensure customers will not be negatively affected by financial failure should it occur. This should help prevent financial failure. By ensuring that customers would not suffer were Energy Administration to occur, the threat of it becomes far more credible, and this should strengthen Ofgem's ability to take any enforcement action, and in turn facilitate appropriate action by PECs.

In addition consideration should be given to other changes which may be appropriate with either of the above high level approaches.

7.5. Options for change

Table 7.1 below sets out how the different approaches could be transposed into revised conditions. Depending on the different approach adopted by Ofgem, increased monitoring could manifest itself in a significant enhancement to the availability of resources statement, with significantly enhanced monitoring under the more restrictive interpretation of the ring fence conditions.

Table 7.1: Options for changing the ring fence conditions

	Low	Medium	High
Approach 1: Increased Monitoring			
Availability of resources	Enhanced declaration under availability of resources condition including: <ul style="list-style-type: none"> • Availability of operating resources, including any security held over assets. • Contingency arrangements if certain risks were to materialise. • Details of availability of financial resources including debt facilities, conditions on debt facilities, debt covenants, repayment requirements. 	As for Low, but in addition to declaration, enhanced monitoring of the declaration, possibly through enhanced use of compliance officer.	As for Medium, but in addition, a form of external verification of the resources declaration, combined with continued updating.
Cash lock up – trigger	As now, with rating agency determined trigger.	Additional automatic trigger mechanism. One approach would be for a trigger to be in reaction to a covenant breaching event. A more complex alternative would be breaching a set of pre-defined ratios.	Trigger set by Ofgem at its discretion. Naturally it would have an obligation not to use this discretion capriciously, and would have to justify the use of the discretion. Continuation of cash lock up would have to be regularly reviewed.
Cash lock up - provisions	As now, with restrictions on payments of dividends.	As now, with restrictions on dividend payments, but in addition enhanced reporting of transactions (with an aggregate value above a certain level) with parent or associated companies.	In addition to Medium, enhanced authorisation of payments to parent or associated companies by Ofgem, with powers to collect unauthorised payments from parent company. An additional possibility to authorise where cash balances are held (e.g. to enforce withdrawal of cash from a central treasury function).
Approach 2: Provision of resources to prevent harm			
Ensuring working	As now.	Demonstration that there is access to sufficient working	At least 6 months operating costs in escrow account

	Low	Medium	High
capital is available.		capital to ensure to maintain operations in the event of own financial resources being exhausted	available in the event of default event or energy administration.

Source: CEPA

We have suggested that under the medium and high restrictions the trigger for cash lock up could be enhanced. An alternative automatic trigger could be devised, but we would have concerns about this in practice, in particular if the proposal led to a very wide (and costly) debate about precise conditions. A more severe proposal is that Ofgem would have discretionary powers to impose a lock up, and we believe that safeguards could be put in place to ensure that such an approach would both protect customers without any undue impact on companies.

The mechanism of the cash lock up could also be revised, to provide either more disclosure on payments to related parties, or potentially require Ofgem's consent for certain payments to related companies other than dividends.

Our alternative approach ensures that resources are made available to ensure that customers are protected. The highest level of protection would be to require maintenance of a sum of money in escrow, in a way that matches the obligations placed on independent DNOs. However, there are other ways of achieving this, either through guarantees, insurance policies, or even credit default swaps (so the cost would depend on the investment rating of the company's debt securities)..

There are obvious questions about who would bear the cost of this, but it is an approach which would provide Ofgem with a great deal of comfort about the availability of working capital in the event of a failure of the company. However, market arrangements may fall down precisely when they are needed as premia will increase in cost when default becomes more likely (unless policies are taken out for long periods in advance). It may be possible for an industry scheme to be developed which could lower the cost of this type of insurance, and avoid some of the problems of adverse selection.

7.6. Governance changes

One of the main objectives of the ring fence provisions is to insulate customers of the network business from financial distress at its parent company. However, directors of the network company are appointed by the parent company, and there may be concerns about the independence of the board of the network company.

It is this type of concern that has led Ofwat to require companies to act as if they are not part of a group, and to appoint three 'independent' board members.

We have doubts that the additional non-executive board members are likely to have a significant impact:

- The non-executive directors are still appointed by the parent company (it will pass a resolution appointing them as directors) and could remove them.

- Legally the duties of the non-executive directors are the same as those of the executive directors.
- Under company law (in particular the Companies Act 2006) directors have a duty to promote the success of a company for the benefit of its members. Where there are no independent shareholders, it is not clear that an independent director can interpret his or her duty in a different way from an executive director.

Ensuring greater independence from parent companies does seem a promising route to protecting customer interests, even if this particular approach may not be effective. The recent European legislation on energy (including Directive 2009/72/EC of 13 July 2009 on electricity, to come into force on 3 March 2011) provides detailed conditions restricting the control that a vertically integrated undertaking can exercise on a transmission business. Restrictions include:

- No sharing of equipment, premises, consultants, external contractors, IT systems (Article 17(5))
- Decision making rights “independent from the vertically integrated undertaking with respect to assets necessary to operate, maintain or develop the transmission system”. (Article (18(1a)), as well as direct access to capital markets.
- Independence in management from the vertically integrated undertaking, with restrictions on the directions that can be made by the vertically integrated undertaking, and rights of appeal to the regulatory authority in the event that the mandate of management is terminated.
- An independent compliance officer with a duty to report regularly on relevant matters. The regulatory authority has the right to request the termination of the compliance officer’s mandate (Article 21(11)).

These restrictions have not been imposed by European Law to nearly the same extent on distribution network operators.

There would clearly be additional costs associated if the independence of all UK network operators were to be strengthened in the ways suggested by European Law. However, there are strong attractions, and the approach may well give Ofgem greater confidence about the availability of resources and control regime operating inside companies which are difficult to monitor externally.

7.7. Sanctions

It may be appropriate for Ofgem to discuss with Government obtaining powers to impose financial penalties on individual company Directors in certain circumstances for breaches of ring fence conditions. This could help to address the concern that financial penalties imposed on a company already in financial difficulties may in practice be ineffective to provide an incentive for a network company to comply with requirements imposed by Ofgem, not least if the company is facing pressure from its parent company.

7.8. Tightening definitions

It appears appropriate to tighten up the provisions regarding assets that companies can use as collateral for debt to cover any assets necessary for business continuity, such as vehicles or property. Consideration may also be given to issues arising from a company giving security over revenue flows, although this would be less important where cash was held to ensure business continuity. The tightening of these definitions could form part of a general review of the detailed drafting of any new conditions.

7.9. Assessing the options

Both of the broad options outlined above are likely to have the effect of somewhat increasing costs that customers will ultimately bear. The cost of this would need to be met somehow, either through passing the cost to customers, or from shareholders. The question is whether those costs, which may materialise through a slightly higher cost of capital, are appropriate if they help to significantly reduce the risk that customers pay significant costs if a company enters financial difficulties.

Our current view is that the second option based on ensuring that resources are available to prevent harm to customers is the better option. We consider it will be difficult to identify objective and robust triggers for a cash lock-up to be instituted under the first option, that would ensure sufficient resources were available. Furthermore, a relatively discretionary power for Ofgem to impose an enhanced cash lock-up, even for a limited period of time, creates risks of a perception of significantly increased risk.

While the second option has the potential to increase costs it arguably allows Ofgem's greater freedom of action with regard to whether to allow Energy Administration. Where it can be confident that customers will not pay significant costs for Energy Administration it can allow companies that are poorly run to enter Energy Administration, which provides a strong signal to shareholders and management about the reality of this risk. Under the current arrangements and the first option, Ofgem may be more reluctant to allow Energy Administration, rather than say re-opening a price control, if it is concerned that customers will face significant costs. The second option makes Energy Administration a credible threat, and may therefore facilitate appropriate action at an early stage by Ofgem.

The pros and cons of the different approaches are set out in the table below.

Table 7.2: High level assessment of options

	Pro	Con	Other comment
Increased monitoring	<ul style="list-style-type: none"> • Gives the appearance of improved protection to customers • Increased monitoring should make default less likely. . 	<ul style="list-style-type: none"> • High cost of monitoring arrangements both to Ofgem and the companies (who ought to seek recovery of additional costs through price controls). • Risk that increased monitoring fails to identify relevant risks • May make DNOs reluctant to innovate • 	
Provision of resources to prevent harm	<ul style="list-style-type: none"> • Makes Energy Administration a credible threat • Low cost to Ofgem to monitor arrangements • Innovation by DNOs should still be possible 	Cost of providing cash in Escrow, or cost of guarantees. However, it seems straightforward to design a low cost alternative insurance or guarantee alternative.	

Source: CEPA

A key question that arises is whether the provision of working capital commitment is necessary . This is because companies have a regulatory asset base which will be respected by Ofgem. Were the company to be forced into administration, in theory the administrator should be able to secure additional cash on the strength of the RAB and the future revenues that it would support. But that is only theory. It is possible to envisage circumstances where an administrator may not be able quickly to raise cash. For example: lenders may not be prepared to rely on the regulatory framework, or only in part; inefficient operating costs or large capital expenditure needs may restrict the use of cash. So although in theory these additional costs may not be necessary, in practice there are risks to customers because rational action by capital market participants may turn irrational just when it is needed.

We suspect that the costs of one of the resources support approaches may well be less than first imagined. Even the highest cost approach works simply by forcing a cash balance to be held, and the cost of doing this can be offset in the revenue calculations in the regulatory framework. The alternative of relying on industry insurance arrangements also need not be expensive. The prices

should be related to those of CDS swap contracts, and given the strength of the network companies the price of these is relatively low.