

Role of the PPP Arbiter and lessons for future monitoring

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Summary

1. This paper considers
 - The way in which the PPP Arbiter monitored the work programmes and costs of the private sector Infracos under the London Underground PPP
 - How this affected the way the PPPs unfolded; what lessons might be drawn for any future monitoring of the cost of maintaining and upgrading LUL's infrastructure and
 - How these lessons have been incorporated into TfL's benchmarking and monitoring governance going forward
2. A key reason for establishing the role of the Arbiter was to address issues which it was anticipated would arise when it came to re-setting the price LUL was to pay under the contract, in particular
 - a) the imbalance in the information available to LUL and that available to the private sector infrastructure management companies (Infracos) and
 - b) the need for a decision maker with a depth of understanding beyond that which could be expected of a conventional contract arbitrator or a court, and more akin to that of a utility regulator
3. The Arbiter was clearly aware of the rationale for creating his position, which he acknowledged in a public lecture in November 2003. In a consultation paper issued at around the same time, he commented on the necessity of being well-informed, and the importance of the parties having reasonable certainty about how he would carry out his functions. However, he decided to pitch his initial information requirements at a very high level, despite LUL's argument for these to be more detailed, and more clearly specified. One of the principles which the Arbiter identified was the need to have data which was comparable across Infracos. However, the Infracos argued for restricting routine data collection, and imposing the minimum administrative burden. The Arbiter gave this priority, and his information requirements were based on reports they already produced. Data comparability was therefore an issue right from the start. In its response to the Arbiter's consultation, the ORR had emphasised "the need to establish what information you need and are likely to need (which may be different from what the companies want to provide)". This proved to have been sound advice, but the Arbiter did not take it, preferring to accept the data which was already available.
4. The Annual Review of Metronet's performance had always been seen as one of the Arbiter's key activities. Metronet could have asked for an Annual Review in 2005 but LUL and Metronet agreed a deferral. There was considerable public disagreement at the Transport Committee in 2007 between the Arbiter and Tim O'Toole, LUL's then Managing Director, as to whether this deferral affected the outcome for Metronet. The Arbiter's position was that this would have identified the weaknesses exposed in the following year which would have enabled the shareholders and lenders to take early action. LUL's position was that the only matter which would have made a

difference would have been a disciplined and transparent approach by the Arbiter to the reporting of costs and performance from the commencement of the PPP.

5. A 'trial run' was undertaken instead, on the basis that Metronet, LUL and the Arbiter would work together to agree the information to be submitted. The Arbiter said he expected Metronet to provide the outstanding reconciliation between its bids and its AAMPs as part of its submission, but Metronet failed to do so. Indeed, Metronet argued that it was not required to submit substantive cost information as part of an Annual Review, on the basis that the only relevant matter was the effectiveness of its business processes.
6. The information provided by Metronet as part of the trial run was considered unsatisfactory by both the Arbiter and LUL. LUL provided Metronet with detailed comment on much of its Submission, but was unable to comment on the financial analysis because it was so incomplete. The Arbiter described Metronet's submission as "not the right place to start" and said that he would need to make his information requirements for the substantive Annual Review much clearer. He issued a 'high level outline' of his requirements in January 2006, This included another demand for a reconciliation of the Annual Asset Management Plans ('AAMPs') to the bid baseline costs. In respect of most requirements, however, the Arbiter said he was 'content for Metronet to determine the exact format of the information'. In response, Metronet said that they reserved the right to submit the evidence they considered appropriate and would not necessarily provide the Arbiter with the information he had identified. This illustrates two continuing themes. Firstly, he did not specify his information requirements in sufficient detail to create confidence that he would receive what he needed. Secondly, even when he did state a specific requirement, the Infracos did not necessarily comply.
7. The first substantive Annual Review took place in 2006. Once again, the information provided by Metronet proved inadequate, with the Arbiter identifying its delivery and cost information, its explanations for variances against plan and its information on payments to its shareholder suppliers as areas of particular weakness. Once again, the Arbiter stated an intention to tighten up his information requirements.
8. It had become apparent during the Annual Review that Metronet was projecting cost over-runs of a level which might trigger an Extraordinary Review (ER). Metronet therefore submitted a reference for guidance on the way the Arbiter would treat seven specific categories of cost for the purposes of an ER. The Arbiter took this as an opportunity to develop some broader principles as to how an ER should be conducted. He produced an 'Issues Arising' paper in which he asked a number of questions about the scope of the information which should be provided at an ER, one of which was about the appropriate level of detail.
9. LUL's response to the Arbiter's paper reiterated what it had said during the 2003 consultation, that deciding whether an Infraco had been efficient and economic required specific and fairly detailed information about Infraco's plans, delivery and costs. In anticipation of an ER, LUL had been developing a schedule of the information it considered necessary, which was the basis for what later became the Data Breakdown Structure (DBS). This work was presented to the Arbiter in March 2007. However, he maintained his view that more aggregate data was sufficient, saying in his final Guidance on the Metronet references that Infraco submissions

should involve 100 lines of data or less. LUL continued to press for a greater level of disaggregation, recording its views in forceful terms in a letter to the Arbiter in September 2007.

10. By this time, the issue was relevant only to Tube Lines. Almost as soon as the 2006 Annual Review was concluded, Metronet began to report that its cost over-run could be as high as £2.4bn, compared to the £750m the Arbiter had mentioned. By March 2007, the Arbiter was already in correspondence with Metronet about the information he would need in advance of an ER to allow him to carry it out expeditiously. The key source of data about Metronet's situation was the financial model it had provided to its lenders in February 2007. Metronet declined to release it. The Arbiter could have compelled disclosure, but did not. As a result, Metronet's true position remained unknown for several months.
11. As a result of this experience, two issues continued to be debated. The first was the level of detail an Infraco should be required to provide during a reference. After much wrangling, with the Infracos initially claiming it was too onerous, a DBS at the level for which LUL had contended was eventually adopted. The second issue was how to ensure the integrity of the data produced by the Infracos. After the Metronet Annual Review, the Arbiter suggested a role for independent 'Reporters'. This was not immediately pursued. They were eventually introduced early in 2008, but the problem of information integrity was never satisfactorily addressed.
12. The Arbiter first raised in 2003 the potential importance of benchmarking in enabling him to carry out his role. However, it was 2006 before any benchmarking analysis was published, and this work was regarded as unsatisfactory by the Infracos, who decided to create their own separate approach. Benchmarking was not developed enough to have any significant role in the Metronet Annual Review in 2006, or the Extraordinary Review in 2007. Following the Extraordinary Review, the Arbiter took back the lead role on benchmarking, and by late 2008 had concluded that inter-Infraco benchmarking was likely to be less useful than comparisons between international metros for the purpose of assessing efficient and economic costs. In the event, benchmarking played a central, and controversial, role in the Tube Lines Periodic Review.
13. The Arbiter's most important function was to determine the efficient and economic cost of performing an Infraco's obligations, particularly at a Periodic Review. LUL considered it necessary to obtain an indicative view from the Arbiter before the Periodic Review formally began, and in April 2008 submitted a reference asking for initial guidance on the range within which the economic and efficient costs of Infraco's existing obligations might fall. In reaching his figures, the Arbiter used international benchmarking to conclude that the Tube Lines price for the Piccadilly line signalling was excessive.
14. In response to the 'Initial Ranges' guidance, LUL introduced changes to the future contractual obligations with the objective of reducing scope and cost, but this was not reflected in Tube Lines' proposed price. The single biggest area of contention was line upgrades, which accounted for over 40% of the difference in the parties' respective views of base costs.

15. The Arbiter's draft assessment was much closer to LUL's than to Tube Lines', as a result of which Tube Lines attacked his analysis, conclusions and process. They succeeded in casting doubt on aspects of the Arbiter's approach to costing the line upgrades, and secured disclosure of much background information which the Arbiter would probably not otherwise have released, including information LUL had provided to the Arbiter and which it wished to remain confidential. Tube Lines also sought disclosures from LUL under the Freedom of Information Act, the effect of which (since LUL had no corresponding ability to secure the release of Tube Lines' information) was to tilt the information imbalance against LUL to an even greater degree than had been originally feared. However, the Arbiter did not release the primary data on which his benchmarking analysis was based (because of confidentiality obligations to the metros who had provided it) nor did he acquiesce to Tube Lines' argument that he was thereby precluded from relying on it
16. In his published statement about how he would conduct a formal reference, the Arbiter had undertaken to give reasons for his findings, which was important because the parties and their stakeholders had a right to be consulted and make representations on his draft decisions. One such finding of great commercial significance was a point of contractual interpretation which, if finally adopted by the Arbiter, could have relieved Tube Lines of any obligation to raise new finance for the second Review Period. Having to raise finance, and failing to do so, could have resulted in Tube Lines losing the contract with no compensation. It was far from certain that they would have been able to raise sufficient funding, given the size of the gap between their cost estimates and the Arbiter's, the considerable delay in delivering the Jubilee and Northern line upgrades, and the fact that they lost a series of high-value claims against LUL relating to past cost over-runs. The Arbiter's view that he could relieve them of this obligation therefore decisively shifted the balance of commercial risk in Tube Line's favour. Despite repeated and insistent requests for him to do so, the Arbiter consistently refused to give any reasons for his position, thereby depriving LUL of the ability to mount an informed challenge.
17. A second consequence of the Arbiter's provisional finding on this issue was that LUL could have been forced to make payments to Tube Lines which were beyond its budget. LUL therefore sought an assurance that it would be able to further reduce scope and cost once the matter had been finally settled. The Arbiter appeared to have given such an assurance, but reversed his position a month later.
18. The Arbiter's approach on these two points considerably compromised LUL's commercial position in the Periodic Review process as it removed the risk of Tube Lines losing the contract without compensation.
19. The Arbiter's final exercise to establish the potential savings to be made across Tube Lines and BCV/SSL was conducted in haste; early findings were shared with DfT during the 2010 Spending Review prior to proper validation and correction for errors that were subsequently uncovered. The Arbiter's estimates of projected savings for the next 7½ years if best practice were achieved in London, reduced from £3bn in May 2010 to £1.1bn in August 2010 to £400m in October 2010 as these corrections were made. The current projections of Tube Lines and BCV/SSL as reflected in their asset management plans are already at or better than OPPPA's final good practice projections. This illustrates the importance of validation and correction of data prior to utilisation by policy makers.

20. With the end of the PPP, there is no future role for the Arbiter. It is, however, possible to draw some lessons of relevance to any future monitoring arrangements, such as those currently being examined by the TfL IIPAG:
- As described in section 5.1, the level of detail in the current data breakdown structure has been hard won and should be used as the platform for future monitoring.
 - There needs to be a process for proving the integrity of the data in the light of the experience described in section 5.2. If it is allowed to degrade, then its value in driving change will decline correspondingly.
 - Whatever information is captured by the monitoring process should be made available to all relevant stakeholders so that it can be validated and corrected before utilisation – section 9 describes the significant changes in conclusions that may arise following this process.
 - Despite the controversy over data and methodology, both the Arbiter's, and LUL's own, international benchmarking work (described in sections 6 and 9) indicates that there are real opportunities for improvement, and benchmarking therefore has a continuing role in highlighting these.
 - Accordingly, there needs to be a structured approach to developing, analysing and utilising the data which is informed by the prevailing circumstances and takes in to account genuine differences between LUL's situation and its comparators.
21. These lessons are reflected in the benchmarking and monitoring governance recently established by TfL:
- An Independent Investment Programme Advisory Group (IIPAG) provides assurance and expert advice to the Mayor of London concerning TfL's Investment Programme; including all maintenance, renewal, upgrades and major projects. This includes advising on the approval of projects and reviewing the effectiveness, efficiency and economy of delivery.
 - To support IIPAG, a dedicated resource has been established in TfL to develop benchmarking, building on the work carried out under the ambit of the PPP Arbiter. The PPP Arbiter published only high level information comparing London with a selection of international Metros. The benchmarking established within TfL will provide a new level of transparency in relation to LUL's and Tube Lines' maintenance costs.
 - Following the acquisition of Tube Lines by TfL, closer working has already been established to explore openly the reasons for differences in unit costs and to drive efficiency initiatives. This is being used to inform the strategic and business planning processes across TfL, and to ensure the sharing and adoption of asset management good practice across all Underground lines.

This paper is based on the understanding and records of London Underground employees and agents. To the extent opinions are expressed, these reflect the views of those involved in preparation of the report and it has not been endorsed by the PPP Arbiter, the Department for Transport or other parties to the PPP arrangements.

1. Purpose of establishing the PPP Arbiter

22. The London Underground PPP was designed as a 30-year agreement for the maintenance and upgrade of the Tube infrastructure. It was necessary for the contract to be this long for two main reasons:
- London Underground's assets have very long lives – typically 30-40 years for trains, and longer for some civil assets such as bridges. The most effective way to manage such assets is on a whole life basis, in which the balance between maintenance and renewal spending is optimised. This is something LUL had never been able to do, because its funding was set on an annual basis, and was highly variable from year to year, making long-term planning impossible. For this to change under the PPP, the contract period had to be of the same order as the typical asset life, otherwise there would have been a strong incentive for the PPP companies to take short cuts, storing up problems to be solved after the contracts had ended.
 - In the public sector, efficient delivery of major projects had frequently been hampered by the client changing its requirements due to changes in the availability of funding, or changing objectives. The long term nature of the PPP contracts would enable the private sector to make investment decisions, and to procure and manage assets on an efficient whole life basis without being hampered by such changes in scope or priorities. Long-term contracts would also give scope for the private sector to recover investment in tools and techniques, enabling it to develop alternative approaches to service delivery over the project life.
23. A drawback of such long contracts was that the winning supplier would have an effective monopoly, creating the risk that LUL would pay more for the management of the infrastructure than it would have done had it been able to re-compete the necessary work from time to time. Obtaining a 30-year fixed price was not feasible. Neither the programme of work, nor its cost, could have been forecast so far ahead, and no private sector company would have agreed to do so. Nor could LUL have committed to a fixed performance specification for 30 years, without any flexibility to adjust services in the light of London's changing needs. It was therefore decided to fix prices for four separate 7½ year periods. This raised the question of how the price should be set if the parties could not agree at the relevant time. The role of PPP Arbiter was created to address this.
24. Other solutions were considered. The PPP contracts have conventional dispute resolution provisions, involving adjudication and, ultimately, the courts. These, or similar mechanisms, such as arbitration, could have been adopted. However, they are not well suited to deal with the issues which would arise between the parties at a PPP price review. A review must reconcile two competing considerations:
- LUL must have confidence that it is not paying more than it should for the work it needs (expressed in the PPP as an 'economic and efficient' price such as would be charged by a provider exhibiting 'good industry practice')

- The private sector PPP companies ('Infracos') need to be confident that the terms of their commercial bargain are preserved (expressed in the PPP as the ability to earn an agreed rate of return on their shareholder's equity investment)

25. It was considered that achieving this balance required a depth of understanding of the PPP which would not be achievable under typical dispute resolution arrangements, but needed an industry specialist with a continuing monitoring role, more akin to a utility regulator. A specific concern was that of 'information asymmetry'ⁱ. An incumbent supplier always has an inherent advantage in any negotiation with its customer, which is that the supplier knows its costs, and the relationship between cost and performance, but the customer can only estimate them. This is a well understood issue in dealing with quasi-monopolies, such as suppliers under long-term contracts, or regulated utilities. It gives suppliers a potentially significant tactical advantage in any dispute over the appropriate price for future periods in contracts where prices are periodically re-set.
26. The PPP therefore has a number of provisions designed to reveal Infracos' costs (AAMPs), 'open book' requirements and audit rights for LUL), but these were obviously untested, and it was therefore considered important to create an independent third party in a position to redress any information imbalance. For this reason, the PPP Arbiter was given statutory powers to compel PPP companies and their associates (including shareholders and suppliers) to provide any information he considered necessary. The Arbiter also had powers to inspect railway infrastructure (so that he could obtain information, for example, about asset condition, first hand) and to undertake preparatory work so that (unlike an arbitrator or a court) he had the ability to build his base of knowledge over an extended period without having to wait for a specific matter to be referred to him.
27. The Arbiter himself pointed up the distinction between his role and that of an arbitrator in a lecture in 2003ⁱⁱ:

The nature of the issues referable to the Arbiter perhaps provides the best basis for distinguishing the roles. These issues, which cover both [the] costs of maintaining and renewing the network and the costs of the finance raised by the Infracos, clearly go to the heart of the economic deal. Some of the concepts will be difficult to define and assess in practice...

For issues such as these, which go to the heart of the PPP deal, arbitration would be inadequate. It is no surprise that the GLA Act created an independent Arbiter as a public body, with statutory duties, whose functions focus on responding to references from the parties but with further powers which enable those references to be dealt with expeditiously and in accordance with best practice in public administration – as befits agreements involving costs in excess of £1 billion a year and affecting a key transport system in London.

28. The Arbiter was therefore conceptually clear about the key features of his role, but the practical arrangements he put in place were not sufficient for the task.

2. The Arbiter's initial information requirements

29. The Arbiter was formally appointed on 31 December 2002. In September 2003, he issued a consultation document on his role, approach and proceduresⁱⁱⁱ. The consultation paper summarised the statutory and contractual provisions relevant to

the Arbiter's function, and expressed initial views about how those functions should be discharged. It also noted that the Arbiter's role was narrower than that of a utility regulator, but that some of the same issues would arise, such that some of the analytical approaches used by regulators might be relevant to the Arbiter, including:

- The use of benchmarking, and specific unit cost or efficiency trend analysis
- Comparisons of industry practice in respect of asset risk management and
- Assessment of the risk inherent in different industries and regulatory frameworks and the consequences for the cost of capital

30. The Arbiter noted that^{iv}:

In order to carry out its functions the Office will be reliant upon accessing information from the PPP Parties and relevant third parties. From the outset the Arbiter and his team will need to develop a good understanding of the way in which Infracos and LUL choose to operate and the way that they interact with each other. For instance responding to questions in relation to Net Adverse Effects will require the Arbiter to understand Infracos costs and revenues and how they have changed since the baseline in [their bids] was set. In addition, in order to take a view on issues central to the PPP Agreements such as indicators of Good Industry Practice and what is economic and efficient, data will be required for benchmarking Infraco against relevant comparators. It is therefore intended that the Office will collect information and develop its understanding on an ongoing basis.

31. The responses to the Arbiter's consultation revealed a significant difference of opinion about how much information he should collect in advance, and how much could be left until there was a live reference. The split was along public sector/private sector lines. Metronet said^v:

there must be taken into account the fact that, when a PPP Party makes a request for guidance or directions, it will submit to the PPP Arbiter all the information and evidence necessary to support its position on the disputed issue. It will only have approached the PPP Arbiter if it has been unable to reach agreement with the other PPP Party. Therefore, all the supporting information will be available as the issue will have been discussed in some detail. Similarly, if the other PPP Party is in disagreement (and presumably it is otherwise there would not be a reference to the PPP Arbiter) it too will have available all the information it needs to support its contrary position and will also make that information available to the PPP Arbiter. Therefore the PPP Arbiter's primary need is to be able to assimilate such information, put it into context, possibly compare it to certain benchmarks and be in a position to make a decision. As all relevant information will be supplied to him, he does not have to have independently a large database of information which will cover every conceivable future point of reference.

32. The European Investment Bank (a funder to the PPP companies) agreed^{vi}:

It is not clear however that [the Arbiter] requires to put in place a comprehensive (and potentially costly) database and undertake a review of the relevant performance of the Infracos, prior to any matter being referred to him, particularly given that he may never be asked by the Parties to give directions.

33. LUL was at the opposite end of the spectrum^{vii}:

The issues at stake... are likely to be of such complexity and magnitude that only a well-prepared Office will be able to deal with them in a professional manner in the time likely to be considered reasonable by the PPP Parties and other stakeholders. It is theoretically conceivable that the Arbiter could develop guidance or direction from a 'blank page' starting the moment the request was made to him, but LUL believes that in most cases the interval required between request and

response by the Arbiter to complete his analyses would be far too long to be acceptable in the context of an important negotiation or disagreement between LUL and an Infraco. (2.8)...

LUL is of the firm view that the Arbiter should explicitly strive for an approach to his role based on a single set of data shared between the PPP Parties. Such data is likely to reside partly in the operational and financial databases required to be used by the PPP Parties in the course of their work, and partly in external benchmarking information sources. Whatever the form of the data set, the adoption of an approach based on such a single shared set of existing data – visible to the Arbiter and to the parties to a given PPP Agreement – will allow the Arbiter and the PPP Parties to take a transparent, fact-based approach to requests for guidance and direction. This, in LUL's opinion, is likely to be the approach most likely to succeed in achieving the objectives set out in the contract and in the GLAA. (3.2)

34. This was also the view of the Office of the Rail Regulator^{viii}:

ORR would strongly recommend that the PPP Arbiter “hits the ground running” on establishing a framework of monitoring and information flows... [We] would emphasise:

(a) the need to establish what information you need and are likely to need (which may be different from what the companies want to provide) and the time-lags in obtaining new information or types of information;

(b) the need to monitor and ensure quality of information gathering processes and the information they generate. We have found the regulatory reporters valuable here;

(c) the need for information on activities and unit costs, as well as on outputs, and for comparisons (including making comparisons within companies which means disaggregation);

35. Following the consultation, the Arbiter published a paper in January 2004 setting out his initial information requirements. The paper confirmed the Arbiter's view of the need for routine information gathering in advance of a reference, and said that in setting out his requirements, he had the following considerations in mind^{ix}:

- only to collect information on a routine basis where there is a clear justification for this in terms of enabling the Arbiter to prepare more effectively for giving guidance or direction;
- to ensure that the information underlying the Baseline for the accepted bids is fully documented before knowledge is dissipated;
- for outturn information, to use existing sources and reports so far as possible, to minimise administrative burdens;
- to achieve consistency of definition across the three Infracos to enable appropriate comparisons to be made; and
- as far as possible, to use information that is shared between the PPP Parties. (4.1)

36. The Arbiter summarised his requirements in the table on the following page. It will be apparent that these are defined at a very high level. Although some further detail was given in the paper, the information was described in terms of the documents to be submitted, with little or no definition of what they should contain.

37. Generally, the information sought by the Arbiter might be described as ‘contextual’, i.e. it provided a background against which more detailed information relevant to a particular submission could be better understood. It did not appear to be designed to provide detailed insight into Infraco's plans and performance.

38. The Arbiter noted that:

At this early stage in the life of the PPP Agreements, the Arbiter has defined requirements for information at a relatively high level to minimise any concerns that the PPP Parties might have regarding the administrative burdens. (2.6).

39. By taking this stance, and by focusing on information already available, and shared between the PPP Infracos and LUL, the Arbiter's requirements did relatively little to address any information asymmetry. In addition, although the Arbiter referred to the need for data to be comparable between the Infracos, his document did not address the issue of data definition. Indeed, his willingness to accept reports in the form currently produced meant that he was institutionalising existing differences between the Infracos.

Table 1 – Summary of information requirements

Item	Provided by	Category
Information supplied to buyers	London Underground	Historical
Supply chain, subcontracting and secondment arrangements at the transfer date	All infracos	Historical
Details of estimated risks, magnitude and timing of contingencies at the Transfer Date	All infracos	Historical
Agreed changes to the PPP Agreements and Baseline for Net Adverse Effects	Parties to affected Agreement jointly	Core monitoring
Performance Information	London Underground with assistance from infracos	Core monitoring
Capital project progress	All PPP Parties	Core monitoring
Asset Management Strategies, Annual Asset Management Plans and analysis	All PPP Parties	Core monitoring
High-level actual costs and revenues	All infracos	Core monitoring
High-level forecasts of costs and revenues	All infracos	Core monitoring
Evaluation of competitive tendering for major new subcontracts	All infracos	Other
Variations to major subcontracts	All infracos	Other
Material variations to funding arrangements	All infracos	Other

Risk registers and risk management processes	All PPP Parties	Other
Summary Board level reports	All infracos	Other

40. As noted previously, LUL had argued for a more comprehensive, and commonly-shared monitoring data set, and it remained unconvinced about the adequacy of the Arbiter's information requirement.

41. This was still an issue a year later, although the Arbiter took the view that, by then, he had everything else he needed. In June 2005, LUL commented on the Arbiter's proposed work programme for 2005/06, where the Arbiter had said^x:

With one or two exceptions, most notably comprehensive MPD data, the information that the Arbiter now routinely receives permits the maintenance of the overview he requires in order to facilitate his functions.

42. LUL continued to disagree:

LU is surprised by the Arbiter's assertion that information provision by the Infracos is adequate. LU has already raised this issue in our comments on the Arbiter's Annual Report for 2004-05. In particular, the key information source relating to costs is the pricing tables provided with the AAMPs. Although the data set is now more comprehensive, neither LU nor the Arbiter have yet been able to reconcile this data to Annex 5 to any degree of satisfaction. Nor have the Infracos provided the level of explanation required to describe the key changes in planning and costing assumptions that underpin the changes between Annex 5 and the latest AAMP.

3. The Metronet Annual Review

43. For Metronet (but not for Tube Lines) the contracts gave Infraco the right to ask the Arbiter annually

(a) for a statement, with reasons, of whether Infraco had or had not performed its activities in an overall efficient and economic manner and in accordance with Good Industry Practice and/or

(b) for directions as to the accumulated level of Net Adverse Effects

These were matters with potentially important commercial consequences for Infraco and its lenders at a Periodic Review or Extraordinary Review respectively, and Metronet took the view that it would be beneficial to have advance warning of the Arbiter's current views on them.

44. The Metronet Annual Review was therefore the Arbiter's first live test. Metronet and London Underground agreed in April 2005 to delay Metronet's first submission for an annual Metronet Report which otherwise would have been due to cover the period from Transfer to 31 March 2005^{xi}. There was considerable public disagreement at the Transport Committee in 2007 between the Arbiter and Tim O'Toole, LUL's then Managing Director, as to whether this deferral affected the outcome for Metronet.

The Arbiter's position was that this would have identified the weaknesses exposed in the following year which would have enabled the shareholders and lenders to take early action. LUL's position was that the only matter which would have made a difference would have been a disciplined and transparent approach by the Arbiter to the reporting of costs and performance from the commencement of the PPP.^{xii}

3.1 The 'trial run'

45. Discussions on the first annual review began in early 2005. There was considerable debate at the time as to what it should cover, and how it should be conducted. One condition attached to the agreement to defer as described above was for the parties to "actively pursue an effective programme of joint working, including engaging with the Arbiter as appropriate, to ensure that all parties are better informed and able efficiently to process the Year 3 submissions".
46. The context of this was that, two years in to the Metronet PPP contract, they and LUL had been unable to agree the scope of the information to which LUL was entitled under the PPP Contract.
47. Metronet stated^{xiii} that they did not intend for the first three contract years to ask for an assessment of Net Adverse Effects, but only to ask for the 'efficient and economic' statement. Metronet considered that this was to be judged purely by reference to the quality of its business processes. It considered that, for example, its outturn costs relative to its bid were irrelevant, except as a guide to which business processes to look at^{xiv}.
48. Both LUL^{xv} and the Arbiter^{xvi} had previously made it clear that they did not agree with this approach. The Arbiter had commented:

I take the view that economy and efficiency covers both doing the right things, and doing them at the right price. As such I believe that an analysis of cost must form part of any reference that relates to economy and efficiency. By implication it must also form part of any effective practice run.
49. On 16 June 2005, the Arbiter published a paper^{xvii} which said his objectives for the trial run were to test the Procedural Framework issued in 2004 and to ensure that Metronet's first 'live' submission in 2006 would contain all the necessary information and analysis to allow LUL to comment effectively, and for the Arbiter to give his view on the contractual question. The Arbiter envisaged that the trial run would be carried out in two stages:
 - A financial analysis, consisting of a reconciliation of the AAMP to the contractual baseline for NAE, and a causal analysis of the differences (discussed further below)
 - A drill down into a number of specific areas on Metronet's work, once the financial analysis had been completed and understood by all the parties
50. The reference to the AAMP reconciliation is significant. The PPP Extraordinary Review provisions enable Infracos to seek an increase in the payment received from LUL if they experience cost increases which an efficient and economic company

could not have avoided. Their entitlement depends on the level of Net Adverse Effects (i.e. reductions in net cashflow) they have suffered. This is assessed by reference to a table of anticipated cashflows called the Baseline for Net Adverse Effects, which is based on the pricing schedules submitted in final bids, but is set out in the contract at a very aggregate level.

51. The Infracos were not committed to the pattern of expenditure set out in their bids. On the contrary, it was expected that this would change as they became more familiar with the assets, and introduced new ways of working. However, the basis for any such changes should be articulated in Infracos' Asset Management Strategies and Annual Asset Management Plans.
52. In April 2004 the Arbiter's office had proposed a reconciliation between the AAMPs and the pricing schedules so as to assist understanding in the event of any Extraordinary Review reference, and minimise any potential ambiguity over the detailed baseline figures^{xviii}. For Tube Lines, this reconciliation was started towards the end of 2004^{xix} and completed in early 2005, but Metronet could not or would not produce it. An internal LUL email in June 2005 noted^{xx}:

I think it is also worth mentioning that the Arbiter said that he was considering using his information powers unless this reconciliation exercise was complete by 2nd week in July. He seemed very ready to do this.

53. On 22 June 2005, the Arbiter wrote to Metronet^{xxi} explaining both the objectives of the reconciliation process (as above) and enclosing proformas setting out the detail he expected Metronet to provide. At a tripartite meeting the same day, the Arbiter took an assertive line on this:

CB noted that OPPPA's objective was to be assured that the baseline in Annex 5 could be reconciled and noted that a partial exercise i.e. without sufficient level of granularity, would not achieve this. CB was equally anxious to ensure an audit trail so that the reconciliation would be "evergreen" and could simply be updated in successive years...[I]f the full Phase I exercise were not carried out this year, the parties would not be ready for a formal submission next year. Therefore failure to reach appropriate agreement now would require the OPPPA to consider alternative means of meeting its needs.

54. LUL thought that, in order to achieve this, the Arbiter should clearly specify the information to be provided by Metronet^{xxii}

LUL would expect to see ... a clear statement from OPPPA of its data needs at an Annual Report and in preparation for it (such needs not being constrained by the limitations of Infracos' current information capability).

55. Metronet's 'trial run' submission was made on 18 October. It still did not contain the required reconciliation, and it was still outstanding in December, according to the notes of a tripartite meeting held that month^{xxiii}.
56. The substance of the argument contained in the material Metronet did submit in the 'trial run' was that whether they had been overall efficient and economic should be judged by reference to the following:

- Business process review
- Internal performance measurement and contract obligations

- Financial performance relative to bid and
- External performance benchmarking

57. Metronet argued that “in the early years of the contract, the evaluation should primarily focus on the Business Process Review component of the measurement framework”^{xxiv} and that business process improvement might initially result in a decline in performance against the other three measures.

58. On 21 November 2005, the Arbiter wrote to Metronet^{xxv} with his initial response to the submission, which rejected this analysis. He concluded that the Voluntary Submission “was not the right place to start”, and that “it would be beneficial to provide a very clear statement of his submission requirements in advance of Metronet finalising the submissions due in April 2006”. The Arbiter reiterated this intention at a tripartite meeting on 7 December^{xxvi}.

59. On 9 December 2005, LUL sent Metronet a detailed critique of the Submission^{xxvii}. However, this contained no review of the financial information provided by Metronet because (among other reasons):

- Although variances between Metronet’s bid and its current forecast were shown, no explanation was given for them
- There was no discussion of whether Metronet’s current forecasts were considered better or worse than would have been the position for an E&E Infraco
- LUL could not recognise the ‘bid’ information presented
- The variance analysis which was provided was not in the agreed format and
- Analyses of maintenance costs, ‘admin and other’ expenses and payments made under Key Subcontracts which had been promised by Metronet had not been provided

60. It was therefore clear that, at the end of the ‘trial run’, both the Arbiter and LUL were unhappy about the extent and quality of the information provided by Metronet in its submission. Furthermore, the Arbiter had not exercised his information powers that he had previously considered using to meet his requirements. At this stage, Metronet was not disclosing material cost overruns which would only become apparent over the next few months.

3.2 The 2006 Annual Review

61. As noted above, the experience of the trial run led the Arbiter to say that he intended to produce a clear statement of the information he required, and in January 2006, he issued a draft ‘high level outline’ of his requirements^{xxviii}. This document continued to describe the evidence to be provided in rather broad terms, and noted “the Arbiter is content for Metronet to determine the exact format of the information”. One exception was the AAMP reconciliation which the Arbiter once again said he required. However in letters to the Arbiter in February^{xxix} and April^{xxx}, Metronet

commented that they reserved the right to submit the information they considered appropriate, and whilst this would probably cover the Arbiter's stated requirements, it would not necessarily do so. The Arbiter responded on 20 July 2006^{xxxvi} by saying, "The Arbiter notes this and hopes that this will not force him to use his information gathering powers under the GLA Act which will inevitably delay matters."

62. LUL commented on 12 April 2006^{xxxvii} that in terms of information required, "LUL would like to see increased linkage between costs and performance and the extent to which decisions made about maintenance/renewal are appropriate (underpinned by decision-making processes, properly implemented)".
63. Despite this exchange, the final list of information requirements contained in the Arbiter's published Procedural Approach to Extraordinary Review in June 2006 was issued substantially unchanged. Metronet itself said "We genuinely believe that we are providing the Arbiter on an open book basis with the same facts and analysis that are available to decision makers with the business"^{xxxviii}. In the event, the information provided by Metronet did not meet the Arbiter's requirements, and he had to issue supplementary information requests.
64. The Arbiter's Annual Review Report was published on 16 November 2006^{xxxix}. Once again, the Arbiter commented on the unsatisfactory nature of the information provided to him^{xxxv} and once again stated an intention to be more prescriptive in his information requirements^{xxxvi}:

In order that the lessons from this year's process are assimilated effectively, the Arbiter intends to consult early in 2007 on further revisions to his Procedural Approach, including the information to be provided by Metronet in its initial submission for the 2007 Report.

65. This was something LUL strongly supported. In its representations on the Arbiter's draft Annual Report^{xxxvii}, it said:

The failure by Metronet to provide information or information of sufficient quality/detail in a number of areas in support of the Reference is noted in both the draft Guidance and in the adviser reports.

LUL considers that the Arbiter could take the opportunity in the final Guidance to more actively promote a definitive resolution to the continuing problem of poor information provision by Metronet – both in the context of this Reference and generally in relation to its 'open book' obligations in the PPP Contracts. LUL would urge the Arbiter to consider whether a more categorical statement on the information point might be opportune given its significance both to the present and future references.

4. Extraordinary Review

66. It was noted earlier that although Metronet was entitled, as part of an Annual Review, to ask the Arbiter to estimate its accumulated Net Adverse Effects, it had chosen not to do so. This position was adopted by Metronet notwithstanding it had been reporting material cost over runs from early 2006. However, the 2006 Annual Review report noted that Metronet was forecasting cost over runs of £750m, well over the amount at which an Extraordinary Review could be triggered.
67. Just before this report was published, Metronet made a reference to the Arbiter seeking guidance on how he would approach the question of assessing what

amounted to E&E expenditure, in respect of seven specific cost categories. Although made clear to the Arbiter that it considered this reference inappropriate^{xxxviii}, the Arbiter decided to accept it, and explained its purpose as follows^{xxxix}:

The Arbiter understands that the reason Metronet made the current references is to provide its Board with some assurance about the extent to which Metronet's projected costs for the first Review Period might be regarded as consistent with the Infraco performing its activities in an overall efficient and economic manner and in accordance with Good Industry Practice, and thus in principle eligible for remuneration through any potential future Extraordinary Review.

Metronet is required by its lenders to produce a financial model every six months, which is reviewed by the lenders' Technical Adviser. The next version of the model is due to be signed off by Metronet's Board in February 2007. This determined the requested timing for these references.

68. The Arbiter concluded that his guidance should include "general principles of costing efficient and economic delivery of obligations"^{xl} which he would follow at any Extraordinary Review. He envisaged doing this by considering scope and cost separately^{xli}:
- review of scope: development of principles for determining whether the proposed scope of works is an appropriate way of delivering Infraco Obligations in an overall efficient and economic manner and in accordance with Good Industry Practice with regard to the extent applicable to a Notional Infraco; application of those principles to the seven specified investments.
 - assessment of allowable expenditure: development of principles for assessing future costs and principles for reviewing past costs (if different); application of those principles to the seven specified investments; specification of information requirements for Extraordinary Review and Periodic Review.
69. In its submission on the request for guidance LUL argued that in order to decide whether expenditures were efficient and economic it would be necessary to consider:
- The basis on which actual costs had been allocated
 - The basis of the buildup of future costs
 - The basis on which overheads had been allocated to projects and
 - The basis for calculating risk and contingency allowances
70. According to the PPP contract, the Arbiter was to assess Infraco costs on the basis that it was submitting a competitive tender. To reflect this, LUL argued that the Arbiter should also give particular attention to ensuring that:
- The Infraco had a sound basis for its approach to delivering its obligations
 - The Infraco's detailed work programme was credible and
 - The cost estimates for each element of the work programme were soundly based
71. LUL's submission included a response to a number of questions which the Arbiter had put to the parties in an Issues Paper dated 19 December 2006^{xlii}. One question

was whether the AMS and AAMP should be the key documents in an Extraordinary Review. Although LUL agreed the AAMPs were important, it listed other information it considered would be essential in any Extraordinary Review including:

- Infraco's current financial model, reconcilable to its current AAMP
- Project scope documents
- Programme and project cost information reconcilable to the current AAMP
- Maintenance programme and cost information
- Information on actual costs, including the basis for allocation of overheads; and
- Information on allowances for risk and contingency at project and programme level

72. The Arbiter also asked about the appropriate level of disaggregation at which Infraco data should be submitted:

Question 5: do the Parties agree that a combination of top down and bottom up analysis is the right approach to maintaining the integrity of taking the aggregate view required by an Extraordinary Review? If so, what is the appropriate level of disaggregation? What evidence should be provided on assumptions and Board approvals?

73. LUL said^{xliii}:

Establishing robust and defensible rates per unit of work for both operating expenditure (opex) and capital expenditure (capex) is a fundamental requirement but, as the Arbiter suggests, the key question is how disaggregated these units of work should be. If they are too disaggregated (eg the cost to lay one brick) the estimating problem becomes impracticable and if they are too aggregated (eg the cost to rebuild a station) it becomes impossible to distinguish between units with very different characteristics (eg Victoria and Fairlop) and to identify the relevant cost drivers.

74. In Metronet's view^{xliv}:

In terms of disaggregation, Metronet considers that the minimum level should be that which is consistent with the level of breakdown provided for in Annex 5 and that where this covers high levels of expenditure, further disaggregation based on the Pareto principle should be adopted to allow the individual review of significant sub elements (emphasis added).

75. During this period, LUL developed a very detailed schedule of the information it considered would be needed to carry out an Extraordinary Review. This identified about 125 categories of information, plus a further ten for each of the seven main asset areas, with an explanation of why each was needed. On 30 March, the Arbiter wrote to LUL and Metronet^{xlv} attaching this schedule, with each line labelled to indicate the priority he attached to the relevant data. Some 75% of the data categories were classified as being priority 1 or priority 2, each described as 'must have'.

76. However, the Arbiter commented:

My first priority will be to assure myself that Metronet's cost and revenue projections for the whole Reference Period have been properly stated and to understand the assumptions behind them. I will therefore want to receive and review the most recent financial model as submitted to Metronet's lenders, at this stage potentially excluding the assumed allocation of overall cost increases between claims and NAEs expected to be recovered from London Underground and the residual to be borne by Metronet. I will in particular want to review the construction of the model, the processes that have been employed in taking the assumptions of rates and volumes and incorporating these into the projections, and review any audits or assurance provided to the Board in signing off the projections.

77. The reference to Metronet's financial model is significant. In the course of the above discussions, it had become apparent that Metronet's potential cost overrun was not the £750m referred to in the Annual Report, but £2.5bn^{xlvi}. Accordingly attention started to focus more intently on preparations for an Extraordinary Review. Metronet's had provided updated financial projections to its lenders in a revised financial model in February 2007. The Arbiter therefore asked Metronet^{xlvii} for:

confirmation to me of the latest expenditure figures for the first Review Period approved by the Board and reflected in the current version of the financial model now being reviewed by funders

78. At a tripartite meeting on 11 April 2007, Metronet stated that this model could not be provided until it had been settled with the lenders, which would not be before the end of May^{xlviii}. An internal LUL email the following day noted^{xlvi}:

"We had expected to receive extracts from the financial model provided to the funders in March... the point was to get at figures that had been signed off by the Metronet Board with validated assumptions and we are not getting near this. [The Arbiter] should try to get to the real numbers provided to the funders. Gaynor said that Chris had thought about using his information powers."

79. Furthermore, Metronet continued to assert^l that financial information was of peripheral relevance to an Extraordinary Review, as it had done in relation to the Annual Review trial run two years earlier. Considering Metronet's attitudes and behaviour from the beginning of the contract, the clear inference is that Metronet never accepted the legitimacy of the Arbiter's information requests, and appeared to consider compliance to be optional.

5. Extent and quality of Infraco information

80. The information provided by Metronet as part of its Annual Review and Extraordinary Review submissions was clearly unsatisfactory. The 2006 Metronet Annual Review report said^{li}:

the Arbiter has been surprised at the apparent difficulty faced by Metronet in providing detailed information which he would have expected to form part of the information reviewed regularly by Infraco management. For example, despite further requests being made, details of payments made to the tied supply chain were not forthcoming at a useful level of detail. These weaknesses could, of course, have been identified a year ago had Metronet made a reference in 2005, as provided for in their PPP Agreements.

The information submitted by Metronet therefore required significant clarification and expansion. The key areas of weakness were as follows:

- delivery and cost information for the three year period covered by the references was not initially provided; and

- the explanations provided for variances, in particular where these related to potential claims by Metronet, were at a summary level and could not be reconciled to the detail.

81. The situation at Extraordinary Review, was no different^{lii}:

The Arbiter expressed concerns about Metronet's ability to prepare robust submissions in his annual Metronet Report 2006. Metronet sought to address these issues in its subsequent references, but the Extraordinary Review process highlighted significant ongoing weakness in the provision of information relating to costs, in particular unit costs, and the rationale for decisions taken. In some cases, it appeared that Metronet was unable to access information in the form that was required, for example stations data held within its supply chain. In the Extraordinary Review, this limited its ability to supply evidence to support its submission. More generally, it seems that Metronet was unable adequately to monitor and control its supply chain so that it could understand and control its costs. There also appeared to be a lack of consistency in the submissions which further undermined their value. For instance, individual components of cost changed between the 2007 AAMP, the Extraordinary Review submissions and subsequent representations. Changes were sometimes of a magnitude that adversely impacted the credibility of the arguments being made. In addition, definitions associated with cost lines were not always apparent and this made comparisons more difficult.

82. This consistent pattern of poor quality information led to what were to be continuing discussions over both the level of detail in the information submitted to the Arbiter by the Infracos, and over arrangements to provide assurance as to its integrity.

5.1 Data Breakdown Structure

83. In his Issues Paper on the Metronet references which preceded Extraordinary Review, the Arbiter had asked the parties for their views on the level to which Infraco cost and volume data should be disaggregated for the purposes of a Review. In his Final Guidance, he concluded that the correct level was a submission involving less than 100 lines of data with, for example, a single figure for all an Infraco's station modernisation projects, with any further detail obtained on a sample basis^{liii}. He justified this by reference to the:

- Need to avoid distracting Infraco management from the task of delivering against the contract
- Time available for a Review
- Level of detail likely to be available in any benchmarking information
- Level of detail provided in Annex 5 of the contract and
- Level of detail used in the original bid evaluation

This was reflected in the Arbiter's revised draft Procedural Framework, issued on 4 June 2007.

84. As is evident from LUL's reference submission, its view was that the level of disaggregation should be sufficient to provide the ability to cost a detailed programme of work, without being excessively complex to handle. It had been developing its own assessment of the right level of detail (which it called 'units of account').

85. In March 2007, LUL gave a presentation to the Arbiter's team explaining the work it had done, and the rationale behind it^{liv}. At a subsequent meeting, the Arbiter's team said that they would consider LUL's views, but that the Arbiter was wedded to the 100-row maximum, and that they intended to drill down only in selected areas^{lv}.
86. In May 2007, LUL provided the Arbiter with detailed spreadsheets setting out its proposed units of account and a list of points for further discussion^{lvi}, followed up in mid-June 2007 by LUL's Cost Breakdown Structure (CBS)^{lvii} and in mid-August 2007 by further explanatory charts^{lviii}. OPPPA responded to LUL and Tube Lines in a paper circulated on 23 August 2007^{lix}. Although OPPPA felt that certain costs in the CBS might usefully be expanded, its general view was that the level of detail was excessive, and required considerable aggregation, and continued to take the line that a 'top down' approach was appropriate.
87. LUL remained strongly of the view that the Metronet Extraordinary Review demonstrated that more rather than less cost detail was required and that this needed to be mandated at the outset. At the Quadripartite meeting¹ on 28 August 2007, the proposed CBS (which it was intended to be adopted for the 2008-09 AAMP) was discussed at length^{lx}. LUL argued that it would be best to start with disaggregated costs rather than rely on subsequent drill down into variance analyses. Tube Lines argued the opposite, and Metronet agreed with the high-level structure, but not to LUL's proposals for more detail^{lxi}.
88. At the Tripartite meeting on 4 October 2007, OPPPA appeared to have revised its original stance. LUL's meeting note^{lxii} commented:
- OPPPA are now substantially adopting LUL's cost breakdown structure – for both costs and volumes. While OPPPA's methodology remains top down, we are now much closer in terms of information needs to feed the analysis^l.
89. OPPPA subsequently issued its own version of what it was now calling the Data Breakdown Structure (DBS) in a paper dated 12 October 2007^{lxiii}. By 31 October, a version of the DBS was agreed to be used for the 2008-09 AAMP, although Tube Lines was still declining to provide data about work volumes.
90. In early December 2007, OPPPA advised that it would take over responsibility for the DBS and establish change control. On 19 December 2007, OPPPA provided an updated version of the DBS which appeared to backtrack significantly on the level of detail contained in its previous versions. However, the Arbiter had referred the question of the appropriate level of detail to the Reporters (see below), who finally reported at the end of May 2008^{lxiv}. In a number of areas, the Reporters recommended a greater level of disaggregation than had been proposed by the Arbiter in December 2007. Following a telephone discussion with the Reporters in July 2008, LUL understood that OPPPA considered this additional detail to be excessive and had asked the Reporters to look at this again 'through OPPPA eyes'^{lxv}.

¹ 'Quadripartite' meetings were attended by the Arbiter, LUL and both Infracos to discuss matters of interest to all. 'Tripartite' meetings were attended by the Arbiter, LUL and a single Infraco, to discuss matters specific to that Infraco.

91. In late August 2008, LUL and Tube Lines agreed, independently of OPPPA, changes to the DBS for the 2009-10 AAMP. OPPPA accepted the changes and reflected them in a revised, and subsequently a final, DBS for Periodic Review, issued in September 2008.

5.2. Reporters

92. The development of the DBS reflected the need to address the scope of the information available to the Arbiter. Another issue was its quality.

93. In his January 2004 Information Paper, the Arbiter said^{lxvi}:

The Arbiter must be confident in the quality and accuracy of information provided. Wherever possible, he will gain assurance of any financial information through comparison with and reconciliation to information provided to other parties, for example to lenders, auditors or the Board members of the PPP Parties. However, where this is not possible, the Arbiter will require the PPP Parties to propose a process whereby the Arbiter can be assured of the accuracy of the information. In the case of forecasts, this might for example explain how the Party has ensured that the information has been prepared on a reasonable basis and that it is consistent with business plans and projections approved by the relevant Board.

94. The Arbiter's Procedural Framework issued in July 2004 contained a requirement that submissions and responses in respect of formal references should be certified in the following terms:

I/we confirm that to the best of my/our knowledge and belief that the contents of this Reference are true and accurate.

95. Commenting on the earlier consultation draft, Metronet said^{lxvii}:

...it is acceptable for the confirmation to state that there has been no deliberate omission from the information provided which would make it misleading. The extent of the confirmation should not however be such that the Infraco is required

- a) either to undertake a substantial due diligence exercise;
- b) or to search out and provide information which contradicts its own case for efficient and economic performance

96. By October 2004, the Arbiter had introduced a requirement for the Infracos to provide a confirmatory statement with their routine information submissions, as follows:

We have established an agreed format for the provision of "Routine Information" to the PPP Arbiter to enable him to carry out his functions under both the Greater London Authority Act 1999 and the PPP Agreements.

We confirm that any such Routine Information provided by us to the PPP Arbiter will be consistent with and accurately reflect the same or equivalent information used by us for our own internal purposes and/or that which is reported to our respective Boards of Directors.

However, there was no process to verify that such confirmations could be relied upon.

97. The issue of information integrity was a central issue in the Metronet Annual and Extraordinary Reviews. For example, in February 2006, Metronet gave a

presentation to LUL entitled “Update for LUL on Metronet’s Emerging Cost Projections”. This showed a ‘total potential overspend’ of £1.6 billion relative to its original bid. On 10 March, Metronet submitted AAMP cost tables showing an overspend of £742m. LUL commissioned PwC to investigate the basis of these figures, to:

“enable LUL to understand the numbers in the AAMP cost tables, the processes and systems from which those numbers were derived, the reasons for the substantial cost variances compared with [Metronet’s bid], whether those costs were complete, accurate and soundly based and why, and how, they had arisen”^{lxviii}.

98. Metronet agreed to co-operate with this work, on the basis that they were seeking a joint approach with LUL to bridging the anticipated overspend^{lxix}. However, PwC reported that:
- Metronet was unable or unwilling to meet many of PwC’s requests for information
 - It had limited access to cost information held by its supply chain, so was unable to exercise control over these costs
 - Its management attention was focused on delivering contractual outputs at the expense of cost control
 - The cost reduction ‘opportunities’ which accounted for most of the difference between the £1.6bn and £742m figures were, in many cases, made up of unsubstantiated, round sum amounts, not specific, identified control measures
 - Metronet’s risk management processes were still very immature
99. As described above, the Arbiter had criticised Metronet’s inability to provide the data he sought during the Annual Review. In a letter to Metronet in March 2007^{lxx}, looking ahead to a possible Extraordinary Review, the Arbiter stated his expectation that he would have “access to Deloitte (who are assisting you in this process, and who would have a duty of care to me for this purpose” with the objective of achieving what “[Metronet] described as ‘360° assurance’”. In the event, Deloitte’s ‘agreed upon procedures’ project was unable to fully reconcile Metronet’s internal sources of data, despite many weeks of work.
100. LUL had made its own efforts to verify Metronet’s data, using its contractual audit rights, particularly in relation to the expenditure category ‘Admin and Other’, which included central costs, overheads and risk. PwC concluded^{lxxi}:

We have been unable to fulfil the required scope because all the information that we requested from MR was not made available to us and explanations that we asked for from MR staff were not provided. For these reasons we can provide you with no assurance that the objectives of our audit have been met...

We do not consider that the information and explanations that we requested were unreasonable or that, an efficient and effective organisation of the size of MR – with the numbers of staff that it has working in finance and HR positions - could not have provided them in the timescales that LUL set for this audit. The timescale was originally four weeks but was extended by LUL for a further four weeks to assist MR – despite this extension, MR was unable to provide the evidence that we required.

We note that a previous attempt to review these costs in 2006 was similarly unable to conclude because information was not provided in the time allowed for the work.

101. It was not clear to what extent Metronet was unable to provide the information requested of it because they did not have it, and to what extent they had it but would not release it. In the light of PwC's experience LUL wrote to Metronet^{lxxii}:

...I cannot see how [Metronet] can hope to secure help from LUL whilst simultaneously attempting to control the release of information about the factors that contributed to the situation in which it now finds itself. As such, I would urge you to consider how you will provide us with the necessary assurance over your cost projections.

102. As mentioned previously, the Arbiter had also expressed frustration over the quality of Metronet's data, and in early 2007 proposed a mechanism for external scrutiny of Infraco submissions. In a consultation paper on changes to his Procedural Framework^{lxxiii}, the Arbiter commented:

The Arbiter considers that there may be merit in the preparation of information submissions being overseen by 'Reporters' particularly in a broad ranging financially based reference such as Extraordinary Review and/or where there is significant uncertainty in the figures being provided as part of the submission. Reporters would be employed by the Infraco but with reporting lines and a duty of care to all Reference Parties.

The role of the Reporter would be to confirm that the information provided as part of a reference proceedings was traceable back to initial assumptions and to give a view on the reasonableness of any assumptions applied, for example giving a view on the likelihood of a proposed approach delivering to the timescale and cost forecast in the submission.

103. The first discussion on the potential merits of having an independent view on an Infraco's reference submission had taken place in late 2005, during preparations for the Metronet Annual Review^{lxxiv}. Specific reference to the Reporters' concept had first been made in the Arbiter's draft Guidance on Metronet pre-Extraordinary Review References and the PPP parties were asked to express their views in their representations on that document. LUL commented in its representations on the draft Guidance^{lxxv} that it "supports the principle that the Arbiter should satisfy himself (using reporters or otherwise) that the information provided by Infraco is traceable back to the initial assumptions and that the assumptions are reasonable." LUL gained the impression that the Arbiter, having advocated the idea, did not intend to pursue it^{lxxvi}, but it was raised again in a further consultation paper he issued to the PPP Parties in August 2007^{lxxvii}, by which time it appears the Parties had reached agreement in principal to adopt it^{lxxviii}.

104. By October 2008, the Arbiter was preparing to appoint Reporters. In a further discussion paper he said^{lxxix}:

Since the Arbiter's intention is not to require Infracos to routinely submit data at a detailed level, the role of reporters in providing assurance that the data have been assembled on a robust basis and in a manner which is consistent with the cost breakdown structure is important.

105. More than five years into the PPP, the Arbiter therefore continued to maintain that it was unnecessary for him to collect detailed information from the Infracos, and was only now implementing measures to assure himself as to the integrity of the information he did receive.

6. Benchmarking

106. The importance of benchmarking to the exercise of his functions was acknowledged by the Arbiter in the early stages. His most important role is to determine the efficient and economic cost of performing an Infraco's obligations, and to set an ISC accordingly. The contract guides the Arbiter, when doing so, to have regard to:

- The historic costs actually incurred by all Infracos, to the extent that these are incurred with efficiency and economy and in accordance with Good Industry Practice
- Efficiency savings that can reasonably be expected based on the experiences of other Infracos and firms in other relevant markets
- Trends in input costs experienced by the Infracos and firms in similar sectors and
- Trends in costs that have been exhibited in similar industries in the past

107. Benchmarking is one mechanism to assist the Arbiter in making these comparisons. One of the Arbiter's first initiatives was therefore to commission a report from Cambridge Economic Policy Associates (CEPA) which was published in July 2003. In CEPA's view^{lxxx}:

The starting point for the Arbiter should be comparison of outturn costs, activity and performance against that envisaged by the parties in the contracts for the first 7.5-year period as well as against historic LUL cost and performance information. This should be supplemented by appropriate internal benchmarking (within and between Infracos) of a series of disaggregated efficiency and productivity indicators and movements in unit costs. In addition, the Arbiter should draw on a range of disaggregated external benchmarks drawn from sectors including international metros, UK overland and roads to inform judgements about good practice, price and productivity trends.

108. The CEPA report was appended to the Arbiter's September 2003 consultation document, and LUL commented on it in detail in its consultation response. In particular, LUL noted the benefits of longitudinal compared to cross-section studies^{lxxxi}:

LUL strongly supports the use of time-series methods to assess Infraco performance against plan over time. Only by building a clear picture of the evolution of Infraco costs over time will the Arbiter be able to separate out E&E variances from the remainder. It will be critical for the Arbiter to drill-down through the data to properly understand the root causes of material cost variances... By comparison, quantitative snapshot external comparisons are difficult to make robustly, but it is true that some elements of Infraco activity may be suitable for this approach. (5.4)

109. However, it was another year before the Arbiter issued an invitation to tender seeking advice on setting up a framework for benchmarking Infracos against each other (known as 'internal benchmarking'). This was won by PwC and Bovis Lend Lease, who produced a phase one report in August 2005. This proposed a framework which sought to compare the ratio of outputs to inputs. At the top level, measures related to contractual outputs were to be divided by total costs. At the second level, the output measures were to be disaggregated by asset type, divided by the relevant asset level costs. The third level comprised more conventional measures of unit cost (e.g.

maintenance cost per train kilometre) or performance (e.g. mean distance between failures) to be used mainly for 'drilling down' in areas identified as outliers from the level 1 and level 2 measures. The report also discussed a range of technical issues relating to comparability of data across lines.

110. In January 2006, the Arbiter commissioned PwC and Halcrow to undertake a pilot study to calculate benchmarks according to this framework. A report was produced in May 2006. Further work was commissioned to 'refresh' the benchmarks in the pilot study using more recent data. This reported in October 2006^{lxxxii}. That report described the work as 'an 'extremely collaborative undertaking' on which a 'considerable amount of constructive input' was received from the PPP Parties. However, the Infracos were simultaneously creating their own separate approach to benchmarking.
111. The Infracos were dissatisfied with the approach being pursued by the Arbiter and his advisers. They thought it was overly complex, and considered that the analysis lacked transparency, such that the relationship between inputs (i.e. costs) and outputs (availability, ambience, service points, etc.) was impossible to understand. Metronet therefore proposed a much simpler approach, which was also agreed by Tube Lines, and they issued joint terms of reference for a benchmarking study in April 2006.
112. The Arbiter's office wrote to the parties on 31 May 2006^{lxxxiii}, describing what the Arbiter was looking to achieve from benchmarking:
- Our objectives for benchmarking are likely to be addressed by a combination of cost/performance benchmarking and process benchmarking. Cost/performance benchmarking would enable the Infracos to be compared with other Infracos/metros/sectors while process benchmarking would assist in explaining the reasons for any apparent good/poor performance. To meet our objectives approaches will need to be developed and run over a number of years to ensure that they are well understood by all Parties and produce robust results.
113. The letter suggested that a significant amount was going on, mentioning several process studies, and referring to the PwC work, the Infraco internal benchmarking project and COMET², as examples of cost benchmarking.
114. The Arbiter's letter concluded:
- It seems possible, if all of the relevant work currently underway is shared between all of the Parties, that most of the benchmarking necessary to allow cost/performance and process comparisons between the Infracos, with other metros and with other rail companies or industries is already underway in some form.
115. However, it noted gaps in some of the process benchmarking and commented that the COMET data was highly aggregated and would not enable some asset by asset comparisons, such as the cost of rolling stock maintenance. The letter went on to propose a workshop in October 2006, the purpose of which would be to define the parties' objectives for benchmarking and decide who would take the lead on different aspects of it. Furthermore, LUL considered that the approach being proposed by the Infracos was unsatisfactory^{lxxxiv}.

²COMET (the 'COmmunity of METros') is a benchmarking club of nine of the world's largest urban railways, including London, founded in 1995.

116. Clearly, at this rate of progress, there was no prospect of substantive benchmarking results being produced until at least halfway through the first Review Period, despite the original 2003 CEPA report having stressed the importance of longitudinal benchmarking, a view which LUL strongly endorsed at the time.

117. The first reference to benchmarking in the context of a live reference was in the Metronet Annual Review Report in November 2006, where the Arbiter said^{lxxxv}:

In parallel with its submission, Metronet also made available to the Arbiter the initial results of benchmarking work undertaken jointly with Tube Lines. The Arbiter has welcomed the initiative taken by the Infracos in taking forward this work, and is pleased to note that London Underground has now agreed a basis for participating in this work. The Arbiter considers that the value of such benchmarking will only be fully realised if the work is taken forward by all the Parties to the PPP Agreements and the results fully shared.

118. Whatever data the Arbiter saw appears not to have been shared with LUL, who noted:

Paragraph 2.25 of the draft Guidance refers to the fact that the Arbiter has made use of benchmarking information from Metronet and Tube Lines. LUL assumes that this is a reference to the joint benchmarking exercise carried out by Metronet and Tube Lines, an interim report in relation to which was released to OPPPA, but not to LUL, during the current Reference process.

119. It was not until December 2006 that an approach to joint benchmarking was finally agreed by all the PPP Parties.^{lxxxvi}

120. In the Metronet pre-Extraordinary Review guidance in March 2007, the Arbiter once again set out the way in which he anticipated benchmarking being used^{lxxxvii}:

The key areas that the Arbiter would expect to examine in respect of the costs of undertaking a given volume of work are:

- benchmarking with relevant comparators and
- evidence from competitive tendering

In respect of benchmarking information, the Arbiter considers that relevant comparators are likely to include:

- other Infracos
- other metros
- other rail infrastructure companies, in the UK and internationally
- industry databases of unit costs and
- other large-scale asset-intensive industries

The Arbiter would expect to use benchmarking information in a number of different ways. These include:

- process benchmarking: a comparison of the approach taken by the Infraco in comparison with that adopted by other companies, including information from the CoMET group of metros
- unit cost benchmarking: a workstream in this area, initiated by the Arbiter, is now being taken forward by the PPP Parties jointly. This work includes internal comparisons of the Infracos' costs and performance and external comparisons with comparators such as international metros and rail networks and may be supplemented with other evidence such as the use of unit cost databases for components of works; and
- benchmarking of efficiency trends: a comparison of the efficiency achieved by an Infraco compared with that achieved in other comparable industries and in other comparable contracts.

The Arbiter considers that benchmarking is also relevant when examining performance, and hence revenues.

121. However, it is clear that even by the time of the Metronet Extraordinary Review (June-September 2007) there was very limited usable output from the benchmarking work to date. In his 'Issues Arising' paper, the Arbiter commented^{lxxxviii}:

Given the relative immaturity of the benchmarking work to date, its value in the Extraordinary Review was limited. This was particularly true of 'administration and other' costs where different company and supply chain structures make comparisons between Metronet and Tube Lines difficult. The Arbiter is undertaking further work in this area, with input from the PPP Parties. He is also working with the Parties to address shortcomings in the existing joint benchmarking work and on widening the range of comparators to include international metro and rail organisations. This work will be of particular relevance at Periodic Review.

122. In the same paper, the Arbiter stated that he was going to take back the lead role on benchmarking:

The Arbiter is now taking the lead in steering further work in this area, with input from the PPP Parties. He is also working with the Parties to address shortcomings in the existing joint benchmarking work and on widening the range of comparators to include international metro and rail organisations. This work will be of particular relevance at Periodic Review. The work programme which ensued was in two streams, 'joint benchmarking' (i.e. comparisons between Infracos) and 'international benchmarking'.

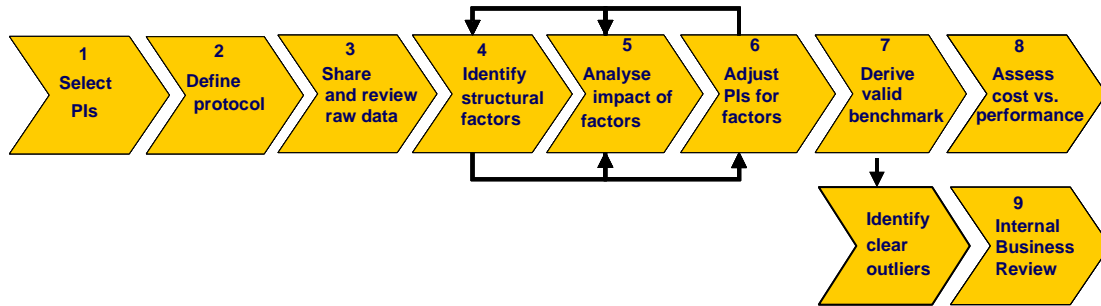
His office issued a detailed scope for future benchmarking work in August 2007^{lxxxix}. This was included as a key part of his 2007/08 work programme.

123. Initially, joint benchmarking involved only OPPPA and the Infracos, although LUL was invited to join in 2007 (before it assumed responsibility for Metronet).

124. The joint benchmarking exercise had three objectives:

- To improve the understanding of the linkages between cost and performance and the drivers of variance in cost and performance between Infracos, and between individual lines
- To direct Infraco management to potential performance improvement opportunities and
- To address some of OPPPA's benchmarking information requirements

125. The methodology adopted was as follows:



126. The process focused on jointly-agreed performance indicators, designed to capture key cost and performance drivers, together with condition information for each of the major asset groups - fleet, signals, track, stations, lifts and escalators, and civils. Overheads and administration costs were also included.
127. Material differences between Infracos or lines identified from the raw data were attributed to:
- **Structural factors** beyond the control of management in the short or medium term – e.g. the proportion of track located deep underground or the mechanical complexity of a particular type of car
 - **Efficiency factors** potentially controllable by Infraco management at least in the longer term – e.g. working practices, or the location of maintenance depots
 - **Interface factors** – operational and design constraints with a potential impact on Infraco performance in the short to medium term – e.g. insufficient training or inconsistent staff behaviour
128. In 2007, the Arbiter commissioned an international benchmarking study from BSL with the objective of making comparisons of a similar kind with metros elsewhere in the world. This addressed operating and capital expenditure and performance for track (maintenance, track renewal and points and crossings renewal), signalling (maintenance and upgrades) and rolling stock (maintenance and train purchase). The BSL study generally concluded that LUL's lines were all more costly to maintain and upgrade than the international best practice 'benchmarking range'.
129. As mentioned previously, the Arbiter had noted that he considered this work 'of particular relevance' to Periodic Review. In June 2008, he published a revised Analytical Approach to Periodic Review, which demonstrated an intention to use benchmarking extensively
- ... the key anticipated use of the Arbiter's benchmarking information [being] to identify areas where he should focus his efforts and in particular where there appears to be the need for him to consider unit cost and activity volumes at a more granular level of detail.
130. By September 2008, the Arbiter advised the parties that he considered international benchmarking likely to prove more useful at Periodic Review than internal

benchmarking between Infracos^{xc}. He reiterated this in January 2010, when he told the Transport Select Committee^{xcii}:

...the Arbiter has access to information for the BCV and SSL lines to use as a benchmark for Tube Lines. In practice, in the work I have done, those have not been useful benchmarks because international benchmarks suggest that rather different levels of cost are achievable.

131. A COMET benchmarking study in 2008 had indicated that LUL costs for lifts and escalators appeared excessive in comparison to most other metros studied. LUL initiated a study to understand in depth what others were doing differently to achieve lower costs. This was done jointly by team of LUL engineers and business managers working with the Imperial College benchmarking specialists. Study visits were made to nine other metros, which enabled a fuller understanding of their benchmarking questionnaire responses as well as identifying numerous improvement opportunities through the observation and on-site discussion of other metros' strategies, working practices, facilities and sourcing arrangements.
132. The Arbiter issued a further update to his Analytical Approach in March 2009, following his 'Initial Ranges' guidance (see below). This new document noted that the Initial Ranges analysis "relied heavily on external benchmarking information and historical cost data" and no longer suggested that benchmarking would predominantly be used to identify issues requiring further study.
133. Tube Lines strongly objected to this increased reliance on benchmarking to draw substantive conclusions about efficient and economic costs, on the basis that the existing benchmarking work was 'fundamentally flawed' as to both data quality and methodology, and that no reliable conclusions could be drawn from it^{xcii}.
134. In the event, benchmarking played a central, and controversial, role in Periodic Review, as discussed in the following section.

7. Economic and Efficient Costs

135. The Arbiter's most important role was to determine the efficient and economic cost of performing an Infraco's obligations, and to set an ISC accordingly. If Infraco's efficient costs were overestimated by the Arbiter, the public sector would overpay. If they were underestimated, the Infraco would at best earn a lower than expected return, and at worst would be unable to service its debt, and would become insolvent. The parties judged this an acceptable risk on the basis that the PPP contract set out the factors which the Arbiter should take into account in reaching a determination. The relevant standard is that of a Notional Infraco, the key characteristics of which are:
 - It is up to date with its obligations, so that LUL does not pay in a future Review Period for anything which should have been done in a previous one
 - It will do the right level of preparatory or enabling work in the next Review Period to enable it to deliver obligations which fall due in subsequent periods
 - It is deemed to have the same contractual commitments to third parties as the actual Infraco has (provided these are economic and efficient); there is a

(rebuttable) presumption that existing Infraco contracts which have been properly competitively tendered are economic and efficient

- It assesses costs as it would when participating in a competitive tendering, including a level of contingency calculated on a portfolio basis across the range of cost and performance risks and
- It acts in accordance with Good Industry Practice.

136. The contract also contains guidance to the Arbiter that in assessing economic and efficient costs, he should have regard to:

- The historic costs actually incurred by all Infracos, to the extent that these are incurred with efficiency and economy and in accordance with Good Industry Practice
- Efficiency savings that can reasonably be expected based on the experiences of other Infracos and firms in other relevant markets
- Trends in input costs experienced by the Infracos and firms in similar sectors and
- Trends in costs that have been exhibited in similar industries in the past

137. The Arbiter is also guided:

- Not to set efficiency targets which are unlikely to be achieved, not to assume that all Infracos can do as well as the best, and to ignore the possibility that the actual Infraco might be able to do better than a Notional Infraco and
- To taken expert advice on matters where that would make him better informed

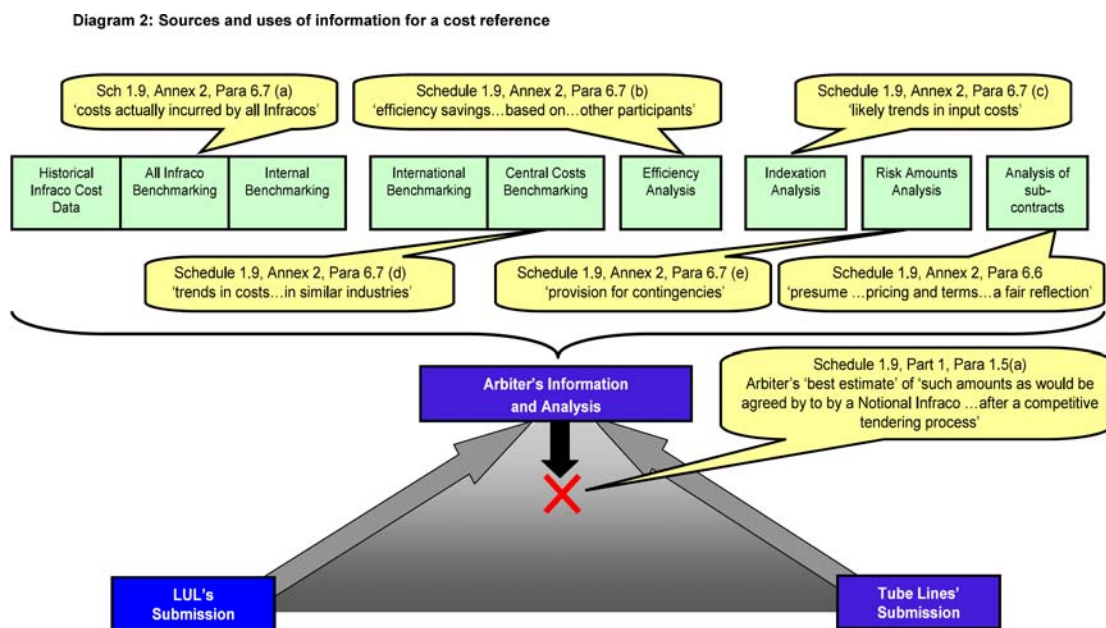
138. As noted above, the Arbiter used the Metronet pre-Extraordinary Review request for guidance to set out some general principles for assessing Infraco E&E costs. In his final guidance^{xciii} he said E&E costs should be assessed on the following basis:

- a) Establish the approach, and related work volumes, which would be undertaken by a Notional Infraco. Infraco would be expected to show that its approach was consistent with its whole-life asset management obligations and Good Industry Practice, and the Arbiter would also assess it by reference to the approaches adopted by other Infracos and organisations in other large-scale asset-intensive industries.
- b) Estimate the Notional Infraco costs for this volume of work by reference to benchmarking with relevant comparators and evidence from competitive tendering. The Arbiter would benchmark business processes, efficiency trends and units costs (including overheads). Relevant comparators for benchmarking purposes would be likely to include other Infracos, other metros, other rail infrastructure companies, in the UK and internationally, other large-scale asset-intensive industries and industry databases of unit costs. Costs arising from a competitively tendered contract would be accepted as efficient provided the Arbiter was satisfied that Infraco's procurement strategy

was appropriate and that a proper procurement and contract award process had been followed.

- c) Assess the performance (and performance revenues) which would result from the work programme, which may also be subject to benchmarking.
- d) Assess the appropriate allowance for risk. This should be based on a bottom up analysis of the risks to which each programme was exposed, analysed appropriately to give the expected level of risk, taking account of the expectation that there would be both adverse and positive variances to the underlying cost estimates, and make proper adjustment where those estimates are based on historical outturn price comparisons and/or benchmarks (which implicitly include materialised risk) and where they are based on tendered prices (which include for risks transferred to the contractor).

139. The Arbiter set out his conceptual approach to assessing costs in June 2008 in his published Analytical Approach to Periodic Review. There he envisaged a process of triangulation between the submissions made by the parties and information he had developed independently. The Arbiter illustrated this, and summarised the information he envisaged collecting for himself, in the following diagram, which also showed how each category of information was linked to the contractual provisions and guidance:



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7.1 The 'Initial Ranges' reference

140. In the light of the experience described earlier in this paper, LUL considered that considerable uncertainty still remained about the basis on which the Arbiter would approach the costing of Infraco's obligations in the event of a Periodic Review

reference, and the information he would have available to him for the purpose. It also considered that Tube Lines' most recent AAMP was inadequate as a basis for assessing its likely future costs. This made it practically impossible, in LUL's view, to assess the affordability of its Restated Terms for the second Review Period (RP2). LUL therefore decided to seek formal guidance from the Arbiter as to his assessment of the efficient and economic costs of performing Tube Lines' pre-existing RP2 obligations, so as to provide a baseline against which to assess potential changes in Restated Terms.

141. On this occasion, the Arbiter specified in detail the information he required to be submitted, in the form of a spreadsheet based on the DBS template^{xciv}. Consistent with the approach described above, this required the costs and volumes to be provided by asset area over time at a fairly disaggregated level.
142. However, Tube Lines and LUL took significantly different approaches to the costing of the RP2 obligations in their respective submissions. Tube Lines based theirs on their actual costs, arguing (as Metronet had done in its Extraordinary Review submission) that it had the characteristics of a Notional Infraco, and that its costs were therefore the Notional Infraco costs. It pointed to the improvements it had made over time in performance and unit costs, and also to the fact that a very high proportion of its work had been competitively tendered, a fact which, under the terms of the PPP contracts, created a presumption that the costs were efficient and economic.
143. LUL had certain information on Tube Lines costs' from its AAMPs, but not at the level of detail it had requested. Indeed, as early as August 2007, LUL had pointed out the limitations of AAMP information to the Arbiter, in a note on the information which it considered would be needed for Periodic Review^{xcv}:

There is a lack of clarity and transparency in TLL's cost data and information. To carry out meaningful analysis, further information is required including improved variance explanations (back to Annex 5) reconciliation of AAMP Cost Tables with AAMP documents, MPD and TLL statutory accounts, reconciled details of contract variations and special/transition projects. Without better access to, and understanding of, TLL's strategies, information sources, decision making etc it is difficult to place the work schedules or cost projections in their required context.
144. LUL therefore commissioned a series of studies from specialist consultants in a number of asset areas to establish what it considered efficient costs to be. There were also significant differences in the parties' views about the scope of work necessary to deliver the PPP performance outputs.
145. As a result, the gap between the two estimates of total underlying base cost³ for RP2 was £1.4 billion (February 2007 prices), with Tube Lines' estimate of £5.6bn being a third higher than LUL's £4.2bn.
146. The total gap was over £3bn (£7.2bn v £4.1bn) due to further differences between the Parties over allowances for risk, efficiencies and differential inflation. The Arbiter's assessment of total costs was a range from £4.6-5.0bn, and he identified the main differences between his view and that of the Parties as being the timing of

³ Base costs do not include allowances for risk, differential inflation, efficiencies, and RPIX which are all derived from or related to the level of base costs.

the Piccadilly line upgrade, the scope of track works, signalling and stations operating costs, and administrative and other central costs^{xcvi}.

147. In his guidance, the Arbiter said he was confident that there was a high probability that the Notional Infraco costs would be within the range he gave^{xcvii}. To this extent, the guidance provided a useful baseline for LUL to use in developing affordable Restated Terms. Nevertheless, LUL was very dissatisfied with the underlying analysis^{xcviii}:

A key purpose of LUL's Reference was to provide greater confidence that its Restated Terms would be affordable, by understanding how the Arbiter would approach the cash flows related to the associated physical works. This requires an understanding of the assumptions which drive his cost, risk and performance estimates, as well as the estimates themselves. The draft Guidance and the supporting analysis provided by the Arbiter frequently do not set out the rationale for the conclusions reached. In a number of cases, the Arbiter's advisers reject the submissions of one or both of the parties without explaining why, and substitute their own view without explaining how this was arrived at. This is the case even where it is evident that the advisers' analysis is less rigorous than that which underpinned the parties' submissions.

The Arbiter has provided no information on asset performance. LUL's Initial Submission (paragraph 2.2) asked the Arbiter to provide his estimates in line with the Data Breakdown Structure (DBS) as nearly as the available information allowed. The asset performance rows in the DBS provided by the Arbiter have been left blank. This is very disappointing, and makes the Arbiter's conclusions difficult to interpret.

148. One important development, however, was that the Arbiter had used international benchmarking to conclude that the Tube Lines price for the Piccadilly line signalling was excessive, and that he would not allow it as part of the efficient and economic cost, even though it had been externally contracted.

7.2 Periodic Review

149. As a result of the Initial ranges guidance, LUL revised its proposed RP2 obligations so as to reduce the scope and cost. However, Tube Lines' proposed price for base costs (i.e. excluding efficiencies, risk and differential inflation was £6.2bn (February 2008 prices), an increase of 5% from its Initial Ranges figure, despite LUL's descoping. LUL's revised estimate, by contrast had reduced by £0.7bn from £4.4bn to £3.7bn⁴.
150. Having reviewed Tube Lines' costings, LUL concluded that one of the factors causing the price to be higher than expected was a continuing difference of view over scope. The Parties therefore spent several months seeking to narrow the gap between them, and agreements were reached on a significant number of asset areas.
151. Tube Lines, in particular, had entered into these discussions in the hope that the gap could be entirely bridged by agreement, and that no reference to the Arbiter would be necessary.
152. However, the gap remaining was still of the order of £1.6bn^{xcix} (£5.2bn v. £3.7bn⁵) in terms of base costs, so it was clear that a reference was unavoidable, and this was

⁴ Figures are in February 2008 constant prices - although the price base changed from 2007 to 2008, this had no material effect on the size of the gap between the parties' estimates.

⁵ Figures are in February 2008 constant prices

initiated by LUL in September 2009. The single biggest area of disagreement was line upgrades, which accounted for over 40% of the difference in base costs. .

153. The Arbiter's assessment of efficient costs, especially for line upgrades, was heavily influenced by the 2008 BSL international benchmarking work. As noted above, BSL had concluded that costs in London were outside the international best practice range. Although BSL assessed the extent to which the strategies and practices of high performing metros were potentially transferable to the LUL environment, Tube Lines in particular had questioned the validity of BSL's conclusions, for example^c, whether:
- There was a sufficiently large data set to identify structural and explanatory factors with sufficient confidence
 - The underlying data had been prepared on a comparable basis, and had been adequately validated and
 - Differing service performance standards and operational constraints (which were considered to be more demanding in London than elsewhere) had been appropriately taken into account
154. BSL had recommended that visits be made to two of the benchmarking 'peer' metros to better understand the processes and systems which contributed to their lower costs. The two originally chosen were Toronto and Munich, but it emerged late in the day that they were not as comparable with London as BSL had initially asserted because a number of relevant structural factors had been overlooked. Following the submission by LUL in November 2009 of (publicly available) cost data for the Paris and Madrid metros which suggested that they were relevant comparators, arrangements were hastily made to visit these as well. It was only possible for these to be one-day visits, so it was not possible to explore the factors which contributed to their lower costs in the same depth as LUL's escalator study had achieved.
155. The Arbiter's draft assessment was much closer to LUL's than to Tube Lines'. The size of the gap - £1.4bn - between the Tube Line's estimate of total efficient costs and the Arbiter's figure meant that, between the issue of the Arbiter's draft directions in December 2009, and his final directions in March 2010, Tube Lines took every opportunity to attack his analysis, conclusions and process. One way in which it did so was to issue requests under the Freedom of Information Act (FOIA) for disclosure by London Underground of data it considered might cast doubt on the basis of London Underground's, or the Arbiter's, assessment of costs.
156. The effect of FOIA was therefore to increase the information asymmetry between Tube Lines and London Underground, as Tube Lines had access to a statutory mechanism to seek LUL's underlying data, but LUL had no corresponding rights against Tube Lines. Tube Lines also issued a formal request^{ci} for the Arbiter to exercise his statutory information powers to compel disclosure by LUL of a range of very detailed additional information about the Central and Victoria line upgrades, although the Arbiter declined to do so.
157. Tube Lines also issued a 42-page letter^{cii}, through its solicitors, on 24 December 2009 asserting that the Arbiter and his advisers had relied extensively on information

which had not been disclosed to the parties, in contravention of the principles of fair process and that, legally, the Arbiter was required either to make full disclosure, or ignore the information altogether.

158. Tube Lines made similar criticisms of the Arbiter's process in its Representations on the Arbiter's Draft Directions, and asserted that he must:

- Include in his costs all the scope omissions they said they had identified
- Recalculate amounts they said they had shown to be based on incorrect data
- Correctly allow for the LUL and PPP environment, including LUL's onerous standards and its observed behaviour as client
- Give them all the information they had asked for, or disregard any he did not provide and
- Understand the information he had, ensure it was subject to proper scrutiny and take account of it in a proper, reasonable and rational way

159. Tube Lines also claimed that the Arbiter's analysis was fundamentally flawed, particularly in relation to his assessment of the line upgrades. In particular:

- The international benchmarking study was flawed, and its conclusions could not be relied upon
- He had failed to disclose the underlying information upon which his view was based, including the raw data underpinning the benchmarking analysis
- He had failed to use Metronet as his primary benchmarking source, when it was clearly the nearest comparator
- He had failed to give proper weight to the fact that Tube Lines had already contracted for the upgrades and
- Tube Lines considered that LUL had used its regulatory and standard-setting roles to change and increase scope, and that this had been ignored by the Arbiter

160. Tube Lines' campaign had two effects. Firstly, they succeeded in obtaining disclosure under FOIA of certain information about the costs of the Victoria line upgrade (VLU) being undertaken by Metronet. LUL had included VLU cost information in its Periodic Review submission, but the FOIA request related to a different scope (total costs as opposed to core signalling costs), and had been subject to more rigorous verification. This led the Arbiter to ask his reporters to reconcile the two, which they were unable to do completely in the limited time available but they reviewed the FOIA data in detail^{ciii}. This review created uncertainty in the Arbiter's mind and resulted in his deciding to include the New York Canarsie line in the international benchmarks for line upgrades, which he had originally excluded as being an expensive outlier.

161. Secondly, the Arbiter agreed to release a large amount of background material to the Parties, which he probably would not have done but for Tube Lines' challenge. However, the primary data collected as part of the benchmarking exercise could not be released, because of confidentiality undertakings given to the metros who provided it.
162. However, Tube Lines did not succeed in undermining the Arbiter's reliance on benchmarking generally, the results of which were a decisive factor in some elements of his final costs Direction, especially for the upgrades.

8. Notional Infraco ISC and Financing

163. Having decided on the level of efficient and economic costs, the Arbiter was also required as part of Periodic Review to set the corresponding periodic payment (the Infrastructure Service Charge or ISC) which LUL was to make to Tube Lines. LUL had always considered that the scheme of the PPP was to enable a scope of work to be delivered during the early years of the contract which it could not have afforded out of its own resources, by virtue of an obligation on Infraco to raise finance to bridge the gap. Clearly, this was the basis of bids for RP1, and some of the most heavily-negotiated of the PPP Contract terms were those defining Infraco's obligations to raise further finance for RP2.
164. The PPP contract gave effect to this by entitling LUL to state an 'Affordability Constraint' and a 'profile for payments' which indicate the money it has available. LUL's interpretation of these terms was that the Affordability Constraint was a statement of how much it could afford for a Review Period as a whole, and the profile for payments was how much it had available in each six-month period within the second Review Period. This distinction reflected the fact that LUL's budget was uncertain in the long term, but was fixed for RP2. The drafting was such that there was some debate about the extent to which the Affordability Constraints were binding. However, the PPP contract specifically provides that:

The payment obligation to be assumed by LUL... is one that is in accordance with the profile for payments that LUL has stated.

It was therefore common ground that the profile was a binding constraint.

165. It was therefore unexpected when, in June 2009, Tube Lines advanced the argument to the Arbiter that 'profile' did not mean a series of monetary amounts, but merely 'a shape over time'^{civ}. Consequently, the Arbiter could set a level of ISC in excess of the budget LUL had available, provided the 'shape' of the payments corresponded to that implied by the profile LUL originally stated. This position became known as 'soft cap'. LUL rejected this interpretation, and maintained that the profile for payments acted as a 'hard cap'.
166. This point had enormous commercial significance. If the Arbiter agreed with the 'soft cap' argument, and decided to set an ISC above LUL's figures, two consequences would follow. Firstly, LUL would be forced to pay Tube Lines money it did not have. The only way out would be for LUL to reduce its scope requirements. Secondly, Tube Lines would be relieved of any obligation to raise new finance for RP2.

167. It is LUL's understanding that Tube Lines always knew that it may have to raise new finance in RP2, just to meet its existing obligations.^{cv} There are extensive general provisions in the PPP Contract to address this eventuality which could have arisen for various reasons e.g. by virtue of construction costs rising at a rate higher than anticipated at Transfer. The Arbiter has recently stated that he considered finance was only expected at transfer with respect to the Piccadilly line fleet but this not the understanding of those involved in the transaction nor was it provided as a reason for the Arbiter's contractual approach to contract interpretation in the final stages of Periodic Review.
168. Whatever the expectations of the parties at transfer, the contract provided that if Tube Lines failed to raise finance, it was at risk of losing the contract without compensation. It was far from certain that they would have been able to raise sufficient funding, given the size of the gap between their cost estimates and the Arbiter's, the considerable delay in delivering the Jubilee and Northern line upgrades, and the fact that they lost a series of high-value claims against LUL relating to past cost over-runs. If the Arbiter concluded that he could relieve them of this obligation this would have shifted the balance of commercial risk considerably in Tube Line's favour.
169. The Arbiter's previous understanding had apparently been the same as LUL's, i.e. that it was for Tube Lines to finance any gap between the RP2 costs and the funds available to LUL. Early in 2009, there was an exchange of correspondence about the RP2 affordability position, in which he said^{cv}

...my understanding is as follows...

you accept that this implies a need for additional finance, and that, on the basis of the contractual provisions, if Tube Lines is able to raise this from the markets and does not agree to alternative mechanisms, London Underground has no contractual right to change the basis of financing; in the event of financing impossibility, the contractual mechanisms (including the LUL Options) would be engaged;

170. It is therefore apparent that at this stage, the Arbiter's view was that Tube Lines had to raise any necessary finance, and that LUL had to live with the consequences if this proved impossible because of the overall affordability position. This was still his position in May 2009, when he issued his first draft Analytical Approach to calculating the ISC in which he said^{cvii}

Once the Arbiter... has aligned the profile of the calculated Underlying ISC and the Underlying ISC included in Restated Terms, any difference in the quantum of these amounts will represent the difference between the Underlying ISC required by Tube Lines to deliver its outputs and the Underlying ISC which London Underground can afford to pay Tube Lines i.e. the funding gap.

171. The reference to 'quantum' here clearly indicates that he did not, at this stage, consider that LUL's payment profile was merely a shape.
172. The first formal indication that Tube Lines wished to challenge this view was in a letter to the Arbiter dated 3 June 2009, which stated^{cviii}:

It is not [the] absolute amounts which comprise the "profile", rather it is the "profile" of those amounts which is important...

173. The Arbiter raised this with LUL later in June^{cxix}, but in September, in written evidence to the Transport Select Committee^{cx}, he seemed not to have moved from his original position, as he identified one of the key risks to the PPP as being the:

inability for Tube Lines to finance the difference between the efficient costs of delivering contract obligations in the second Review Period and London Underground's Affordability Constraints, leading to a requirement to descope or, in certain circumstances, Special Mandatory Sale;

174. In October, the Arbiter raised the matter in an 'Issues Paper' on which he sought the Parties' comments, noting that he intended to consult further on the point in December. However, his December draft directions on efficient and economic costs, said that he was minded to agree with Tube Lines' 'soft cap' interpretation although no reasons were given^{cx}. LUL had consulted leading counsel who advised that the Arbiter's view was incorrect, and his opinion was provided to the Arbiter, but his draft directions simply said:

Having considered representations made by the Parties to his issues paper of 14 October 2009, the Arbiter remains of the view that nothing in Schedule 1.9 obliges him to set a level of Baseline ISC that is no higher than the Affordability Constraint, as he is referred to profile rather than quantum.

175. LUL wrote to the Arbiter in January 2010 emphasising the importance of the issue to its commercial position, and asking him to explain the basis for his conclusion^{cxii}

This is a key issue for LUL. Without limiting any further submissions LUL might wish to make in the light of a detailed explanation of your position, we consider that setting an ISC above the Affordability Constraints would deny LUL the explicit contractual rights it has in circumstances where a financing requirement exists that cannot be met by the Infraco...

...we should be grateful for a detailed explanation of the legal reasoning behind the contractual interpretation you have put forward. In addition, as LUL has shared its legal advice (which took the contrary view) with you, it considers that it would be appropriate for you to share any legal advice you have received, so that your position can be properly understood.

176. Although the Arbiter replied to that letter^{cxiii}, and there was a follow-up meeting, no explanation was provided. The reply simply stated that the Arbiter had now received a legal opinion from Tube Lines agreeing with his conclusion, and that there were consequently 'legitimate differences of view'.

177. In February 2010, LUL submitted formal representations on the draft costs directions^{cxiv}, in which LUL continued to press its point:

This is... an issue of contractual interpretation – the existence of competing views from the Parties does not excuse the Arbiter from having to interpret the PPP Contract in its context and explain the reasons for his interpretation.

At a meeting on 26 January 2010, the Arbiter stated orally that he had taken legal advice, but did not otherwise elaborate. He confirmed he had not reached a conclusive view.

LUL does not consider that the Arbiter has yet given proper reasons. Accordingly LUL again requests him to do so in advance of his final ISC directions...

178. The final costs directions in March 2010 did not address the point. Instead, the Arbiter issued a separate document, Draft directions on the level and profile of the ISC, financing and related matters. He once again briefly stated the competing

positions, and noted that each was supported by counsel's opinion, but once again gave no indication of his own view of the merits of the arguments. All he said was^{cxv}:

the Arbitrator notes that much of the contract drafting relating to directions in respect of the ISC would be otiose if he was required simply to set the ISC in accordance with a profile notified to him by London Underground. Moreover, despite extensive guidance given to him by the Parties, Annex 2 to Schedule 1.9 is silent on this matter.

179. He gave no indication of which provisions he considered otiose, or why he considered the absence of guidance relevant. He took a 'soft cap' view for the purposes of the draft directions, but said he was inviting yet further representations^{cxvi}. However, because he had said nothing of substance on his analysis of the issue, it was impossible for LUL to know what such representations should address.
180. Elsewhere in the draft directions^{cxvii}, the Arbitrator commented on what he considered to be 'other factors which are relevant to this issue' but these related to his view of the effect of his decision on value for money and affordability. Such matters would arguably be relevant to the question of how he should exercise his discretion were he entitled to adopt a soft cap view, but had nothing to do with the fundamental question of whether he had such a discretion.
181. In its representations on these draft directions, LUL stated:

Since [the Arbitrator's 21 January letter] LUL has pressed the Arbitrator on a number of occasions to give developed reasons for his view, LUL was entitled in view of the fundamental importance of this issue of contractual construction to expect that he would do so in the draft ISC directions – in accordance with the Guidance to the Statutory Arbitrator contained in paragraph 6.2 of Schedule 1.9, and in particular paragraph 6.2(d) – so as to provide LUL with the opportunity to make properly informed representations in response. LUL is concerned that the Arbitrator still appears to have failed to engage with the detailed representations thus far made to him – in its submissions dated 1 February 2010 and in the Opinions of Michael Beloff QC. LUL requests that those representations are properly addressed by the Arbitrator before he issues his final directions and that reasons for accepting or rejecting the arguments advanced are provided.

182. It is therefore inconceivable that the Arbitrator could have failed to understand the importance of this matter to LUL, and no explanation has ever been forthcoming of his refusal to give reasons for his view, especially in the light of his own published procedures, which state unambiguously that^{cxviii}:

Provisional findings will include the Arbitrator's draft guidance or directions in respect of the Reference.

The Arbitrator will provide to the Reference Parties an explanation of his reasons for his provisional findings.

183. Had the Arbitrator proceeded to set an ISC above the affordability limit, LUL would have had to reduce the scope of the RP2 obligations, but it was not prepared to propose such reductions until the 'hard cap/soft cap' point had been finally resolved. The PPP contract did not make explicit provision for such descoping, but one of the Arbitrator's statutory duties was to^{cxix}:

ensure that an opportunity to review and amend the requirements... if, in the opinion of the PPP arbitrator, the proper price for the performance of those requirements exceeds the resources which that relevant body has notified to the PPP arbitrator that it has, or expects to have, available..

184. It was essential for LUL to obtain the Arbiter's confirmation that he would allow such an opportunity, after the ISC issue had been settled. In the final costs directions, the Arbiter said^{cxx}:

it would be appropriate to reopen the cost directions:

- to incorporate the effects of any changes in London Underground's requirements;

...The Arbiter does not propose to put a time limit on the operation of these provisions, other than that created by the contractual provisions for the Latest Financing Date, which is at the latest 30 June 2011... However, if changes are to be incorporated in revised contractual terms to be effective at the start of RP2, he would expect the Parties to notify any changes to him by 21 May 2010.

185. Accordingly, the Arbiter made the following direction^{cxxi}:

The Arbiter directs that the PPP Agreement should be modified to include provisions allowing the Arbiter to issue revised directions on costs and ISC in the following circumstances and to adjust only for the matters identified:

- notification to the Arbiter by London Underground of changes in its requirements

186. LUL interpreted this as meaning that it would be able to change its requirements at any time up to 30 June 2011, but that changes notified after 21 May 2010 would not be in time to take effect from the start of RP2 on 1 July 2010. To avoid doubt, LUL wrote to the Arbiter seeking confirmation of its understanding^{cxxii}:

LUL invites you to confirm in writing that LUL will have a full opportunity to revise scope in relation to the second Review Period – following final ISC Directions and once the issue of the impact of the Affordability Constraints on your powers has been finally resolved...

187. The Arbiter's reply appeared to do no more than reiterate his directions^{cxxiii}:

[the] reopener has no time limit, although I have noted that "if changes are to be incorporated in revised contractual terms to be effective at the start of RP2, [I] would expect the Parties to notify any changes to [me] by 21 May 2010." This does not preclude a later notification but it would mean that changes would not be in place for 1 July 2010 and it would of course then be necessary to deal with the issues that arise out of that

188. LUL therefore wrote again^{cxxiv}:

Thank you for your letter of 17 March 2010. This does not, in terms, give the confirmation requested in my letter of 15 March. However, from speaking to Gaynor Mather⁶ this week, I understand that your letter was intended to convey that you will allow LUL to amend its Restated Terms and Affordability Constraints following your final directions without limit of time and that those directions will contain terms which enable this... On that basis I interpret that as meaning that the ability to amend can be exercised at any time... LUL cannot afford for there to be any ambiguity on this matter. Will you therefore please confirm as soon as possible that your position is as I have described.

189. The Arbiter again replied^{cxxv}:

With reference to the timing of the reopeners these are, as I have indicated previously, not time limited.

⁶ Director of the Arbiter's office

190. Responding to this correspondence, Tube Lines said it^{cxxvi}:

Tube Lines agrees in principle that there should be reopener rights... [but] that the reopeners relating to changes in London Underground's requirements arising out of affordability issues... should have a backstop of no later than 30 September 2010.

191. It was therefore apparently common ground that the Arbiter should provide, and had provided, a right for LUL to revise its requirements, and that the only open question was the date by which it should be exercised.

192. There then followed an argument about affordability over the whole of the remaining contract period. LUL had originally notified an affordability figure to Tube Lines in December 2008 with its Restated Terms. Tube Lines argued that this was insufficient to enable LUL to repay the finance implied by the Arbiter's cost directions,^{cxxvii} giving rise to a 'financing impossibility'. On 27 April 2010, the Arbiter issued draft directions agreeing with Tube Lines, and requiring LUL to modify its Restated Terms by 21 May. In its representations^{cxxviii} LUL made clear that it took this to refer only to the issue of affordability constraints, and that

LUL is working on the basis that it retains the general right to revise scope as described in paragraph 2.25 of the cost directions

193. Tube Lines responded^{cxxix} that LUL had no such right, that Tube Lines had made this clear in its letter of 8 April, and that LUL's one and only chance to revise Restated Terms should be by the Arbiter's new May deadline.

194. LUL wrote to the Arbiter on 30 April^{cxxx}, pointing out that Tube Lines had not previously suggested that LUL's opportunity to descope should be time limited in this way, and that it was plainly unreasonable to require such descope before the hard cap/soft cap argument had been settled.

195. In his reply on 6 May^{cxxxi}, the Arbiter ignored the unresolved hard cap/soft cap issue, but stated that he did expect the May revisions to Restated Terms to cover both affordability constraints and scope, and went on:

The reopener to my Final Cost Directions is designed to deal with changes in requirements as a result of... contractual opportunities to revise scope or as a result of an agreement between the Parties; it does not create a right to revise scope where this does not already exist.

196. As noted above, LUL had originally pressed the point precisely because there was no contractual basis for it to revise scope, so this was a completely new gloss on his direction. Not only did the direction fail to say in terms what he now said it meant, the Arbiter gave no indication that this was his intention on either of the occasions in March when LUL pressed for clarification, not even in response to LUL's explicit reference to^{cxxxii}:

a full opportunity to revise scope in relation to the second Review Period – **following final ISC Directions and once the issue of the impact of the Affordability Constraints on your powers has been finally resolved.**

9. Prospectively Efficient Infraco

197. Following his final cost determination on Tube Lines, the Arbiter at his own volition undertook a short exercise to extrapolate his findings to BCV and SSL. The Arbiter's initial findings were shared with the Mayor's Office^{cxxxiii} on 20 May 2010 prior to disclosure to LUL. The briefing note was later shared with LUL on 2 July 2010. The note suggested that LUL could make between £1.5bn and £3.0bn of savings over a 7 ½ year period.
198. A number of errors and inconsistencies in the analysis were immediately apparent to LUL, particularly in relation to the Arbiter's assessment of future Line Upgrade costs. These points were raised in a meeting with OPPPA on 6th July 2010. At this meeting OPPPA stated its intention to share a revised version of its efficiency analysis at a Benchmarking Conference in October 2010.
199. A period of consultation followed. On 5 August 2010, OPPPA shared with LUL its provisional approach to assessing the costs of a Prospectively Efficient Infraco (including BCV and SSL). LUL provided detailed comments and some additional data on BCV/SSL sub-contracts on 11 August 2010^{cxxxiv}. OPPPA acknowledged^{cxxxv} these comments. However, the majority of LUL's concerns were not addressed. On 31 August 2010, OPPPA issued draft analysis to LUL for review and invited comments by 8 September. However, prior to this deadline and before LUL had submitted its comments, OPPPA issued its draft findings to DfT^{cxxxvi}. Once again, the draft analysis contained significant errors and materially understated the prospective costs of BCV and SSL albeit the projected savings had now reduced from a range of £1.5bn to £3bn in May 2010 to £0.2bn to £1.1bn.
200. A further draft of the analysis and a draft report was provided to LUL on 21 September 2010^{cxxxvii}. Few of the concerns raised by LUL previously had been addressed. After discussion with OPPPA, LUL provided detailed comments on 30 September 2010^{cxxxviii} which illustrated that the Arbiter's analysis, (already shared with the DfT), in fact understated the costs of BCV and SSL by at least £1bn.
201. OPPPA's final report was presented to the Benchmarking Conference on 6th October 2010. The final report reflected some but not all of LUL's comments and concluded that the costs projected by LUL for BCV and SSL fell within the "good practice" range^{cxxxix}. In fact, the Arbiter's estimate of "good practice" costs for BCV/SSL had increased by £0.6bn since the draft shared with the DfT and stood at almost £0.2bn higher than the level in BCV/SSL's February 2010 AAMPs.
202. OPPPA had also prepared a "best practice" scenario of costs, reflecting international best practice assess by BSL. This indicated that approximately £0.4bn of further savings may also be possible in London. However, the Arbiter had not adopted international best practice assumptions in his determination of Tube Lines' costs. LUL is now taking steps to investigate these possible savings more fully.

10. Discussion

203. The role of the PPP Arbiter was created because
- The inherent imbalance in the information available to LUL and the Infracos about the relationship between an Infraco's costs and performance made it

likely that Infracos would be able to extract an element of monopoly pricing at a Review if there were no countervailing force

- The level of understanding necessary to resolve the issues likely to arise at a Review was such that it was necessary to have a dedicated decision-maker, rather than rely on an arbitrator, or the court

204. It is clear from the Arbiter's earliest public documents that he was fully aware of this reasoning, and that information available to him was a matter of central importance. However, in London Underground's view, his approach was not consistent with the task he had been appointed to perform.

205. The essence of the disagreement between the LUL and the Arbiter is well encapsulated by the correspondence which took place in the aftermath of the Metronet Extraordinary Review, during the time when the DBS, and the concept of Reporters, were being discussed. On 12 September 2007, LUL wrote to the Arbiter in the following terms^{cxl}:

You had a number of closely-related tasks in the last 18 months – the 2006 Metronet Annual review, the Metronet pre-Extraordinary Review references, and the Extraordinary Review itself. It is common ground between OPPPA and LUL (or so we had thought) that the information provided on Infracos' costs and volumes was wholly inadequate to draw robust conclusions as to whether they were consistent with those of a Notional Infraco.

Your view on [the level of detail to be included in Infraco's submissions] is a matter of huge significance for LUL, Infracos already have an obligation under Clause 15.2 of the PPP Contracts to provide information to LUL on an open book basis, and permit LUL to audit any aspect of their costs and expenses, The parties also guide you in Schedule 1.9 to 'have regard to the extent that [cost] information has been shared on a timely and open basis'. Infracos therefore ought to be fully prepared to be open about their cost structures. As we know from experience, however, this has not proved to be the case. We may well have to be more explicit about LUL's rights to information in the Restated Terms. For now, however, you, using your statutory powers, are for practical purposes the only person currently able to mandate the level of detail to be provided.

LUL is therefore completely at a loss to understand why you think it is preferable to seek less information rather than more about the Infraco's cost structure for the purposes of Periodic Review. We fully accept the need for pragmatism but we cannot accept that the deliberate adoption of a top-down approach is a responsible one in the light of the Metronet experience.

We are very happy to discuss the above with you. Clearly it is with some regret that we have reached such a fundamental level of disagreement with you but we feel there is no option given the imminence of the Periodic Review AAMP process.

206. In reply, OPPPA said^{cxli}:

We... share many of your concerns about data quality and comparability...

We do not consider, however, that the most appropriate approach to addressing these issues is to require Infracos to provide a very detailed breakdown of their costs, work volumes and performance assumptions... We consider that it is more important to understand the process that the Infracos have gone through to produce their forecasts for a programme of works and to ensure that this is robust to challenge.

We do of course recognise the monopolistic position of Infracos in the review process, not least since this is one justification for the role of Arbiter, but we consider that this has to be balanced by commercial considerations and practicality.

207. In LUL's view, the Arbiter's gave too much weight to 'commercial considerations and practicality' and too little to ensuring he had access to the detailed, validated information which ORR had advised he would need in its response to his 2003 Information Paper. His desire to operate by consensus meant that he did not take a sufficiently robust stance over his information requirements, and he never invoked his statutory powers of compulsion, even when faced with wilful non-compliance.
208. The position at the time the PPP came to an end in June 2010 was little different from that at the end of 2007, when LUL and the Arbiter publicly disagreed over whether the deferral of the 2005 Metronet Annual Report made any difference to the demise of Metronet. In a letter to the Arbiter, LUL's then Managing Director, Tim O'Toole, said^{cxliii}:

As you are aware, I disagree with your analysis that it would have made a difference had the deferral not occurred. My views are a matter of public record before the Transport Committee but in substance, I consider that the only matter that would have made a difference would have been if you had promoted a disciplined and transparent approach to the reporting of costs and performance from the commencement of the PPP. This discipline and transparency was still not in evidence at the end of the Annual Report 2006 and there is no reason to suppose a different outcome in 2005...

My view with all due respect is that you were susceptible to the Infracos's constant refrain that LUL was overreaching in its information requirements, Remember, this was all taking place within an environment of distrust of the Mayor's and TfL's motives on the part of the Infracos. I think the unease created by the Infracos' suspicions of LU had the effect of causing you to adopt a lighter touch, especially as it was so early in the life of the contract. That stance enabled the Infracos to avoid the scrutiny that would otherwise have been applied. This resulted in a delay to recognition of the unreliability of the information which in turn delayed exposure of Metronet's true position.

209. Clearly, the most testing time for the Arbiter was during Periodic Review, which came to be dominated by two issues.
210. The first was benchmarking, where his insistence on the validity of using international benchmarks to inform his view of efficient and economic costs served the public sector well. However, the relative opacity of the data and analysis, and the last-minute nature of the visits to Madrid and Paris made the analysis vulnerable to attack, as demonstrated by Tube Lines' repeated criticisms.
211. The second was the position on hard cap/soft cap. His refusal to provide any substantive reasons for his view made it impossible for LUL to address a situation in which Tube Lines was being handed a potentially massive commercial advantage. His last-minute insistence that LUL must descope before this issue had been resolved, or lose the opportunity, would have deprived LUL of any benefit had it ultimately prevailed on the substantive issue. The Arbiter's actions on this issue hugely compromised LUL's position.
212. The Arbiter's final exercise to establish the potential savings to be made across Tube Lines and BCV/SSL was conducted in haste; early findings were shared with DfT during the 2010 Spending Review prior to proper validation and correction for errors that were subsequently uncovered. The Arbiter's estimates of projected savings for the next 7½ years if best practice were achieved in London, reduced from £3bn in May 2010 to £1.1bn in August 2010 to £400m in October 2010 as these corrections were made. The current projections of Tube Lines and BCV/SSL as reflected in their

asset management plans are already better than OPPPA's final good practice projections. This exercise illustrates the importance of validation and correction of data prior to utilisation by policy makers.

213. With the end of the PPP, there is no future role for the Arbiter. It is, however, possible to draw some lessons of relevance to any future monitoring arrangements, such as those currently being examined by the TfL IIPAG:
- As described in section 5.1, the level of detail in the current data breakdown structure has been hard won. The parties have shown that they can comply with it, and that it is not excessively onerous, despite what was said as it was being developed. It should be retained as the platform for future monitoring.
 - There needs to be process for proving the integrity of the data in the light of the experience described in section 5.2. Even where people are trying to compile information faithfully, it is not uncommon that records held centrally and those held by individual project teams fail to correspond, especially where time and cost forecasts are revised locally but not made more widely known. It is also common for different units engaged in similar activities to record time and cost differently, or to have different policies for allocating overheads. Unless there are measures in place to preserve and enhance data quality, it will inevitably degrade, and its value in driving change will decline correspondingly.
 - Whatever information is captured by the monitoring process should be made available to all relevant stakeholders so that it can be validated and corrected before utilisation – section 9 describes the significant changes in conclusions that may arise following this process. Although there is no longer a commercial imperative to ensure information is shared, there is still a value in creating peer pressure as a mechanism for improving cost and performance.
 - There is a continuing role for benchmarking. There is no doubt that the Arbiter's benchmarking described in section 6 had a dramatic effect on what was considered to be efficient and economic in terms of the approach to, and costs of line upgrades. It was unfortunate that this became mired in controversy, partly because the data and methodology were not visible to the parties, and it may be that his analysis failed to reflect genuine differences between LUL's situation and the comparators. However, LUL's own benchmarking of escalator costs showed that claims of substantial 'London effect' should be treated with some scepticism.
 - Accordingly, there needs to be a structured approach to developing, analysing and utilising the data which is informed by the prevailing circumstances and takes in to account genuine differences between LUL's situation and its comparators.
214. The lessons described above have been recognised in the Terms of Reference for IIPAG and as part of benchmarking and monitoring governance recently put in place within TfL:
- IIPAG provides independent assurance and expert advice to the Mayor and the TfL Board, as well as consulting with the Secretary of State for Transport, with regard to the TfL Investment Programme. The Terms of Reference for IIPAG^{cxliii} includes overseeing gateway reviews to advise on the approval of projects and

reviewing delivery of the TfL Investment Programme. This incorporates consideration of systemic or general issues such as organisational capability and the efficiency, effectiveness and economy of delivery. IIPAG consults with the Secretary of State on its work plan to be proposed to the Mayor each year and also publishes an annual report on TfL's investment delivery. In addition, significant concerns or issues are escalated to the Mayor and the Secretary of State as required on an ongoing basis.

- In order to support IIPAG, and to enable further analysis of potential efficiencies within the business, a small dedicated resource to develop benchmarking has been established within TfL, building on the work initially carried out under the ambit of the PPP Arbiter and drawing on a significant volume of existing information. This includes information from the PPP reviews, international Metro comparators and engagement with 3rd parties on procurement activities. An initial report^{cxliv} has been made to the TfL Board and IIPAG. This sets out recent benchmarking analysis, with a primary focus on asset maintenance in LUL and Tube Lines, and proposals to further develop benchmarking within the business, particularly in the area of capital projects where limited work has been carried out previously. The immediate focus is now on sharing best practice and driving greater efficiency for priority activities identified in the report.
- Previously, the PPP Arbiter published only high level benchmarking information comparing London to a selection of international metros. The approach being established in TfL will provide a new level of transparency in relation to LUL's and Tube Lines' maintenance costs, comparing each of the nine Underground lines and planned future efficiency initiatives.
- The benchmarking work carried out within TfL draws directly on the resource established to manage reviews with the PPP Arbiter and therefore is well placed to leverage the knowledge accumulated through the Extraordinary Review with Metronet and the Periodic Review with Tube Lines, together with the methodology and approach, including benchmarking protocols, developed with the PPP Arbiter.
- The acquisition of Tube Lines provides the first opportunity for detailed collaboration, free of the limitations imposed by the commercial arrangements between LUL and TLL that existed previously. LUL and Tube Lines have already begun work to explore openly the reasons for differences in unit costs between lines. For example, a detailed comparison of signals maintenance regimes is being carried out and good practice is being shared by Tube Lines on their management of the Piccadilly line fleet. This work is already being used to develop efficiency initiatives.
- The benchmarking and monitoring governance is integrated within business planning processes across TfL. Through Joint Benchmarking, and within quarterly Asset Strategy Meetings, best practice is regularly discussed and shared between LU and Tube Lines. This informs the strategies for managing assets, in turn reflected in action plans and cost/performance forecasts that form Asset Management Plans, a key component of the overall TfL Business Plan^{cxliv}. The Terms of Reference for IIPAG include examination and commentary upon the Asset Management Plans.

References

N.B. All the Arbiter's published documents are available at <http://www.ppparbiter.org.uk>

- ⁱ See for example Sappington, David E.M. and Wiseman, Dennis L., *Designing Incentive Regulation for the Telecommunications Industry*, Cambridge, MIT Press, 1996
- ⁱⁱ *Regulating the London Underground*, The Annual Beesley Lecture, 13 November 2003
- ⁱⁱⁱ *The PPP Arbiter: Role, approach and procedures*. An initial consultation paper, 9 September 2003
- ^{iv} *Ibid.*, paragraph 6.3
- ^v Responses are appended to the above paper. See paragraphs 3.5 and 5.3 of the Metronet responses
- ^{vi} See paragraph 3 of the EIB response
- ^{vii} Paragraphs 2.8 and 3.2 of LUL's response
- ^{viii} See paragraph 3 of the ORR response
- ^{ix} *Routine Provision of Information to the PPP Arbiter: Initial Requirement*, 19 January 2004
- ^x *LU Comments on The Arbiter's Work Programme for 2005-06*, 14 July 2005
- ^{xi} *Arbiter's Response to Metronet's Voluntary Submission*, 25 November 2005, citing letter from Tim O'Toole (London Underground) to John Weight (Metronet) dated 4 April 2005 and titled "Metronet SSL / BCV Year 2 Economic and Efficient Submissions"
- ^{xii} *Letter from Tim O'Toole to the Arbiter*, 20 December 2007
- ^{xiii} See letter from Naomi Connell to Philip Pacey, 8 June 2005
- ^{xiv} *Letter from John Weight to the Arbiter*, 14 June 2005
- ^{xv} *Letter from Naomi Connell to Philip Pacey*, 8 June 2005
- ^{xvi} *Letter from the Arbiter to Keith Clarke*, 26 May 2005. See also letter from the Arbiter to John Weight, 26 May 2005
- ^{xvii} *Metronet Financial Reconciliation and Reference Practice Run: The Arbiter's overall objectives*
- ^{xviii} *Email from Mike Woods (OPPPA) to Sarah Atkins*, 2 April 2004
- ^{xix} *Pricing Schedules: Outstanding Actions* dated 4 Feb 2005
- ^{xx} *Email from Sarah Atkins to Steve Polan*, 7 June 2005
- ^{xxi} *Letter from the Arbiter to Philip Pacey*, 22 June 2005
- ^{xxii} *Letter from Naomi Connell to [Gaynor Mather]*, [15] July 2005 [have only seen draft]
- ^{xxiii} *Note of Tripartite meeting*, 7 December 2005
- ^{xxiv} *Metronet Voluntary Submission*, paragraph 4.4
- ^{xxv} *Letter from the Arbiter to Philip Pacey*, 21 November 2005
- ^{xxvi} *Ibid.*
- ^{xxvii} *Letter from Naomi Connell to Philip Pacey*, 9 December 2005
- ^{xxviii} *Submission requirements for annual Metronet Report: A note by the PPP Arbiter: Draft*, 25 January 2006. The words 'high level outline' are in the title of the pdf version of the document emailed to LUL.
- ^{xxix} *Letter from Philip Pacey to the Arbiter*, 13 February 2006
- ^{xxx} *Letter from Sally Partridge to the Arbiter*, 13 April 2006
- ^{xxxi} *Letter from the Arbiter to Sarah Atkins*, 20 July 2006
- ^{xxxii} *Letter from Sarah Atkins to the Arbiter*, 12 April 2006
- ^{xxxiii} *Metronet submission page 3*
- ^{xxxiv} *Annual Metronet Report 2006*, 16 November 2006

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- xxxv Ibid, paragraphs 1.76 and 1.77
- xxxvi Ibid, paragraph 1.79
- xxxvii LUL Representations, 30 October 2006
- xxxviii Letter from Tim O'Toole to the Arbiter, 13 November 2006
- xxxix Treatment of investment at an Extraordinary Review: Initial Guidance, 1 December 2006, paragraphs 3.2 and 3.3
- xl Ibid., paragraph 3.17
- xli Ibid., paragraph 3.21
- xlii Reference on treatment of investment at Extraordinary Review – Issues Paper, 19 December 2006, paragraph 2.9
- xliii Metronet References for Guidance re Treatment of Investment at an Extraordinary Review: London Underground's Response, 19 January 2007, paragraph 44
- xliv Metronet Request for Guidance on the Treatment of Investment at an Extraordinary Review: Issues paper. Metronet Response to "Questions for the Parties". 19 January 2007, page 4
- xliv Letter from the Arbiter to Naomi Connell and Philip Pacey, 30 March 2007
- xlvi Email from Sarah Atkins to Tim O'Toole, 23 January 2007
- xlvii Letter from the Arbiter to Philip Pacey, 6 March 2007
- xlviii Note of meeting in the form of an email from Sarah Atkins, 7 April 2007
- xlix Email from Sarah Atkins to Tim O'Toole, 12 April 2007
- ¹ Letter from Philip Pacey to the Arbiter, 17 May 2007
- ⁱⁱ 16 November 2006, paragraphs 1.76 and 1.77
- ⁱⁱⁱ Reference for Directions from Metronet BCV Rail Ltd for Extraordinary Review: Issues Arising, 20 December 2007, p.2
- ⁱⁱⁱⁱ Treatment of Investment at an Extraordinary Review: Final Guidance, 13 March 2007, paragraph 3.9ff.
- ^{liv} Presentation slides Extraordinary Review Cost Table, Cost Driver Units and Unit Rates – March 2007
- ^{lv} Note of meeting in the form of an email from Charlotte Leonard, 27 March 2007
- ^{lvi} Email from Charlotte Leonard to Gaynor Mather, Mike Woods and James Le Couilliard, 17 May 2007
- ^{lvii} Email from Charlotte Leonard to OPPPA, Metronet and Tube Lines, 20 June 2007
- ^{lviii} Email from Peter Camidge to Gaynor Mather dated 14 August 2007
- ^{lix} Email from Mike Woods, 23 August 2007
- ^{lx} Note of meeting attached to Colin Clark email, 29 August 2007 (LUL internal distribution only)
- ^{lxi} Letter from Bob Partridge to the Arbiter, 7 September 2007
- ^{lxii} Note of meeting in the form of an email from Charlotte Leonard, 5 October 2007 (LUL internal distribution only)
- ^{lxiii} Preparation for Periodic Review: Discussion paper on data breakdown structure, role of Reporters and approach to material change in risk, October 2007
- ^{lxiv} Data Breakdown Structure, report by KPMG and Halcrow, 29 August 2008
- ^{lxv} Note of telephone discussion with Reporters on 31 July 2008 in the form of an email from Colin Clark, 31 July 2008 (LUL internal distribution only)
- ^{lxvi} Routine Provision of Information to the PPP Arbiter: Initial Requirement, 19 January 2004
- ^{lxvii} Letter from John Weight to the Arbiter, 29 April 2004
- ^{lxviii} Project Perm, draft report dated 4 July 2006 (need to update with final, if different)
- ^{lxix} Letter from Andrew Lezala to Tim O'Toole, 25 January 2007
- ^{lxx} Letter from Arbiter to Philip Pacey, 6 March 2007
- ^{lxxi} Project Perm, draft report dated 4 July 2006 (need to update with final, if different)
- ^{lxxii} Letter from Tim O'Toole to Andrew Lezala, 28 June 2006

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- lxxiii Letter from Sarah Atkins to the Arbiter, 2 March 2007
- lxxiv Proposed changes to Procedural Framework and Approach Documents, 7 February 2007. The Arbiter raised the same point in his draft Guidance on the Metronet 'Seven References', issued in January 2007.
- lxxv Note of Tripartite meeting, 7 December 2005
- lxxvi Email from Sarah Atkins to Tim O'Toole, 13 April 2007
- lxxvii Periodic Review: possible use of Reporters - Paper by the PPP Arbiter, August 2007
- lxxviii See the Arbiter's Discussion document – Analytical Approach to Periodic Review, August 2008, paragraph 5.4
- lxxix Preparation for Periodic Review: Discussion paper on data breakdown structure, role of Reporters and approach to material change in risk, October 2007
- lxxx Benchmarking Efficiency & Performance, Cambridge Economic Policy Associates (CEPA), 1 July 2003, page (i)
- lxxxi The PPP Arbiter: Role, approach and procedures. An initial consultation paper, 9 September 2003
- lxxxii Internal Benchmarking: Refresh Exercise, 10 October 2006
- lxxxiii Letter from the Arbiter to Tube Lines, Metronet and London Underground, 31 May 2006
- lxxxiv See letter from the Arbiter dated 15 September 2006, referring to LUL/Tube Lines correspondence of 4 July and 18 August
- lxxxv Metronet Annual Review Report 16 November 2006, paragraph 1.78
- lxxxvi Letter from Andrew Cleaves to Philip Pacey and Naomi Connell, 5 December 2006
- lxxxvii Treatment of Investment at an Extraordinary Review: Final Guidance, 13 March 2007, paragraphs 1.32-1.35
- lxxxviii Reference for Directions from Metronet BCV Rail Ltd for Extraordinary Review: Issues Arising, 20 December 2007, p.2
- lxxxix Progressing the benchmarking framework, August 2007
- xc Future benchmarking, September 2008
- xcii See transcript at <http://www.publications.parliament.uk/pa/cm200910/cmselect/cmtran/uc100-ii/uc10002.htm>
- xciii Letter from Andrew Cleaves to the Arbiter, 31 March 2009.
- xciv Treatment of Investment at an Extraordinary Review, 13 March 2007,
- xcv Final Submission Requirement DBS Data Templates, 9 May 2008
- xcvi Briefing Note for OPPPA – 21.08.07: Tube Lines – Key Issues
- xcvii Reference for guidance from London Underground Ltd: (i) Initial range of costs for the second Review Period etc. 9 September 2008, paragraph 1.13
- xcviii Ibid, paragraph 1.12
- xcviii LUL Representations on draft Initial Ranges guidance, 26 August 2008, paragraph 2
- xcix Figures in this paragraph are taken from the Arbiter's final directions: Periodic Review of Tube Lines' PPP Agreement: Directions on costs and related matters, 10 March 2010, although they fluctuated somewhat during the course of the reference as new issues were raised.
- c Letter from Andrew Cleaves to the Arbiter, 31 March 2009
- ci Letter from Andrew Cleaves to the Arbiter, 2 February 2010
- cii Letter from Lovells to the Arbiter, 24 December 2009
- ciii Independent Reporter's report: London Underground's submissions to the Arbiter in respect of the Tube Lines Periodic Review, 8 March 2010
- civ Letter from Andrew Cleaves to the Arbiter, 3 June 2009
- cv Long Guide to PPP Contract by Martin Callaghan August 2003, page 210.
- cvi Letter from the Arbiter to Sarah Atkins, 6 March 2009
- cvi Paragraph 8.5
- cviii Letter from Andrew Cleaves to the Arbiter, 3 June 2009

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- cix See letter from Sarah Atkins to the Arbiter, 19 June 2009
- cx Transport Select Committee: Update on the London Underground and the public-private partnership (PPP) agreements - Evidence from the PPP Arbiter, 30 September 2009
- cxⁱ Periodic Review of Tube Lines' PPP Agreement: Draft directions on costs and related matters, 17 December 2009, paragraph 3.11
- cxⁱⁱ Letter from Sarah Atkins to the Arbiter, 7 January 2010
- cxⁱⁱⁱ Letter from the Arbiter to Sarah Atkins, 21 January 2010
- cx^{iv} LUL Representations on Draft Directions and Initial Thoughts, 1 February 2010, paragraphs 10-12
- cx^v Draft directions on the level and profile of the ISC, financing and related matters, 10 March 2010, paragraphs 2.9
- cx^{vi} Ibid., paragraph 5.31
- cx^{vii} Ibid., paragraphs 5.19ff
- cx^{viii} Arbiter's Procedural Framework for Use in the Giving of Directions and Guidance, 4 June 2007, articles 10.2 and 10.3
- cx^{ix} GLA Act, section 231(2)
- cx^x Periodic Review of Tube Lines' PPP Agreement: Directions on costs and related matter, 10 March 2010, paragraph 2.26-2.27
- cx^{xi} Ibid., paragraph 2.28
- cx^{xii} Letter from Sarah Atkins to the Arbiter, 15 March 2010
- cx^{xiii} Letter from the Arbiter to Sarah Atkins, 17 March 2010
- cx^{xiv} Letter from Sarah Atkins to the Arbiter, 19 March 2010
- cx^{xv} Letter from the Arbiter to Sarah Atkins, 23 March 2010
- cx^{xvi} Letter from Richard Bradbury to the Arbiter, 8 April 2010
- cx^{xvii} Direction on financing impossibility, 27 April 2010
- cx^{xviii} Letter from Sarah Atkins to the Arbiter, 26 April 2010
- cx^{xix} Letter from Richard Bradbury to the Arbiter, 28 April 2010
- cx^{xx} Letter from Sarah Atkins to the Arbiter, 30 April 2010
- cx^{xxi} Letter from the Arbiter to Sarah Atkins, 6 May 2010
- cx^{xxii} Letter from Sarah Atkins to the Arbiter, 15 March 2010
- cx^{xxiii} 44735 Efficiency Note for Nicholas Griffin 20 May 2010 and supporting annex LUL Savings from OPPPA Benchmarking Annex as sent to Nicholas Griffin 20.05.10
- cx^{xxiv} Email from Charlotte Leonard to Peter Dickinson, 08 August 2010
- cx^{xxv} 45217 Response to LUL comments on OPPPA benchmarking model, 25 August 2010
- cx^{xxvi} OPPPA Draft Benchmarking report numbers presentation update 08.09.2010
- cx^{xxvii} Email from Gaynor Mather to Charlotte Leonard, 21 September 2010 attaching Revised OPPPA benchmarking report
- cx^{xxviii} LUL-TLL comments on OPPPA benchmarking model - 2010-09-30
- cx^{xxix} Future cost scenarios for the London Underground Infracos 06.10.2010
- cx^l Letter from Sarah Atkins to the Arbiter, 12 September 2007
- cx^{li} Letter from Gaynor Mather to Sarah Atkins, 10 October 2007
- cx^{lii} Letter from Tim O'Toole to the Arbiter, 20 December 2007
- cx^{liii} IIPAG Terms of Reference, October 2010
- cx^{liv} Rail & Underground Asset Benchmarking Initial Report, May 2011
- cx^{lv} TfL Business Plan for 2011/12-2014/15, March 2011