For the avoidance of doubt, each statement in this Response – to the joint Ofwat/Ofgem Discussion Document 'Financing Networks' February 06 – is either an expression of opinion or a suggestion of opinion either by Box Ten Ltd, or by Don Stickland, or both, unless it can be shown to be a statement of fact.

From: Box Ten Ltd.

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2006-05-18

Sent by email to: martin.crouch@ofgem.gov.uk *(Ofgem's Tel:* 020 7901 7000)

And by email to: emma.cochrane@ofwat.gsi.gov.uk *(Ofwat's Tel:* 0121 625 1300)

To: Martin Crouch, Director – Electricity Distribution Regulation
Ofgem, 9 Millbank, London, SW1P 3GE

And To: Emma Cochrane, Head of Corporate Finance
Ofwat, City Centre Tower, 7 Hill Street, Birmingham, B5 4UA

Dear Martin Crouch and Emma Cochrane

Response to the joint Ofwat/Ofgem Discussion Document 'Financing Networks' Feb 006

1. This Response, of which each statement is either an expression of opinion or a suggestion of opinion either by Box Ten Ltd, or by Don Stickland, or both, unless it can be shown to be a statement of fact, is triggered by (1) the need to sell Patent GB2309086 and (2) the public Discussion Document of 08/02/2006 – Monopoly Price Controls – issued via this link: http://www.ofgem.gov.uk/temp/ofgem/cache/cmsattach/13842_FinancingNetworks080206.pdf

2. Thank you for inviting this Response. Thank you too for the invitation to the seminar held on Thursday 27th April, 2006, where the Chairman Mr. Keith Palmer announced a revised date [replacing that of 5 May] as 19 May 2006 for the last date to receive Responses.

3. The thrust of our Response is that the Discussion Document is focused and effective, in identifying that an opportunity now exits to lower the cost of capital for and of these monopoly services, with a concomitant reduction of cost to customer.

4. However, we were not entirely convinced that the "Risk Identification and/or Risk Assessment" aspect was good enough, because a concomitant of a strong focus may, of course, be an impression of "tunnel vision". This may be dangerous for all concerned, especially customers, because history indicates that sometimes the biggest risk is the one you did not expect! Our concerns include cash flow risk, due to theft during distribution.

5. In the light of the current SFO (Serious Fraud Office) investigation into the apparent "data handling hanky panky" at Severn Trent Water, we are increasingly concerned about theft during conveyance from distribution Networks – the costs of which we believe are being borne by honest customers. This could be a real problem if all domestic houses had water meters! The "conventional wisdom" is that the risks, and the risk transfer problems of this sort of "theft" problem, are currently an order of magnitude below those of cost of capital.

6. We disagree, especially on the timescale of the relevant Network asset lives in question. Basically we believe that Network Operators, instead of (a) having insufficient tools and thus being forced to transfer theft risk to honest customers, should (b) have tools to control the risk of theft and so transfer theft risk back to dis-honest customers! This would avoid the costs of this "theft risk" being transferred to shareholders and lenders. And lower the cost of capital.

7. This is important, as the Discussion Document makes quite clear; however capital repayment has to be funded out of cash flow, and cash flow may not meet the expectations of lenders and shareholders if there is theft during conveyance from distribution Networks. Incidentally, we understand that there was a rumour that at least one overseas privatisation did not proceed due to "theft during conveyance" being unduly high, but inevitably we're not able to substantiate this "upset" rumour!

8. Nevertheless, lenders could become sensitised by this aspect, if it should become more common in media reports, wouldn't they? Especially as recent market turmoil shows that some risks have been underpriced.

9. Indeed today's report in the local Nottingham paper [Evening Post, Nottingham, 18/5/006, pages 1, 10 & 11] seems to support the feeling that "theft during conveyance" reports are becoming more prevalent than hitherto believed! The relevant facts were reported as follows, with our added [comment in square brackets] and added ***emphasis in bold italic***:
* In just six months, Notts police discovered a number of major canabis-growing operations.
* The highly sophisticated set-ups … are believed to be the work of a Vietnamese gang.
* "***Electricity meters were being bypassed*** …" DS Rob Spry.
* RAIDS: Police uncovered cannabis factories ***after a blaze*** [on 26 February, ***due to an electrical fault***] at a house in Sneinton.

10. Hang on! Wasn't there also a Vietnamese angle on 16 March 2006 when page 3 "The Daily Telegraph" col 1 and 2 showed paragraphs 1 and part of 2, again with our added [comment in square brackets] and added ***emphasis in bold italic***:
* A network of cannabis factories run by Vietnamese gangsters and producing tens of millions of pounds' worth of drugs a year have been uncovered by police.
* The high-strength skunk cannabis is cultivated in ***hundreds of houses*** in London, ***with power diverted*** [i.e. ***stolen from honest customers***] from the mains to heat and light the plants.

11. Immigration currently seems to be a problem, too, for the Labour Government, [see for instance The Daily Telegraph 17/5/006 pages 1 & 2, where 'civil servant' Roberts said "I haven't got that figure … We don't track individual cases" when he was asked "about the number of people who are not removed when all their appeal processes are exhausted"; ***surprisingly Roberts wasn't told "You're fired"***!], which seems to have lost the art of the numeric paradigm used in the Falklands War of "We counted them out, and we counted them back in". Of course, now the paradigm should be re-cast as a defensive one, i.e. "We counted them in, and we counted them back out", as in Patent GB2309086, titled "Utility Metering Arrangement". We believe that this Patent can be used to address some of the regulatory risks alluded to by Keith Palmer's "Foreword", especially because it assists fault finding in large capital assets.

12. [Normal people normally want faults found and fixed on their cars, rather than just buy a new one – in contrast to Thames Water's apparent approach of just installing new assets, seemingly with insufficient monitoring, as they've not got the Patent!]

13. We are, of course, delighted that at last the answer [to the fundamental ambiguities at the heart of the current energy and water commercial frameworks] seems to lie with the solution set for the infamous Royal Mail thefts case, where Royal Mail – as the "Distributors" of the stuff being distributed – and not the Post Office etc who "Supplied" the postage stamps – were apparently fined around 10% of profits for failing to deliver. So we believe that energy theft risk control should be firmly allocated to the monopolistic distribution activity which should manage it, and which should in turn expect all possible assistance from the supplier activity.

14. **KEY POINT: Currently theft and data quality etcetera risks are transferred away from shareholders and lenders, to be carried by consumers, due to the activity of Water Company, LDZ and DNO, etc, distribution network managers who ought to be managing these risks as part of their remuneration. It is important to note that the joint Ofwat/Ofgem Consultation Paper "Financing Networks", issued in February 2006, clearly stated that "Ofwat sought to make it clear that it would not allow this [i.e. risk might be transferred from shareholders and lenders to consumers] to happen", for example if "highly geared companies were to become subject to financial distress."**

15. Another point asserted in the joint Ofwat/Ofgem Consultation Paper titled "Financing Networks", was that "regulatory risk has diminished" and that "The regulatory risk premium in the cost of capital should go down as a result". Unfortunately, if the Regulator(s) are perceived to be taking a lax view on theft – which appears to be confirmed by the lack of a sale of *Patent GB2309086* titled *"Utility Metering Arrangement"* – then there may very well be a market appreciation of a new regulatory risk for lenders and shareholders, with adverse results for the cost of capital etcetera.

16. Moving on, how the Patent can add value? Easily, because the lessons learnt for the electricity market are transferable, *mutatis mutandis*, to the gas market and to the water market! For the electricity world Phelps (2003, Slide 3), who I gather currently works for the ENA (Energy Networks Association) expressed the traditional view "Losses are calculated as the difference between two large numbers, one of which is of questionable accuracy". Phelps (2003, Slide 4) then explained the "*Nature of losses"* as (1) Energy consumed in transportation of electricity: (a) fixed rate of consumption, and (b) variable consumption, dependent on load carried, and also (2) Energy not properly accounted for: (c) measurement errors, (d) settlement errors, and (e) illegal abstraction [aka "theft"]. He also suggested (in Slide 15) as "*The way forward?"* an "Aim to make more radical reforms in 2010 as measurement and relative performance issues are resolved", reflecting both that "Data – if mishandled – is hard to assess", and also a lack of knowledge of Patent GB2309086, "Utility Metering Arrangement", which is now explained diagramatically below.

17. Annexes 1, 2, & 3 show how the Patent can be applied to electricity, gas & water markets respectively. **If any Reader wants to call us on 07973 110 010 to discuss, then welcome!**

18. Having explained how Patent GB2309086 may be applied, Annex 4 explains the benefits for the "players", by answering that key "carrot" question of "What's in it for me?".

19. Annex 5 shows some References and a short Bibliography.

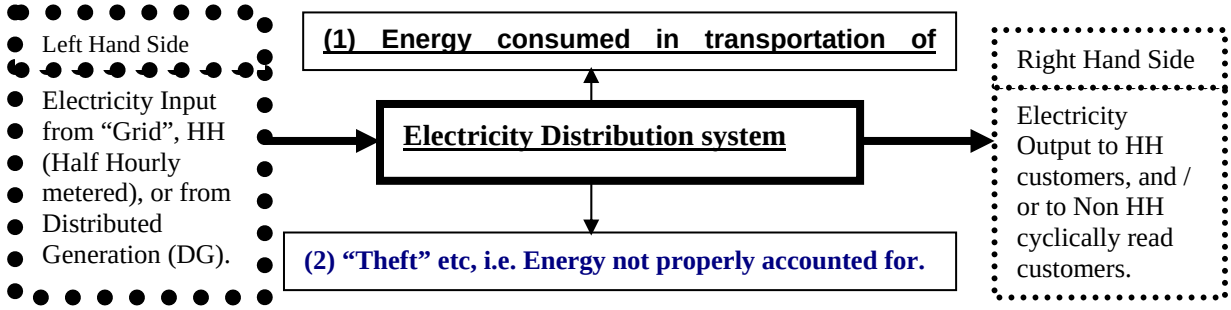
20. Finally, in the interest of brevity, Annex 6 sets out our answer(s) to the questions posed by Ofgem and Ofwat. **Basically: Unless the matter of theft is properly regularised, any conclusions arising from a discussion of the "financing" questions can only be considered to be provisional, and perhaps an unfruitful use of time, due to the unnecessary uncertainties about future cash flows to repay that "financing".**

Yours truly,

Donald Stickland, BA (Oxon), MA (Oxon), BA (Open), ACMA
Director, Box Ten Ltd.

Annex 1 – Electricity Distribution Theft finding, etc, explained:

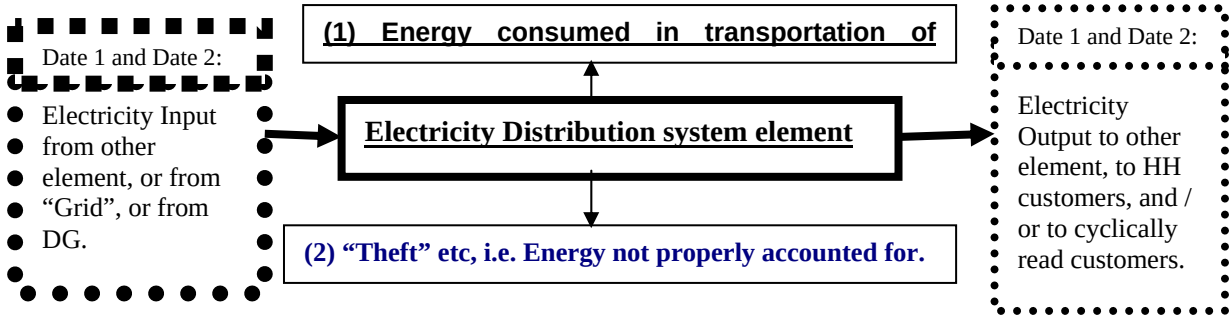
Let us consider an Energy Network as a BOX, which has inputs and outputs. Here we have a DNO's (Distribution Network Operator's) Electricity Distribution system BOX:



As DG (Distributed Generation) was very low in 2003, Phelps (2003) could claim that the "large number" representing the annual energy input on the "Left Hand Side" was accurate, as compared with the "large number" representing the annual energy consumed by paying customers on the "Right Hand Side". This is because of the current difficulty of matching the consumptions of Domestic etc customers, whose meters are usually read on a Quarterly Cyclic basis, with a precise "Accounting Period" of one year for the key inputs.

Patent GB2308096 overcomes this difficulty, by capturing the Non HH "Year End" meter reading, by switching to another meter register on the Date of a Year end. (It may be retrieved later, on the usual reading cycle). Not only does this give a precise reading at the year one end, but it also gives a precise reading at the start of the next year too! This technique is called 'Date Britain', and is much cheaper than just changing ALL the meters to HH. Not only that, a much reduced set of data is required!

With this reduced data set (as compared with everything being HH metered) the Electricity Distribution system can be analysed by each finite element (i.e. each separate feeder), see the BOX below:



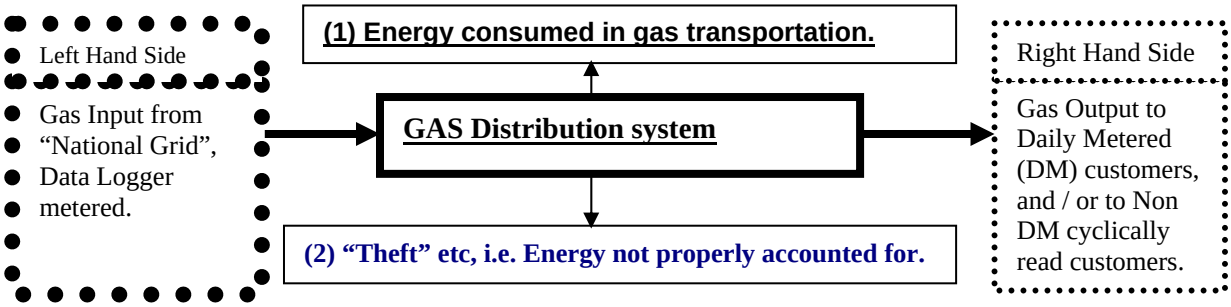
If the indicated "losses" for similar elements (e.g. 11 kV overhead lines) are compared, then anomalous situations (e.g. those distribution elements with a high degree of theft, or with dangerous leakages) may be discovered. Theft and/or danger may be "predicted and prevented", as opposed to "find and fix" now.

The benefit of the above approach is that it avoids all the present "fudging" now, where the GSPGCF (Grid Supply Point Group Correction Factor0 is used to cover up the "gap" due to theft of electricity! What is particularly scandalous is that a similar "Fudging" technique is used to cover up the gap for gas – called RbD or "Reconciliation by Difference" – unless the technique shown in the next Annex (i.e. Annex 2) is used!

[Full "Harvard Style" References are given in the Annex of this Response]

Annex 2 – Gas Distribution Theft finding, etc, explained:

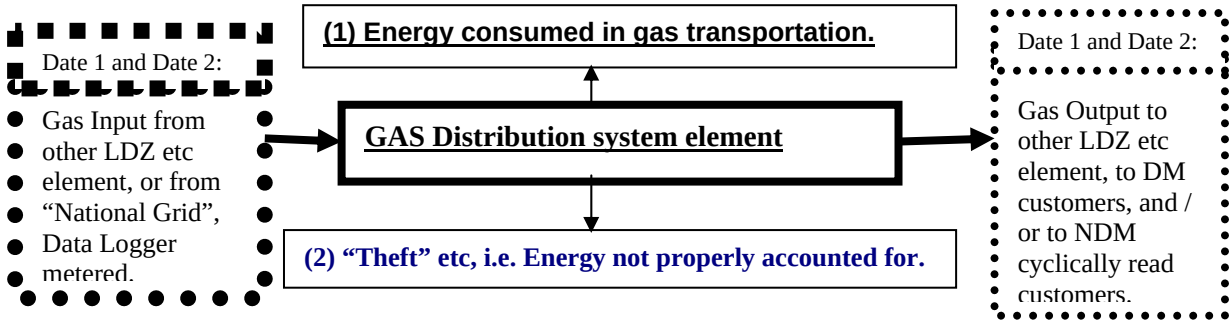
Let us consider an Energy Network as a BOX, which has inputs and outputs. Here we have a LDZ's Gas Distribution system BOX:



As in the electricity case, where Phelps (2003) could claim that the "large number" representing the annual energy input on the "Left Hand Side" was accurate, as compared with the "large number" representing the annual energy consumed by paying customers on the "Right Hand Side", we have the similar situation for gas. This is because of the current difficulty of matching the consumptions of Domestic etc (NDM) customers, whose meters are usually read on a Quarterly Cyclic basis, with a precise "Accounting Period" of one year.

Patent GB2308096 overcomes this difficulty, by capturing the NDM (Not Daily Metered) "Year End" meter reading, by switching to another meter register on the Date of a Year-end. (It may be retrieved later, on the usual reading cycle, thus maintaining the economies there). Not only does this give a precise reading at the year one end, but it also gives a precise reading at the start of the next year too! This technique is called 'Date Britain', and is much cheaper than just changing ALL the meters to DM (Daily Metered). Not only that, a much reduced set of data is required! In addition, the AQ (Annual Quantity) is reliably measured too!

With this reduced data set (as compared with everything being DM metered) the Gas Distribution system can be analysed by each finite element (i.e. each separate feeder pipe), see the BOX below:

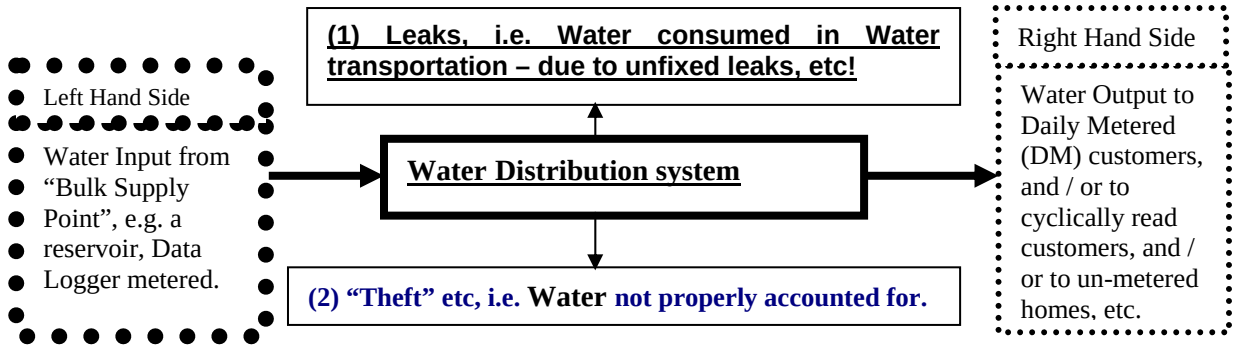


If the indicated "losses" for similar LDZ etc distribution elements (e.g. certain diameter pipes of certain materials) are compared, then "exceptional" or anomalous situations (e.g. those distribution elements with a high degree of theft, or with dangerous leakages) may be discovered. Theft and/or danger may be "predicted and prevented", as opposed to "find and fix" now.

Perhaps this might avoid another 1999 Larkhall-type Gas explosion that caused four Scottish deaths, and for which Transco received a record £15m fine. The Independent reported that the case against Transco "centred on maintenance, repair and record keeping procedures … An examination after the tragedy found that the gas main near the Findlays' house had 19 holes; one was big enough for a man to crawl through".

Annex 3 – Water Distribution Theft finding, etc, explained:

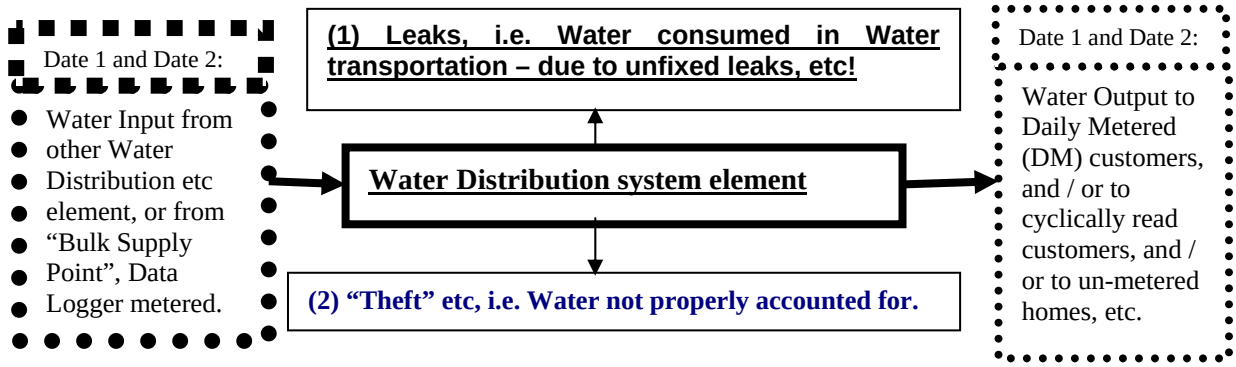
Let us consider a Water Distribution Energy Network as a BOX, which has inputs and outputs. Here we have a Water Company's Water Distribution system BOX:



As in the electricity case, where Phelps (2003) could claim that the "large number" representing the annual energy input on the "Left Hand Side" was accurate, as compared with the "large number" representing the annual energy consumed by paying customers on the "Right Hand Side", we have the similar situation for water. This is because of the current difficulty of matching the consumptions of Domestic etc customers, whose meters are usually read on a Quarterly Cyclic basis (if they have meters), with a precise "Accounting Period" of one year for the key inputs.

Patent GB2308096 overcomes this difficulty, by capturing the household etc water meter "Year End" meter reading, which would not normally be collected by the meter reader, by switching to another meter register on the Date of a Year-end. (It may be retrieved later, on the usual reading cycle, thus maintaining the economies there). Not only does this give a precise reading at the year one end, but it also gives a precise reading at the start of the next year too! This technique is called 'Date Britain', and is much cheaper than just changing ALL the meters to a DM (Daily Metered) basis. Not only that, a much reduced set of data is required! In addition, the Annual Quantity is reliably measured too!

With this reduced data set (as compared with everything being DM metered) the Water Distribution system can be analysed by each finite element (i.e. each separate feeder pipe), see the BOX below:



If the indicated "leakage losses" for similar water company etc distribution elements (e.g. certain diameter pipes of certain materials) are compared, then "exceptional" or anomalous situations (e.g. those distribution elements with a high degree of theft, or with dangerous leakages) may be discovered. Theft and/or danger may be "predicted and prevented", as opposed to "find and fix" now.

For the avoidance of doubt, each statement in this Response – to the joint Ofwat/Ofgem Discussion Document 'Financing Networks' February 06 – is either an expression of opinion or a suggestion of opinion either by Box Ten Ltd, or by Don Stickland, or both, unless it can be shown to be a statement of fact.

Annex 4

Q: What's in it for me? [i.e. in Box Ten Ltd's opinion]

A: For Suppliers:
• Lower costs to supply customers, as less theft or mistakes due to others will be paid for via you.
• Bills that cover a precise time period, so that bills for a NHH customer's group of sites can cover the same period, and aid consolidation and comparison.
• Value for money from Agents to the Supplier's Hub, as Agents' performance is better targeted & rewarded.

A: For Distributors:
• Higher revenues from distributing energy, as you can manage down theft or mistakes due to others.
• Metered data that cover a precise time period, so that measured data for the NHH etc MPANs on the same feeder element can cover the same time period, and aid consolidation and comparison, & fix of LLF errors.
• Distribution Control Revenue support from Ofgem, to fund the initial metering and process at low cost to shareholders.

A: For Customers:
• You will pay lower costs for the supply of energy or water, as there's less theft or mistakes due to others.
• Bills that cover a precise time period, so that bills for different years, or for different NHH sites, can cover the same period, and can aid comparison, or consolidation. This "input-output" matching facility could also help better national statistics

A: For Thieves:
• Higher costs for supply of energy to you, as there will be more certainty of detection and of you being caught.

A: For energywatch, *etcetera*:
• Honest customers pay less for theft, and are less likely to be falsely accused of theft.

A: For Ofgem, and *mutatis mutandis* Ofwat:
• The Authority will have a higher likelihood of promoting cohesive energy supply market arrangements.
• Reduced market abuse, resulting in truer "economic prices".

A: For DTI, *mutatis mutandis* DEFRA, and for Government generally:
• A more joined up energy policy, which recognises that energy supply cost drivers include – but are not restricted to – honest customers [supplied through hubs] & dishonest thieves [who work round those hubs].
• More likelihood of reducing greenhouse gas emissions, and meeting international targets.
• Improve the monopoly energy distributors' audit trails, and avoid another Enron like audit problem.

Annex 5

Some References and a short Bibliography:

Phelps, A. (2003), representative for Aquila, *Electricity distribution losses – A DNO perspective*, presented at a Workshop held 14 April 2003, hosted by Ofgem, placed on Ofgem website 09/05/2003 [Online]. [Accessed 25 August 2005]. Available from World Wide Web: http://www.ofgem.gov.uk/temp/ofgem/cache/cmsattach/3171_DNOperspectives_andyphelps.pdf

Stickland, D. (2002) *"DATE BRITAIN" – ELECTRICITY TRADING TRUE-UP PROPOSAL, 2002-09-09* on page 1, and *"DATE BRITAIN" – GAS TRADING TRUE-UP PROPOSAL, 2002-09-10* on page 2, placed on Ofgem website 09/07/2003 [Online]. [Accessed 29 August 2005]. Available from World Wide Web: http://www.ofgem.gov.uk/temp/ofgem/cache/cmsattach/3880_donstickland-develop_price_controls_Aug2002.pdf

Stickland, D. (2003) *A FORMAL RESPONSE to the Ofgem Consultation Paper titled "Electricity distribution losses – 03/03" (dated January 2003),* placed on Ofgem website 24/03/2003 [Online]. [Accessed 29 August 2005]. Available from World Wide Web: http://www.ofgem.gov.uk/temp/ofgem/cache/cmsattach/2567_Box_Ten.doc

Stickland, D. (2004a) *'A "Measured" Response including a Challenge to Ofgem',* [This is part 1 of 2 of a Response **to Ofgem's Discussion Document, ref 85/04, issued April 2004, Subject: Theft of electricity and gas]** placed on Ofgem website 16/07/2004 [Online]. [Accessed 29 August 2005]. Available from World Wide Web: http://www.ofgem.gov.uk/temp/ofgem/cache/cmsattach/7885_Stickland1.pdf

Stickland, D. (2004b) *'A "Measured" Response including a Challenge to Ofgem',* [This is part 2 of 2 of a Response **to Ofgem's Discussion Document, ref 85/04, issued April 2004, Subject: Theft of electricity and gas]** placed on Ofgem website 16/07/2004 [Online]. [Accessed 29 August 2005]. Available from World Wide Web: http://www.ofgem.gov.uk/temp/ofgem/cache/cmsattach/7887_Stickland2.pdf

Stickland, D. (2004c) *"Elexon, Sherlock Holmes, and the Theft of millions of pounds of Electricity each year from the Settlement System",* a Response **to Ofgem's Consultation Document, ref 145/04,** placed on Ofgem website 27/08/2004 [Online]. This has an 11-page commentary [headed '**Response Part 2 of 2'**], followed by the 31 slides that Ofgem have placed on pages 12 through to 42 inclusive. [Accessed 29 August 2005]. Available from World Wide Web: http://www.ofgem.gov.uk/temp/ofgem/cache/cmsattach/8509_Donstrickland_14504.pdf

Stickland, D. (2005) *"Why 'Pisa' about with LLFs?" A formal Response to Ofgem ref 135/05,* placed on Ofgem website 08/08/2005 [Online]. [Accessed 29 August 2005]. Available from World Wide Web: http://www.ofgem.gov.uk/temp/ofgem/ cache/cmsattach/12043_D_Stickland_.pdf

Annex 6

BoxTen's Response to the questions in:
Financing Networks: A discussion paper, Feb. 2006:

Re:

"Issues for discussion

191. Views are invited on any aspect of the issues raised in this document and in particular on: ***Key issues for discussion (1 through to 8)***."

Answer: The Box Ten Ltd basic Response to these 8 very important topic areas is that these questions are premature because they appear to us to assume that "all is well on the revenue collecting side, and so any financing will be paid for out of expected revenue streams".

We believe that (a) the current commercial framework is currently insecure regarding what should be done when theft occurs on the networks, (b) has a legacy of risks that are currently wrongly transferred to customers, and (c) that these risks could well be transferred back to the networks and their financiers!

We further believe that (d) the matter of theft can be sorted out using Patent GB2309086 to assist Networks identify exceptional localities of theft, and hence minimise them, but that this will need leadership to overcome an apparent "not invented here" stubbornness, and that (e) unless the matter of theft is properly regularised, any conclusions arising from a discussion of the questions below can only be considered to be provisional, and perhaps an unfruitful use of time.

Key issue for discussion (1). (a) Should financial ring fencing arrangements be extended to cover all monopoly businesses and modified so that they all include cash lock-up provisions? (b) How might the introduction of cash lock-up provisions affect existing financial structures including holding company debt? Are the current ring fencing provisions sufficient to allow the activities of the licensed undertaker to be fully separated from other group entities? If not, what additional ring fencing provisions might be appropriate and what might be the costs and benefits of these?

Key issue for discussion (2). (a) Would the separation of past and future capital investment improve the incentives for investment, lower the overall risk of regulated businesses and reduce the cost of finance? (b) Are there any practical implications if such an approach was adopted?

Key issue for discussion (3). (a) Is there any evidence of a lack of regulatory commitment to regulatory asset values or equity funding and if so (b) how might this be best rectified?

Key issue for consideration (4). (a) Should regulators assume that a proportion of debt is index-linked when setting price controls? (b) Is access to the index-linked debt markets (or related instruments) available to all companies regardless of their specific financial/corporate structure? Are there longer term implications for the companies' financial stability of adopting a significant proportion of index-linked debt? What is the demand for corporate index-linked debt and are there constraints on investors portfolios? Would it be more expensive?

Key Issue for discussion (5). (a) Are there any changes that would be required to the regulatory regime in order to facilitate equity injections? (b) What would be the implications for the highly geared companies?

Key Issue for discussion (6). (a) Would it be reasonable for regulators to be more flexible in their approach to modelling dividends as a method for stabilising gearing and easing any financing constraints? (b) Would such an approach require changes to the regulatory regime in order to increase certainty and if so what sort of changes would be most appropriate?

Key Issue for discussion (7). (a) Should regulators adopt pragmatic definitions of ratios used by the credit rating agencies? (b) Is the specific level of any particular ratios critical to credit worthiness? Is it the overall level and trend of ratios that is important? Would there be significant difficulties for companies if the majority of ratings were BBB?

Key Issue for discussion (8). If there are remaining issues of financeability what are the advantages and disadvantages of (a) revenue uplift (and should this be PV neutral (b) accelerated depreciation (c) profiling returns on a nominal basis?

SUM UP of the Box Ten Ltd basic answer to the above questions:
We believe that:
* The current commercial framework is insecure regarding what should be done when theft occurs on the networks,
* The matter of theft can be sorted out using Patent GB2309086 to assist Networks identify exceptional localities of theft, and hence minimise them,
* Unless the matter of theft is properly regularised, any conclusions arising from a discussion of the "financing" questions can only be considered to be provisional, and perhaps an unfruitful use of time, due to the unnecessary uncertainties about future cash flows.

ENDS