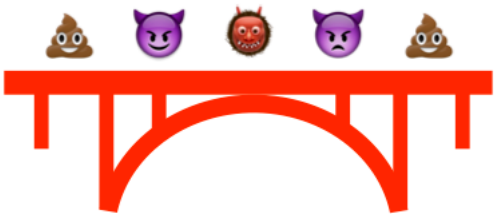


# The Evil Viaduct Company Limited

To: Holders of viaduct capacity agreements

9 September 2014

Dear Colleague,

## Charges for use of viaduct and for viaduct development

1. Lucifer[1] has asked us to produce methodologies to set forward-looking economic charges for the use and development of the railway viaduct. This comes in a context where the capacity available on the viaduct is fully used and we are aware that there is demand from train operators for additional capacity.

### Our deal with Lucifer

2. Our eight-year deal with Lucifer is the main driver of our business.

3. Lucifer has set a revenue control for us. This applies to the total revenue from all our bridges and crossings. Our revenue allowance does not reflect business growth. It includes an element of cost pass-through, but this is restricted to about half of any additional expenditure. This gives us an incentive to deter business growth by our customers. Lucifer says that it encourages us to cut our costs and be more efficient.

4. We cannot serve two masters. Our mission is to serve Lucifer, and we get many worldly goods in exchange. The interests of individual customers are secondary to us. We are writing to our customers now because Lucifer asked us to.

### How much does it cost to build a viaduct?

5. Table 1 shows estimates of viaduct building costs.

**Table 1 Business plan estimates for reconstruction or upgrade projects**

| | Investment required (£ million) | Capacity created |
|---|---|---|
| Widen the existing viaduct from two tracks to three tracks | 800 | 1 track |
| Rebuild the two-track viaduct using existing land rights | 1,000 | 2 tracks |
| Build a three-track viaduct using existing land rights | 1,400 | 3 tracks |
| Secure new land rights and build a similar viaduct or tunnel | 3,000 | 2 tracks |

[1] References to Satan and Lucifer are used interchangeably in this document. Satan refers to the Prince of Darkness. Lucifer supports Satan in its day-to-day work.

## Principles and methodology for viaduct development charges

6. Lucifer said that we should start with reforming our viaduct development charges. The policy that we have implemented with Lucife's consent is to charge, as a capital contribution, the full amount invested in any user-led viaduct development.

7. An exception to this full-cost rule is in cases where several users or prospective users are contributing to the same capacity increase, in which case we use an apportionment method.

8. For example, a user requesting all the capacity created by widening the viaduct to three tracks would have to pay £800 million upfront. A user requesting only half of the capacity released by the widening would pay £400 million, unless we decide that the rest of the capacity is not likely to be used by someone else. Any new or increase usage would be subject to our normal use of viaduct charges.

9. We are aware of viaducts in other countries which offer tariff support rebates against viaduct development charges, and/or make asset adoption payments that reflect the additional use of viaduct revenues that they expect to earn from additional viaduct use enabled by a capacity increase. We do not have any similar arrangements, because any additional revenue that we might receive for use of viaduct is taken into account in our Lucifer revenue control and therefore we do not actually receive any financial benefit from additional viaduct use. We do have some dim memory of a time where some elements of use of viaduct revenue were excluded from the revenue control in order to avoid this perverse incentive, but as we do not care about unlocking investment to allow customer growth we are not trying to bring that back.

10. We operate a use-it-or-we-steal-it policy. If you have sponsored new capacity, but end up using less than 75 per cent of it for more than six months, then we will cancel the unused part of your rights, with no compensation, and let someone else use the capacity. We do this because Lucifer has told us that we needed to in order to prevent anti-competitive hoarding by our customers. If you subsequently decide that you would like to use all the capacity that you had sponsored, then you may find that you have to pay us an additional viaduct development charge, as you would be using a new tranche of apportioned investment. Please note that we do not allow any transfer of capacity to other train operators. Whilst viaduct development charges are required before we will grant you the privilege to use our viaduct, by paying viaduct development charges you are not purchasing any *right* to capacity.

## Issues and relevant objectives for use of viaduct charges

11. We have been through years of debates with Lucifer and other viaduct operators to develop a methodology for use of viaduct charges based on forward-looking costs.

12. We have heard that some people are advocating a non-economic approach to charging which would involve charging a reasonable rate of return on the rebuilding cost of the viaduct. Based on the price control rate of return of 5.5 per cent and an allowance of 1.5 per cent for other expenses, the non-economic approach would produce charges of £70 million a year.

13. Our standard unit of viaduct capacity is the microtrack (µt). A two-track viaduct provides 2,000,000 µt, and therefore the tariff from the non-economic approach would be £35/µt/year.

14. Compare this with reinforcement costs:

    (a) The annuitised unit cost of widening the viaduct to three tracks would be £56/µt/year. This is based on a revenue requirement of (5.5% + 1.5%)*£800 million, i.e. £56 million, for a capacity increment of 1,000,000 µt.

    (b) The annuitised unit cost of a second two-track viaduct would be £105/µt/year. This is based on a revenue requirement of (5.5% + 1.5%)*£3,000 million, i.e. £210 million a year, for a capacity increment of 2,000,000 µt.

15. It is clear from these figures that a capacity charge of £35/µt/year would be below the economic cost and the economic value (measured on a forward-looking basis) of investment in viaduct capacity.

16. Lucifer has taken advice from the best economists, and has concluded that a backward-looking non-economic approach giving a use of viaduct charge of £35/µt/year would be economically inefficient because it would not produce prices that reflect the forward-looking cost of increasing viaduct capacity.

17. Lucifer has asked us to develop an economic charging approach that will ensure that prices for use of viaduct reflect forward-looking costs of increasing viaduct capacity.

## Our economic charging approach

18. Our assessment of options to meet Lucifer's objectives has been based on the following criteria (which we have agreed with Lucifer):

    (a) The use of viaduct charge must rise to cover the annuitised unit cost of capacity expansion when investment in increasing viaduct capacity would be required to meet any growth in demand.

    (b) The use of viaduct charge must be low if there is a lot of spare viaduct capacity.

    (c) On broad average across heavily used and less heavily used infrastructure, the use of viaduct charge should give a reasonable return on assets used.

19. The method that performed best against these criteria involves the following steps:

    (a) Calculate the time T1 until the viaduct is full, assuming 1 per cent annual demand growth rate.

    (b) Calculate the time T2 until the viaduct would be full if an additional 5,000 µt were in use today.

    (c) The price in £/µt/year is then set such that the revenue that would be raised by applying that price to 5,000 µt would, in net present value terms over 40 years using a discount rate of 4 per cent, balance our the difference between investing

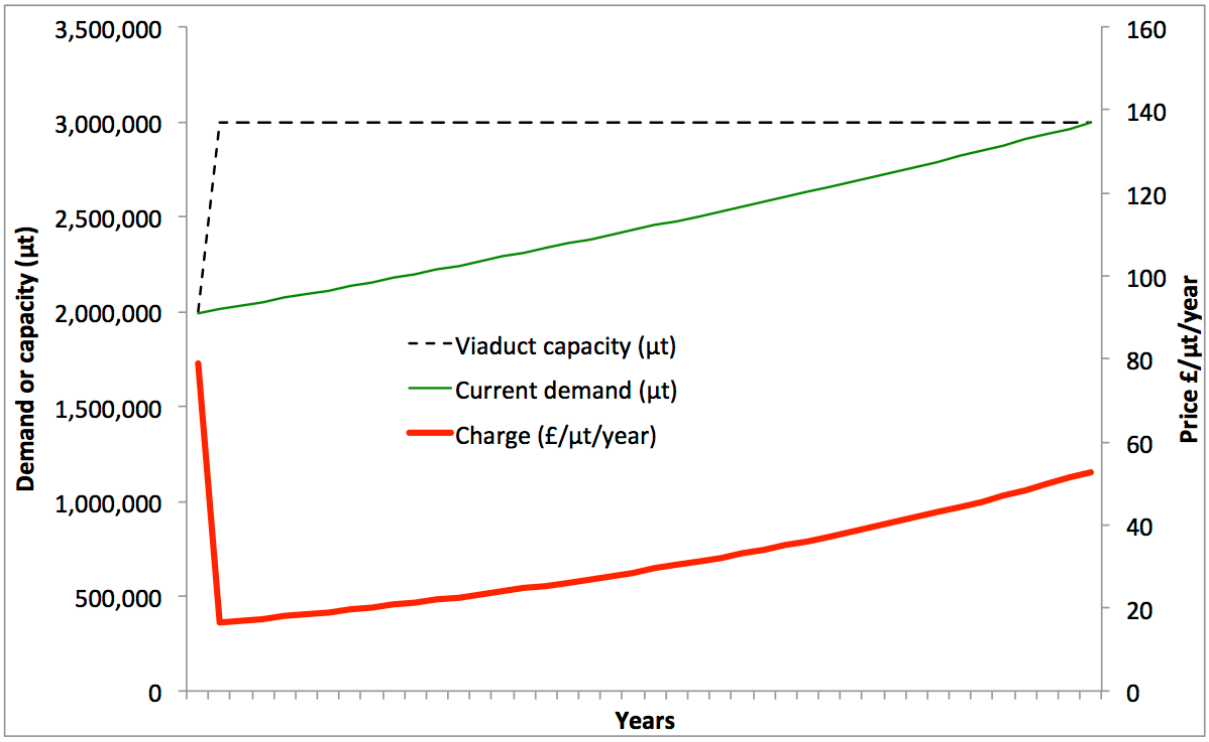
in additional viaduct capacity at time T1 and investing in additional viaduct capacity at time T2.

20. This method is robust to changes in the size of the notional increment. If an increment of 100 µt were used instead of 5,000 µt, then the price would only change from £79/µt/year to £78/µt/year.

21. The discount rate of 4 per cent reflects the latest determination of a vanilla rate of return made by Lucifer. It is lower than the 5.5 per cent rate of return that had been suggested to us for a non-economic charging approach, because Lucifer allows us to charge on the basis of a regulatory asset value that grows faster than inflation.

22. Figure 1 shows how our methodology would operate over the next investment cycle (assuming demand growth of 1 per cent a year).

**Figure 1 Illustration of our charging methodology over an investment cycle**




23. To meet objective (a), our tariff needs to be high now, since capacity is constrained at present. In particular, it should not be less than the annuitised unit incremental cost of the most efficient investment in increased capacity, viaduct widening, i.e. £56/µt/year. Our methodology meets this objective by charging £79/µt/year.

24. Objective (b) is met as our price is modelled to drop to less than £20/µt/year immediately after the investment is made, at which time we will have spare capacity of 1,000,000 µt.

25. We think that applying objective (c) to our circumstances places the focus on the next investment cycle for the viaduct, which is widening to three tracks. To meet the "broad average" objective, we should set charges such that on average over the next cycle the charges will provide a reasonable return. To calculate the target average price over the cycle, we have started from the reconstruction cost of the widened viaduct, £1,400 million. Over the cycle, the capacity used will rise from the current 2,000,000 µt up to the 3,000,000 µt that the widened viaduct can provide. This gives us an average asset value of the order of £550/µt. To cover costs and provide a reasonable return on average the price should broadly average around £35/µt/year. As shown in figure 1, our charging methodology meets this requirement.

## Our response to the representations made on our draft methodology

26. Table 2 provides our comments on points raised in responses to our consultation on a draft of the methodology.

**Table 2 Comments on consultation responses**

| Response to our consultation | Our comments |
|---|---|
| Criterion (c) is not met because the average charge is higher than £35/µt/year. | We have amended our methodology by reducing the discount rate from 5.5% to 4%, in line with Lucifer's most recent vanilla cost of capital. |
| Charging train operators today for the costs of widening the viaduct for the benefit of train operators in the future is irrational and unlawful. | Lucifer has required us to set charges that reflect forward-looking costs. |
| There is double charging between viaduct development charges and use of viaduct charges. For example even if I pay £800 million to get the viaduct widened in the next few years, then today I still have to pay a use of viaduct charge that reflects the same costs. | Noted. |
| It is odd that your total revenue from the viaduct should reduce when you invest in increasing viaduct capacity. | This seems a natural consequence of criteria (a) and (b), which have been agreed with Lucifer. |
| I am not sure that I understand how the incentives for train operators are supposed to work. Either train operators react on an individual short-term basis, in which case the current high prices will lead to lower demand and the investment will never be undertaken (whether or not it would have been efficient); or a group of train operators decides to take a longer view and pay the high charges for a few years in order to force investment and then benefit from sharply reduced charges (again, whether this is profitable for train operators has nothing to do with whether the benefits of the investment exceed its costs). | Lucifer's expert economists have confirmed that they are comfortable with these incentives. |
| The methodology is complicated and seems very sensitive to assumptions such as the growth rate. The resulting charges are volatile and unpredictable. This makes it unduly difficult for us to plan our business. | Noted. |
| I could not understand your methodology. | Nor could we. |

## Governance of our methodology

27. We have adopted an open governance regime for our new methodologies, based on the following principles. Anyone can raise a proposal to change the methodology. We will help interested parties develop alternatives by supplying any information and assistance that they need. We will provide independent experts to contribute to methodology development working groups. Once a change has been developed, a report will be voted on by all parties and sent to Lucifer for final decision.

28. Table 3 gives more detail on how we will implement these principles.

**Table 3 Implementation of open governance principles**

| Principle | Implementation details |
|---|---|
| Anyone can raise a proposal to change the methodology. | This does not apply to people who might be liable for viaduct development charges, or to passengers affected by use of viaduct charges, unless they have their own pact with Lucifer. |
| We will help interested parties develop alternatives by supplying any information and assistance that they need. | If any real alternative is put forward then we will withhold information in order to make it more difficult for it to be developed. |
| We will provide independent experts to contribute to methodology development working groups. | Our experts will only take part in meetings if they have nothing more important things to do (like licking Satan's boots). |
| Once a change has been developed, a report will be voted on by all parties and sent to Lucifer for final decision. | Voting excludes the people likely to pay for viaduct development charges and passengers who are affected by use of viaduct charges. |

29. This letter is confidential. The information in this letter is exclusively for the use of holders of viaduct capacity agreements. You can rest assured of our commitment to maintaining barriers to entry from competing train operators though a high level of opacity in our charging arrangements.

Yours sincerely,

**Evil Franck**
**Commercial Director**
**The Evil Viaduct Company Limited**