Office of Energy Regulation

ANNEX B TO THE METHOD DECISION

Number: 100947-82.

Subject: Annex B to the decision approving the method for determining the price cap to promote efficient operations, pursuant to section 41 (4) of the Electricity Act of 1998.

1   Introduction

1.   This is the explanation of the formulas in Annex A. Annex A contains a description of the method by which the price cap (hereinafter "the x factor") is calculated for the electricity grid managers and applied in determining the tariffs of the electricity grid managers, excepting the manager of the national high-voltage grid (hereinafter "the grid managers"). This Annex B is part of decision 100947-82 of 11 September 2003.

2.   From the start of the second regulatory period, DTe will introduce yardstick competition as the means of regulating the tariffs of electricity grid managers. Yardstick competition results in a generic price cap on the tariffs of all grid managers. In the system of yardstick competition, the price cap is based on the general, average change in productivity of the grid managers which participate in the system. Yardstick

competition aims to emulate the operation of competitive markets.[1] By using the system of yardstick competition, DTe will create a playing field on which the grid managers can compete with each other. The grid managers, which were efficient in 2003, determine the general change in productivity. The system of yardstick competition is described in the information and consultation document "*Maatstafconcurrentie, regionale Netbedrijven Elektriciteit, tweede reguleringsperiode*" ["Yardstick Competition, Regional Electricity Grid Companies, Second Regulatory Period"] published by DTe in November 2002 (hereinafter "the consultation document").

3.   The change in productivity is the difference between the change in costs and output in a certain period. In all instances, 'costs' are understood to be 'standardised economic costs'; in other words, costs including an allowance for the cost of capital for the providers of capital to cover interest charges and the risk of investment (hereinafter "the cost of capital allowance") and depreciation. The cost of capital allowance and depreciation are both based on standardised asset values, as set out in decision 101496/65.O191 of 4 June 2003 determining the x factor for the first regulatory period (hereinafter "the x factor decision for the first regulatory period").

4.   DTe is of the opinion that a system of yardstick competition is the best way of providing the regulated grid managers with sufficient incentives to operate efficiently. Companies which perform better than other grid managers achieve above-average profitability, while companies which perform below average achieve lower profitability. Every grid manager experiences a continuous incentive to operate as efficiently as possible and by doing so to keep abreast of or outperform the competition. In addition, any sector-wide cost increases result in a lower x factor, as a result of which grid managers are compensated for such sector-wide additional costs in the tariffs.

2   Determination of the allowable revenue

5.   DTe determines the tariffs of the grid managers in accordance with section 41 of the Electricity Act of 1998 (hereinafter "the Electricity Act"). These are all the tariffs for the various sections of the grid and for the various cost drivers, as determined in the tariff structure (hereinafter "the Tariff Code") referred to in section 36 of the Electricity Act. The sumproduct of all these tariffs and the cost drivers to which they apply determines the allowable revenue for the grid manager. The allowable revenue determines the maximum that a grid manager may charge on the basis of set standard volumes of the cost drivers. The point of departure for the standard volumes of the cost drivers is the volume of the cost drivers invoiced by the grid managers in 2000. A contribution to the allowable revenue has not been calculated for components of tariffs which were not yet charged in 2000 (formula 1).

6.   The standard volumes on the basis of the volumes realised in 2002 will be adjusted as follows. Initially, the volumes realised in 2002 will be used as the new standard volumes. However, in order to establish a

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[1] The system of yardstick competition used by DTe is an adaptation of Shleifer, *Rand Journal of Economics*,Vol. 16, No. 3, Autumn 1985.

link to the calculated allowable revenues, these new standard volumes will be scaled in line with the ratio of the allowable revenue for 2002 and the standard volumes for 2002 to the allowable revenue for 2002 and the standard volumes for 2000. The principle applied in this regard is that the standard volumes are adjusted in such a way that the allowable revenue for 2002 with adjusted standard volumes is equal to the allowable revenue for 2002 with the standard volumes for 2000.

7. The point of departure for the second regulatory period is the allowable revenue for 2003, as determined in the x factor decision for the first regulatory period.

8. The allowable revenue is adjusted annually in line with the change in the consumer price index and the price cap (hereinafter "the x factor"). To keep the formulas as legible as possible, the adjustments in line with the consumer price index, which have to be made in accordance with section 41 (3) of the Electricity Act, have been left out in this description of the method (formulas 2 to 4).

9. In yardstick competition, the x factor is based on the general change in productivity within the sector during the regulatory period. Since this is not known beforehand, DTe makes an estimate beforehand of the average general change in productivity that will be realised in the sector. The general change in productivity is measured at the end of the regulatory period.

10. The use of the general change in productivity measured in calculating the allowable revenue (formulas 5 to 7) results in an adjustment of the allowable revenue (formulas 8 to 10). The difference between the allowable revenue calculated beforehand and that calculated afterwards is settled in the following regulatory period. Both customers and grid managers are therefore not dependent on DTe's estimates. Including the difference in tariffs afterwards avoids the negative consequences of incorrect estimates of the general change in productivity that will be realised. A failure to correct erroneous estimates could result in unintended surplus profits or losses on the part of grid managers.

11. The interest on outstanding tax liabilities, pursuant to section 30 (5) of the State Taxes Act [*Algemene Wet inzake de Rijksbelastingen*], is calculated (formula 11).

3   Estimate of the x factor

12. The x factor to be imposed on each individual grid manager in the second regulatory period consists of two components (formula 12):
    a.   a generic price cap with the aim of ensuring that a general change in the productivity of the sector is passed on to customers; and
    b.   an individual price cap with the aim of ensuring that all grid managers reach the same efficient cost level at the end of the second regulatory period.

3.1 Generic price cap

13. The generic price cap for the second regulatory period is estimated to be 1.5 percent per annum.

3.2 Individual price cap

14. After the Electricity Production Sector Transition (Amendment) Act [*Wet tot wijziging van de Overgangswet Elektriciteitsproductie sector*][2] came into force in August 2003 [PM date], which also amended the Electricity Act, it is possible to determine an individual x factor for each grid manager, pursuant to section 41 (3) Electricity Act. An individual price cap ensures that all grid managers have an allowable revenue at the efficient cost level. The efficient cost level of a grid manager is the level at which individual inefficiencies and surplus profits are eliminated.

15. The individual price cap is spread across the entire second regulatory period and is imposed on the allowable revenue up to and including 31 December 2006. DTe therefore gives grid managers six years, the first and second regulatory periods, to implement any changes which are necessary to their operations.

16. The objective with regard to the level of efficiency is determined by a benchmark for the standardised costs of the grid managers. Using the benchmark, it is possible to determine how large the individual price cap should be to ensure that all grid managers reach the same level of efficiency (formula 13). The results of the benchmark are set out in the x factor decision for the first regulatory period in the parameter DEA2000. The multiplication of DEA2000 by the costs of the grid manager provides the grid manager's efficient costs in 2000. In the case of an efficient grid manager DEA2000 = 1.000. In the case of inefficient grid managers DEA2000 < 1.000. The present value of this level in 2003 is obtained by applying the general change in productivity between 2000 and 2003 applicable to all grid managers.

17. To make it possible to compare grid managers, standardised costs are used for the benchmark. The standardised costs consist of:
    a. operating costs;
    b. depreciation of standardised asset values; and
    c. cost of capital allowance for standardised asset values.

Operating costs
18. In determining the change in productivity, DTe considers all costs to be controllable—so-called 'non-controllable' costs may be passed on directly to customers—unless they satisfy the conditions applicable to investments, as referred to in section 40 (2) of the Electricity Act.

19. One of the advantages of the system of yardstick competition is that factors which are normally regarded as exogenous—and would therefore result in 'non-controllable' costs—are rendered endogenous. After

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[2] Bill, 28 174, passed by the Upper House of the Dutch Parliament on 8 July 2003.

all, the increase in costs caused by a factor which is normally regarded as exogenous result in a fall in productivity and therefore in a lower x factor. Through the system of retrospective settlement, grid managers can be compensated for additional costs retrospectively. In the same way, additional increases in productivity can also be discounted.

20. The advantage of yardstick competition assumes that the participating grid managers are exposed to external influences in the same way. During the second regulatory period, DTe will carry out research into the existence of possible objective regional differences, as referred to in the Parliamentary proceedings, which justify the increases or reductions in tariffs. If this research gives cause for this, this will have consequences for the objectives with regard to tariffs in the third regulatory period.

21. Furthermore, there are alternatives to the costs which the grid managers refer to as 'non-controllable'. By taking these costs into account in determining the change in productivity, grid managers are given an incentive to opt for the cheapest alternative.

Depreciation
22. The asset base is standardised to avoid differences between grid managers with regard to depreciation periods and the valuation of assets. By means of this standardisation, the grid managers can be compared and a benchmark can be applied. The depreciation periods and differences in the various categories of assets are set out in the x factor decision for the first regulatory period.

Cost of capital allowance
23. The grid managers are given the opportunity to achieve a reasonable return in the form of a weighted average cost of capital (hereinafter "WACC") on the historic invested and standardised capital.

24. The WACC is determined using the Capital Asset Pricing Model (hereinafter "CAPM"). In this model, the parameter beta is an indicator of the extent to which the value of the company is linked to the value of the entire equity market. Beta is therefore a measure of the risk of a company's activities.

25. In principle, DTe is of the opinion that under a stable system of yardstick competition the beta may be lower than the beta in the first regulatory period. After all, in the system of yardstick competition grid managers are in any event compensated for increases in costs experienced by the entire sector. This is an important reduction in the risk of the electricity grid management sector. In addition, DTe strives to introduce yardstick competition for the long term, so that there is also a decrease in the risk of a change in the system of regulation. For the first regulatory period, a beta between 0.3 and 0.5 was used to calculate the WACC. For the time being, the same beta will be used because the sector is still in a transitional phase to yardstick competition. The actual WACC, including a correction for corporation tax, is set at 6.6 percent. In the course of the second regulatory period, research will be carried out into whether and to what extent the beta and the WACC can be adjusted in the third period.

4 Recalculation of the x factor at the end of the regulatory period

26. In the system of yardstick competition to be applied, the generic price cap used in a regulatory period is determined on the basis of the actual change in productivity realised and the change in productivity measured by DTe in all years of the regulatory period, except the last year, and the last year of the preceding regulatory period.

27. The measurement of productivity is used for two purposes:
    a. to determine the x factor for the following period; and
    b. to determine corrections to the allowable revenue for the current period.
    The productivity measurement must be known before the start of period p for both purposes. The results of the last year of period p-1 cannot therefore be taken into account. This is solved by including the last year of period p-2 in the calculation of the general change in productivity (formula 14).

5 Calculation of the general change in productivity at the end of the regulatory period

28. Productivity is defined as the quantity of output per quantity of input per unit of time. The change in productivity is defined as the difference between the growth in output and the growth in input of a company in a certain period.[3] For grid managers, the input is expressed in their costs.[4] The composite output is used for the output of the grid managers.

29. The change in productivity has both a volume and a cost aspect. After all, productivity can be increased by producing a higher volume of services or products while costs are kept constant, or by producing the same volume of services or products at lower cost.

5.1 Costs in the measurement of the general change in productivity

30. The costs included in determining the general change in productivity for the years 2003, 2004 and 2005 are the same as those taken into account in determining the individual price cap above for the second regulatory period. The costs consist of three components:
    a. operating costs;
    b. standardised depreciation of standardised asset values; and
    c. the cost of capital allowance for standardised asset values.

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[3] See also the consultation document, chapter 2.
[4] These are therefore the standardised economic costs, as defined above.

It should be noted that a category of 'non-controllable' costs is not used. All costs are included in determining the change in productivity (see also paragraphs 17 to 25 above).

5.2 Composite output in the measurement of the general change in productivity

31. After consultation with the grid managers, DTe has opted to measure the change in productivity by means of the Total Factor Productivity (hereinafter "TFP") method. The output parameter for the TFP method is the composite output. the composite output is a calculation of the realised sales, for instance in kilowatts and kilowatt hours, on the various sections of the grid expressed in euros. The composite output is calculated by weighting the output of the individual grid manager per section of the grid and the submarket on the basis of the sector tariffs. This can be compared to calculating the allowable revenue (see paragraph number 4), where the sector tariffs are used as the tariffs. This takes into account the grid configuration as a possible relevant factor mentioned in the Parliamentary proceedings.

32. Although the term used for the standing charges for the connection service may correspond from one grid manager to the next, the definition used by the grid managers often differs. It is therefore not possible to determine sector tariffs for these tariffs. However, standing charges for the connection service are included in the composite output in the following manner: the sector revenues for standing charges for the connection service are determined and allocated to the grid managers in proportion to their market share in 2000. The result for each grid manager is added to the composite output determined earlier for the respective grid manager.

33. The part of the composite output for the standing charges for the connection service are determined after 2000 as follows: the ratio of the turnover of grid manager i in year t and the sector revenue in 2000 are first determined and then multiplied by the sector revenue for standing charges for the connection service in 2000. This results in the part of the composite output for standing charges for the connection service for grid manager i in year t. This method ensures that the prices remain at the price level for 2000—the composite output throughout the years remains comparable—and that the composite output for standing charges for the connection service increases in proportion to the revenue of every grid manager.

34. The general change in productivity of the sector is equal to the weighted average of the change in productivity of all efficient grid managers. In the case of every grid manager, this is equal to the relative change in productivity before the start of the measurement period and at the end of the measurement period. Productivity in this regard is expressed as the cost per composite output for every grid manager.

35. The general change in productivity in the sector must meet the condition that the allowable revenue of the sector at the end of the regulatory period is cost efficient (assuming the existence of efficient grid managers). This condition is referred to as the individual rationality constraint.[5] If this condition is not

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[5] Consultation document, Annex 1.

met, there will be no providers of capital for the electricity grid management sector. This means that the allowable revenue of the sector at the end of the regulatory period must be equal to the total costs incurred by the sector in that year. This allowable revenue can be described in terms of prices in 2005 (and volumes in 2005) or in terms of prices in 2002 (and volumes in 2005). In the second case, the average change in productivity in the sector must be included, so that the total costs of the sector are covered by the allowable revenue in 2005. In the first case, this is not necessary because the prices in 2005 (and volumes in 2005) are used to determine the allowable revenue, which must be equal to the total costs of the sector. However, prices that reflect costs are not known in 2005; these prices are based on an estimate of the average change in productivity. The second option is therefore the only option for satisfying the individual rationality constraint, and for measuring the average change in productivity in the sector (formula 17).

6 Determination of the efficient grid managers which participate in the determination of the general change in productivity

36. The measurement of the general change in productivity described above only applies to those grid managers who were already cost efficient at the beginning of the year in which the first measurement took place.

37. If non-efficient companies were to be included in the measurement, this would give rise to a distorted picture of the general change in productivity. After all, a company which is not yet efficient can realise productivity improvements more easily than a company which is already efficient[6] (see also paragraph 9 of the method decision).

38. The efficient cost level is actualised annually by adjusting this level using the generic x factor and is expressed per unit of composite output which every grid manager supplies to its customers.

39. A grid manager is in any event efficient if in 2002 its cost per composite output is less than, or equal to, the actualised efficient cost level. The actualisation is necessary because a general change in productivity has occurred since the determination of the efficient level on the basis of data from 2000, which also applies to efficient grid managers. A grid manager who had a DEA score van 1.000 in 2000 also belongs to this group, in accordance with the x decision for the first regulatory period. A sufficiently representative cross-section of the electricity grid management sector must belong to the group of efficient companies.

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[6] Consultation document, paragraph 2.8.

40. A grid manager which is efficient continues to participate in the determination of the general change in productivity. Deterioration in productivity may therefore occur as a result, for instance because the entire industry acquires an additional task or has to make certain investments.

41. The grid managers which are efficient within the given definition are included in determining the measurement of the general change in productivity for 2003, 2004 and 2005.

7 Deviation from the standard method in the second regulatory period

42. In the first regulatory period in which yardstick competition is introduced (2004 to 2006), DTe will allow the grid managers some time to become accustomed to the system and to accommodate any uncertainties in the design of the new system. This will be done by means of two adjustments to the standard method described above for the second regulatory period. The two adjustments are:
    a. the correction to be made for the estimation error will be adjusted downwards once by 0.5 percentage points; and
    b. half of the correction to be made for the estimation error for the years 2003, 2004 and 2005 will be determined by the change in costs measured and the other half by the general change in productivity measured.
    This partly determines the level of the amount to be settled in the third period. The financial advantage[7] to grid managers is therefore limited to the start-up phase in the second regulatory period (formula 22).

43. Since the general change in productivity is based on data of a limited number of grid managers, this may be distorted by differences in accounting rules between grid managers. In the course of the second regulatory period, uniform regulatory accounting rules will be introduced. Until these regulatory accounting rules have been introduced, the correction of 0.5 percentage points will help to absorb any negative financial impact on the grid managers of the above-mentioned distortion. By amending the regulatory accounting rules, it is possible that costs in a particular year may not be comparable to costs in a later year. A correction will have to be made for this.

44. In addition, the liberalisation of small consumers is provided for in the second regulatory period.[8] The liberalisation is expected to result in additional costs for grid managers. The adjustment by 0.5 percentage points provides grid managers with financial room to cover the costs expected above.

45. The effect on volumes of the change in productivity is important, particularly in sectors with high fixed costs—such as the electricity grid sector—where capacity utilisation of assets is an important parameter

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[7] This is the case as long as the average change in costs is at most 1.0% higher than the average change in productivity. The average change in costs is higher than the average change in productivity if the composite output for 2005 is lower than the composite output for 2002.
[8] The Minister of Economic Affairs announced the liberalisation of the market for small consumers on 1 July 2004.

of efficiency. Capacity utilisation, however, is also a decisive parameter with regard to the quality of the services provided by grid managers. Capacity utilisation partly determines the probability of interruptions in electricity supply. A strong emphasis on this parameter could result in poorer quality of service by grid managers. To prevent this, quality regulation will be introduced in the second regulatory period. Up until this time, the general change in productivity will only be based partly on capacity utilisation, so that the incentive to increase utilisation of the grids is restrained to some extent.

8 Considerations with regard to the continuity of regulation

46. In the system of yardstick competition which is to be applied from the second regulatory period onwards, the (estimated) generic price cap for every subsequent regulatory period will be based on the measured change in productivity of the preceding period minus the last year and including the last year of the period preceding this. By using the most recently measured change in productivity, DTe expects that this will be the most accurate estimate and will result in the least possible subsequent retrospective settlement. In this way, the estimates determined in the generic price cap may possibly be corrected, if there is a need for this. This will result in a transparent system for the long term, so that grid managers will obtain certainty with regard to the way in which they will be paid for their services. Striving for continuity within the system is an inherent part of yardstick competition.