

Appendix 1: Guidelines for Data Preparation

Financial year as appropriate for each country

Amounts in units of a million, in the currency of the country concerned.

All numbers are based on Historical Cost Accounting principles

Distribution/Transmission

	Notes	Utility X
Operating costs per company law accounts	2	0.0
less:		
Cost of sale	3	0.0
Transmission system exit charges	4	0.0
Business rates	5	0.0
Licence fees		0.0
Depreciation and amortisation of tangible fixed assets		0.0
Employers employment taxes (state or federal)	6	0.0
Total		0.0
Controllable operating costs		0.0

Notes:

1. Operating costs are all the costs of running the business excluding those elements related to the taxation and financing of the business e.g. interest, tax and dividends.
2. Operating costs WILL INCLUDE exceptional and extraordinary items to improve consistency. Any large one-off costs (over £5m), are separately identified.

3. Costs of sale for the distribution business are the costs of connecting onto the transmission system and any costs for using the transmission system.

Examples of the types of costs to be included in cost of sales and therefore excluded from controllable costs are:

- Purchase of electricity to balance the system
- Payments to power stations for services eg independent start-up capability
- Availability payments

Examples of the types of costs to be excluded from cost of sales and therefore included in controllable costs are:

- Staff costs of demand management
- Costs of repairing and maintaining the system.

4. Transmission system exit charges are the connections charges that the distributor pays to the transmitter to be connected to the transmission system.

5. Business rates are the taxes (income tax or federal tax) paid to local governments.

6. Employment taxes are the employment taxes payable by the employer and are often referred to as employers social security contributions. The social security contributions payable by the employee will still be included in controllable costs as they are part of the gross salary payable to the employee.

7. All the above numbers should exclude VAT.

8. Income or corporation taxes, whether state or federal should also be excluded.
9. No interest, return on capital or finance costs - either receivable, payable or relating to leases should be included.
10. Outline how overheads are allocated, charged or apportioned between the different activities of the business.
11. "Special devaluation of the assets" (ie goodwill) is excluded.
12. Do not include any amounts based on Current Cost Accounting principles, such as gearing adjustments, Monetary Working Capital Adjustments.

Controllable staff costs

Aim: To exclude national insurance contributions/employment taxes from staff costs.

Problem: Not all of the accounts in the countries concerned disclose the national insurance contributions/employment taxes.

Solution: Using the accounts disclosures in the UK as an example:

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Final Report, May 2001*

Wages and salaries (The amount you actually pay the employers)	A	100
Social security costs (National insurance contributions/employment taxes at say 10%)	B	10
Pension contributions (say at 12%)	C	12
Total staff costs per accounts	D	122
Controllable staff costs for benchmarking project	A + C	112

Therefore:

If you know total staff costs and the national insurance contribution/employment tax rate you can calculate the social security costs and then controllable staff costs.

If you know average salaries and the number of employees then you can calculate wages and salaries then by making an assumption about pension costs you can obtain controllable staff costs.

Capital Expenditure

	Notes	Utility
Capital expenditure per company law accounts	1,2,3,4,5	0.0
Less:		
Interest/finance charges capitalised		
Overheads capitalised		
Social Security Costs		0.0
Allowable Capital Expenditure		0.0

Notes:

1. Capital expenditure should be taken from the tangible fixed asset note in the company law accounts and should be:
Gross additions to tangible fixed assets less: Customer contributions
2. Historical cost valuations should be used.
3. Revaluations of tangible fixed assets will not be included.
4. Outline the capitalisation assumptions eg whether IT software costs are capitalised or included in operating costs.
5. Customer contributions refer to the contribution a customer makes to the capital cost of connecting their premises to the network.

NB:

The normal yearly connection charges that customers pay to the distribution company will be included in the distribution companies accounts as income, therefore they are outside of the scope of this information request.

Workings

Unadjusted Controllable Costs	0.0
Less:	
Non-Operational Depreciation	0.0
Social Security Costs	0.0
Net Controllable Costs	0.0

Appendix 2: Country Notes to the Questionnaire and Data

Italy

For the compilation of this questionnaire we used the following assumptions:

- 1) fiscal year: 1997

- 2) company: only Enel (the data for 1997 are available for Enel as a vertically integrated company). We don't use the data for other companies because there are many problems in comparing the information from different companies. In any case, Enel accounts for 94% of transmission (including activity of dispatching and planning of maintenance and development of the transmission grid) and for 93% of distribution.

A) COST INPUTS

NOTE 1: OPERATING COSTS

The level of operating costs is determined using the following items:

- a) Cost of sale:
 - Raw, ancillary and consumable materials and goods for resale (including purchase of electricity);
 - services: from third-parties for maintenance and repairs, telephone, postage and telegraph; consultancy;

- reimbursement of employees' travel expenses;
- other

- use of property not owned or leased and rentals
 - rental and leases,
 - hire costs,
 - grants to local authorities,
 - other

- change in inventory of raw, ancillary and consumable materials and goods for resale.

- b) Personnel costs: these costs are divided into the following items:
 - wages and salaries;
 - social security contributions;
 - provision for employee severance indemnities;
 - other personnel costs;
 - canteen costs.

- c) Depreciation and amortisation of fixed assets: this item includes:
 - depreciation and amortisation of fixed assets computed using technical-economic rates (reflecting the residual useful lives of the related assets) and taking into customers' contributions account;

 - depreciation and amortisation computed using allowed fiscal rates in excess of the technical-economic rates (allowed for fiscal purposes, by current legislation);

The technical-economical rates of depreciation are the following:

ASSET	RATE	Useful life (*)	Average Age (**)	Average Residual Life (***)
Non-industrial buildings	2.5%	40	n.a.	n.a.
Transmission lines	2.85%	35	13	22
Transformer substations	5.0%	20	9	11
Medium voltage distribution networks	5.0 – 5.5%	20 – 18	10	10 – 8
Low voltage distribution networks	5.0 – 5.5%	20 – 18	10	10 – 8

(*) useful life: $1/\text{rate} \times 100$ (it is the period of time over which an asset is expected to be used by the firm)

(**) average age of asset: $\text{useful life} \times (\text{accumulated depreciation} / \text{asset (gross value)})$

(***) residual life: $\text{useful life} - \text{average age}$

- d) Write-downs of fixed assets: this item reflects the losses on disposal of assets sold during the early months of the following fiscal year (1998) and the write off of costs for projects abandoned during the 1997.
- e) Write-downs of current receivables and liquid funds: this items relates to costs for estimated future losses on trade receivables and overdue interest.
- f) Provisions for risk and other provisions
- g) Other operating costs: this item includes various taxes, other than income and capital taxes, losses on the disposal of assets and general operating expenses. The item also includes Directors' and Statutory Auditors' fees.

h) Overheads: the level of overhead costs is very high because the data collected by the Regulated Authority (AEEG) are referred to an integrated firm. As pointed out in the previous questionnaire until the implementation of AEEG's Directive on management and accounting separation, the results presented in the annual report will be referred to the entire company and not divided into activities.

The information used for the determination of the allowed costs and for the compilation of the present questionnaire (referred to the 1997 year) are collected by the AEEG from each firms. The information refers to:

- direct operating costs and direct net invested capital: items allocated by the company to the different electrical activities;
- overhead costs: operating costs and net invested capital not directly allocated by each company to the different electrical activities. The level of overhead costs is about 24% of the total level of the operating cost;
- criteria used by each company to allocate overhead costs and net invested capital to the different activities of the business.

In this questionnaire, the overhead costs are allocated between the different activities according to the same criteria used in the determination of the allowed costs of each activities. These criteria take into account the methodology used by the company and allocate the part of the overhead costs which is not allocated by the company according to the level of controllable operating costs. In particular the overhead costs are allocated

between the different activities of an integrated company with the following ratio:

- generation: 33% of the overhead costs
- transmission: 7% of the overhead costs
- distribution: 47% of the overhead costs
- sales: 13% of the overhead costs

NOTE 2: CONTROLLABLE OPERATING COST

For the determination of the controllable operating costs, the level of the operating costs is reduced by the following items:

- a) Depreciation and amortisation
- b) Business rates: taxes paid by the company
- c) Cost of sale: the costs of purchasing electricity to balance the system, the costs of payment to power stations for services and the cost of availability payment are included in the costs of purchasing electricity that the transmission activity pays to the generation activity (intra-company payments). Also the costs of connecting onto the transmission system and any costs for using the transmission system are included in the costs of purchasing electricity that the distribution activity pay to the transmission activity. Finally also Transmission system exit changes are included in the costs of purchasing electricity. For this reason, the cost of sale is the cost of purchasing electricity.

It is important to underline that for the determination of the allowed costs, this level of controllable costs is also reduced by the following items:

- other income and revenues:
revenues of plant maintenance and repair expenses,
revenues for damages and similar,
income for services rendered to third parties,

revenues of sums due from customers written down in previous years,
other income

The level of this item is Lit. 16.824 million for transmission and Lit. 349.868 million for distribution.

- connection charges paid by customers (Lit. 867.583 million for distribution)
- capitalised production: this item consists of personnel costs (Lit. 881.600 million) and the cost of materials and stocks (Lit. 1.099.500 million) linked to the construction of plants.

The level of allowed costs (which includes depreciation and amortisation) is Lit. 1.175.131 million for transmission and Lit. 6.034.701 million for distribution.

NOTE 3: CAPITAL EXPENDITURE AND CAPITALISATION
ASSUMPTION

a) We don't have information concerning how capital expenditure is divided among different activities of the company because:

- allowed costs don't include a remuneration for capital expenditure but only a fair return on net invested capital;
- annual reports disclose additions to tangible fixed assets divided between the following items:
 - * non industrial items;
 - * transmission lines and transformer substations;
 - * low and medium voltage distribution networks and meters

For the compilation of this part of the questionnaire we assume that:

- capital expenditure in transmission is the level of gross additions of transmission lines and transformer substations as reported in the note to the balance sheet in 1997;
- capital expenditure in distribution is a share of the level of gross additions to low and medium voltage distribution networks and meters.

This share is computed as follow:

$$\frac{\text{Gross fixed assets in distribution}_{1997} - \text{gross fixed assets in distribution}_{1996}}{\text{gross fixed assets in distribution and sale}_{1997} - \text{gross fixed assets in distribution and sale}_{1996}}$$
 where gross fixed assets in distribution and sale are the levels reported in the information sent to the AEGG by Enel.

- b) With regard to the capitalisation assumptions, tangible fixed assets (property, plant and equipment) are recorded at purchase or production costs, including any additional direct costs chargeable to the assets.

The book value of electrical plant also includes interest charged up to December 1988 on the financing of new construction work. Since this date the book value doesn't include interest charges.

Assets are written down to reflect any impairment in value other than temporary ones. The original value, adjusted solely to reflect depreciation, is reinstated in future years should the reasons for such write-downs no longer apply.

Ordinary maintenance expenses that serve the purpose of preserving the assets are charged to income in the year they are incurred. Those that

enhance the value of assets are added to the corresponding assets, as they extend their useful life.

The cost of tangible assets is written off each year on a straight-line basis, taking into account the remaining useful life of the asset and the customer contributions.

The level of fixed assets doesn't include the purchase and development of advanced software application as the costs related to software are recorded by Enel as INTANGIBLE FIXED ASSETS.

NOTE 4: Gross additions to tangible fixed assets

This level is recorded net of customer contributions.

NOTE 5: Interest/finance charges capitalised

No entry because interest charges are not capitalised by Enel. In Italy, interest charges should be capitalised only if they can be directly attributed to the acquisition of the asset or bringing the asset to its working condition. In this case, the notes to the annual report disclose the level of the interest charges capitalised.

NOTE 6: Overheads capitalised

No entry because overheads are not capitalised by Enel. In Italy, general overheads are capitalised only if they can be directly attributed to the acquisition of the asset or bringing the asset to its working condition. In this case, the notes to the annual report disclose the level of the overheads capitalised.

B) OUTPUTS

Calculation of quality of supply variables

Security of supply = $\sum_j \frac{n_j}{N} * 100$ (Number interruptions per 100 customers/year)

Availability of supply = $\sum_j \frac{(n_j * t_j)}{N}$ (minutes/year)

Where:

n_j = number of customer in the *j*th group of customers interrupted;

t_j = duration of the interruption for customers in the *j*th group;

N = total number of customers supplied.

These indicators:

- refer to unplanned interruptions, for any cause;
- include interruptions of duration > 3’;
- include interruptions originated all over the network: EHV, HV, MV, LV;
- are the levels for LV users.

Netherlands

Comments on Dutch data for the CEER study

General information:

Year: 1999

Number of companies: 20, of which 2 companies are pure transmission companies. One of them is the national TSO. 11 companies are pure distribution companies. 7 companies perform both transmission and distribution, however, data on transmission activity cannot be split from data on distribution activity. Previously they were indicated as D-companies, however in the present file they are referred as T&D.

Cost data (expressed in 1000 fl):

All numbers exclude VAT.

In the Netherlands we have separate accounts on electricity and on joint activities, thus, the cost of joint activities is explicitly excluded.

“Controllable OPEX as reported by companies” includes wages, provisions, cost of materials and services and some other costs, in particular some taxes and the part of social security benefits paid by the employer. Depreciation is explicitly excluded.

The most substantial of municipal taxes is “precario rights”. Data on it is not available per company. We estimated the corresponding amounts, assuming that the amount of the tax paid by all companies is 2% of the total amount of OPEX, and using data on length of underground network per company.

Data on the employer part of the social security payments depends on personnel mix and is not available per company. We estimated it for each company as 10.5% of its personnel cost.

Item "OPEX" excludes mentioned above precario and social security payments.

Dutch distribution companies did not pay corporate tax in 1999.

License fees are extremely small, can be neglected.

Cost of sale is excluded.

Capital expenditure (confidential)

Item "Allowable capital expenditure" is given as reported by companies and refers to tangible assets only. It may include "Interest/finance charges", "overhead capitalized" as well as social security cost. However, no separate information on this is available.

Physical data:

Split between residential and non-residential customers

The category "Residential customers" includes two categories of customers ('LV, <3*25A' and 'LV, >3*25A', here LV refers to voltages $\leq 1\text{kV}$, typically 0.4 kV). Non-residential customers are all other customers.

Split between underground and overhead lines

Since in the Netherlands high voltage network ("110 kV or above") is mostly overhead, while the other is almost always underground, we approximated the length of overhead lines as length of lines of 110 kV and

above. Analogously, the length of underground lines has been estimated as length of lines below 110 kV.

Energy losses (confidential)

Most of companies reported data corresponding to the 1st quarter 2000. For those companies the number losses 1999 was estimated as their reported numbers for the first quarter 2000 multiplied by 4 and corrected for the growth of volumes between 1999 and 2000.

However, companies N1, N4, N8 and N12 have reported data on their losses in 1999. The table shows their reported losses in 1999.

No split between T-units and D-units is available.

Quality

Data on number of interruptions is not available. Please, disregard the figures for this indicator submitted earlier, there were inconsistencies in definitions.

Customer minutes lost: (confidential)

We can submit only average CML per company (long unplanned interruptions only) recorded at all voltage levels. These are interruptions due to the own grid.

Note: According to the report of the CEER working group on quality of electricity supply, the countries- participants use rather different definitions for this variable. In particular, there are differences with respect to recording or not recording short interruptions as well as interruptions at LV level, inclusion or exclusion of planned interruptions, etc. (See the report of the quality group.)

Norway

Notes:

Outline calculation of quality of supply variables

Security of supply:

The companies reports the sum of the number of interruptions times the number of reporting points (distribution transformers 22kV/230V) which is influenced by the interruption. Have divided this number with the number of reporting points and multiplied it with 100 to get a proxy for how often an average customer will experience an interruption. 100 means once a year, over 100 means more than once a year and under 100 less than once a year.

Availability of supply:

The companies reports the sum of the duration of an interruption times the number of reporting points influenced. Have divided this number with the total number of reporting points to get the average duration of an interruption for a customer.

Energy not supplied (ENS):

Calculated as the amount of energy that would have been distributed/transmitted if the interruption did not appear. Calculated for all interruption with duration more than 3 minutes.

Spain

SOURCES AND NOTES OF MAIN QUESTIONNAIRE

Data gathering questionnaire

Sources: Annual Report of Endesa and National Energy Commission.

Units of net consumption distributed by each distributor. Currently, the relevant information of units distributed and transmitted by each T&D company is not available. Currently, the electricity trading through connection points among different companies is unknown information.

REE is only a transmission agent. Units distributed by REE correspond to electricity exports.

Data corresponds to the SILAR information (CNE) except for Grupo Endesa (GESA and UNELCO are included) whose information corresponds to Annual Report of Endesa.

Sources: Annual Report of REE and National Energy Commission.

Information about losses among companies is not available. Standard losses are set up by the Ministry of Economy at national level for each total tariff and access tariff. These standard losses are applied to the energy supplied to end consumer meters and determine the net energy volume to which consumers must subscribe at generation market.

Therefore, end consumers pay directly the energy metered and implicitly, the calculated standard losses valued at the generation price.

Distributors assume differences between standard and real energy losses, valued at the generation market price. There is an incentive for distributors to reduce network losses.

Percentages of standard losses are weighted by the consumption distributed by each distributor related to net consumption.

REE energy losses correspond to Annual Report of REE.

Sources: Annual Reports of Companies, Ministry of Economy and National Energy Commission.

There are not available any security of supply indicators.

TIEPI (hours/year) = Time of interruption related to installed capacity. The information corresponds to Annual Reports of Companies.

TIM (minutes/year) = Time of average interruption. It is the ratio between non supplied energy and the capacity of the system. This is the indicator of quality of transmission network taken into account by REE. The TIM for the transmission network owned by REE was 0,001 minutes in 1999. The TIM for the total transmission network of the system was 1,9945 minutes in 1999.

Sources: Annual Reports of Companies, Ministry of Economy and National Energy Commission.

Sources: Annual Report of Endesa and National Energy Commission.

Number of end consumers distributed by each distributor. Currently, the relevant information of consumers connected to T&D network is not available. Data corresponds to the SILAR information (CNE) except for Grupo Endesa (GESA and UNELCO are included) whose information corresponds to Annual Report of Endesa.

(6)Sources: Annual Report of Endesa and National Energy Commission.

Number of residential customers: there are not specific tariffs for users (residential and non residential tariffs). Because of this in this information we included the number of customers in three tariffs (1.0, 2.0, 2.0n) commonly used by household electricity consumers.

Number of non residential customers: this includes the difference between total customers and residential customers.

Sources: Annual Reports of Companies and external information of Companies.

This figure only includes the number of transformers. Positions, substations, reactors and other kind of facilities are not considered here.

Sources: Annual Reports of Companies and external information of Companies.

Capacity of above transformers in MVA.

Employment taxes (state or federal)

The information of the different components of personal costs is available in consolidated statements with integrated activities' accounts. However, specific employment taxes in T& D businesses have been estimated. The same percentage between Employment taxes expenditure and personal costs in the integrated case has been applied in the unbundled T&D accounts. This percentage is around 16,6% of personal costs.

Appendix 3: Overview of the Utilities in the Data Set

No.	Code	Utility
		UK
1	U1	Eastern
2	U2	East Midlands
3	U3	London
4	U4	Manweb
5	U5	Midlands
6	U6	Northern
7	U7	Norweb
8	U8	Seeboard
9	U9	Southern
10	U10	Swalec
11	U11	Sweb
12	U12	Yorkshire
13	U13	Scottish Power
14	U14	Scottish Hydro-Electric
		Norway
15	N1	Viken Energinett AS
16	N2	BKK Nett
17	N3	Ostfold Energi AS
18	N4	Trondheim Energiverk AS
19	N5	Nord Trondelag Elekterisitetsverk
20	N6	Energiselskapet Asker og Baerum Nett AS
21	N7	Troms Kraft Nett AS
22	N8	Vest-Agder Energiverk
23	N9	Stavanger Energi AS
24	N10	SKK Nett AS
25	N11	Aust-Agder Kraftverk
26	N12	Akershus Nett AS
27	N13	Hedmark Energi AS
28	N14	Helgeland Kraftlag A/L
29	N15	Hamar-Regionen Energiverk
30	N16	Hafslund ASA
31	N17	Lyse Kraft
32	N18	Buskerun Nett AS
33	N19	Vestfold Kraft Nett AS
34	N20	Norsk Hydro produksjon AS
35	N21	Sandefjordregionen energiverk AS

36	N22	Haugland Kraft AS
37	N23	Kristiansand Energiverk Nett AS
38	N24	Fredrikstad energiverk AS
39	N25	Drammen Energinett KB
		Netherlands
40	D1	NUON
41	D2	EdelNet
42	D3	DELTA
43	D4	Westland
44	D5	EMH
45	D6	Essent Limburg
46	D7	Essent Brabant
47	D8	Essent Noord
48	D9	Essent Friesland
49	D10	RENDO
50	D11	COGAS
51	D12	ENECO
52	D13	ENBU
53	D14	ONS
54	D15	EZK
55	D16	Weert
56	D17	InfraMosane
57	D18	ENET
		Spain
58	S1	Grupo Endesa
59	S2	Hidrocant Abrico
60	S3	Iberdrola
61	S4	Union Fenosa
		Portugal
62	P1	EDP Distribution
		Italy
63	T1	ENEL Distribution