e3GRID2012

Cost Reporting Guide (Call C)

e3GRID2012 PROJECT

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Disclaimer

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Version history

Version	Date	Status	Concerns
1.0	2012-10-09	Draft	Review NRA+TSO
1.1	2012-10-30	Release	Post review Changes in red to articles 1.07-08 2.09,11,13-15,19 3.08-11 4.09 5.02,16-18 6.02,04,08-10,16

Summary

The development of a transmission system cost benchmarking poses several methodological challenges, but the ultimate quality of the outcome stands and falls with the accuracy and comparability of the reported data on costs and asset base. The e3GRID2012 project pursues improvements in all three dimensions: method, cost data and asset definitions. The underlying principle is based on the functional decomposition, which not only implies consistent and transparent allocation of costs from the integrated transmission operators, but also the notion of a common "base level" grid operation and investment level.

The earlier e^{3}GRID project highlighted a number of critical interfaces between the benchmarked activities and the organizational and accounting reality of the integrated transmission system operators. There is substantial diversity in the way operations are organized, expended and costs allocated, all of which affect the benchmarking. Cost data collection relying directly on actual practices will therefore be arbitrary and incomparable in the separation and allocation of common activities.

This guide addresses this need for an unambiguous cost reporting of in particular the benchmarked activities in construction and maintenance by first defining the transmission service functions, market facilitation, grid planning, system operations, construction, maintenance and ownership. Then, five important principles for the cost reporting are introduced: capitalization, correspondence, separation, verifiability and comparability. The cost-type section of the guide applies the principles to determine the reporting of benchmarked costs in a manner that facilitates reporting, verification and validation by third parties. The guide is closed by giving examples of types of costs with corresponding cost allocation rules and the reporting formats used in e^{3}GRID2012.

Changes in this reporting guide from the Cost Reporting Guide 1.4 from the e^{3}GRID 2008 project are marked in blue color.

Changes from the review version 1.0 are marked in red. Primarily, the changes concern an extended out-of-scope definition for offshore transmission systems, the inclusion and calculation of staff equivalents for external services and some clarifications concerning reinvestments and operation of grid assets owned by third party.

Note that the paragraph numbering differs due to the deletion and addition of some paragraphs.

The deadline for data collection for Call C is ***December, 10th, 2012.***

Table of Contents

1. Introduction

Background

1.01 This Cost Reporting Guide is developed to support the e3GRID2012 benchmarking round for TSOs.

1.02 The aim of the guide is to outline the general principles used and some important choice to be made in the cost reporting. A hands-on-guide for what to report and in which format is included in the cost reporting template. A description of the latter is included in the Appendix A of this guide.

Principles

1.03 The guide concerns the reporting of from the TSO accounting system for use in the e3GRID2012 benchmark. It does not specifically address cost effects of planned or actual quality in grid operation, subject to other data collection.

1.04 Any benchmarking is an imperfect attempt to create comparability across heterogeneous firms with varying investment profile, asset age, technical standards and accounting principles. As such, the results of the exercise cannot be directly used to inform detailed decisions as to the valuation and maintenance of grid assets. Omission of specific costs or functions in the definition of the benchmarked entity does not constitute claim of the past or current possibility to operate the organization with the given resources. This disclaimer is important to highlight when using the final or decomposed results from the e3GRID2012 benchmarking in regulation.

Objectives

1.05 According to the Project Plan, the e3GRID2012 involves a number of data calls for information

a) Operating cost, C
Scope and decomposition of costs to be reported in the benchmarking, methodology and definitions.

b) Asset data, X
Definitions of benchmarked system, asset definitions and data base classification.

c) Output indicators, Y
Data related to system services performed and their valuation.

d) Quality performance, Q
Indicators of service quality in transmission, dimensions and definitions.

e) Operator Specific Conditions and Assets, Z
Guidelines for submission of cost drivers, costs and asset types that have been omitted in calls C, X, Y and Q for some individual operator.

1.06 This guide, the auditing instructions and its associated reporting template constitute Call C (1) above.

Benchmarked period

1.07 In this project, by *benchmarked period for operating costs* is meant the years 2007 – 2011, respectively.

1.08 The *normalized asset horizon (the period for which investments and asset data is to be collected)* is defined as 1965 – 2011 in this project.

2. System description

2.01 The fundamental objective of a transmission system operator is to ensure the electrical stability of the interconnected system so that electrical energy can be transported from generators to distribution networks. The operator provides open access to the transmission system, monitors and controls system operations to ensure a moment-to-moment energy balance, manages congestion, schedules generation (or reviews the technical feasibility of schedules submitted by others), acquires ancillary services such as disturbance reserves and voltage support, and plans or approves requests for maintenance of transmission and generation facilities. Many system operators also administer spot and real-time balancing energy markets. These operators generally perform metering, accounting, settlement, and billing for the markets, but may also initiate, enforce or administer market instruments related to congestion, supply safety and load control.

2.02 By distinguishing seven necessary functions or roles, the autonomy and independency of an operator may be put in a correct context to enable, among other things, performance assessments. The functions are:

X Market facilitation
S System operations
P Grid planning
C Grid construction
M Grid maintenance
F Grid owner/financing
A Administrative support

2.03 The first three functions are strategic functions with long-term impact on system performance. The functions C and M are operational functions with comparatively fewer long-term system-wide impacts. The ownership is normally tightly connected to regulatory and institutional practices. The last function is indirect and delivers no specific service to the grid.

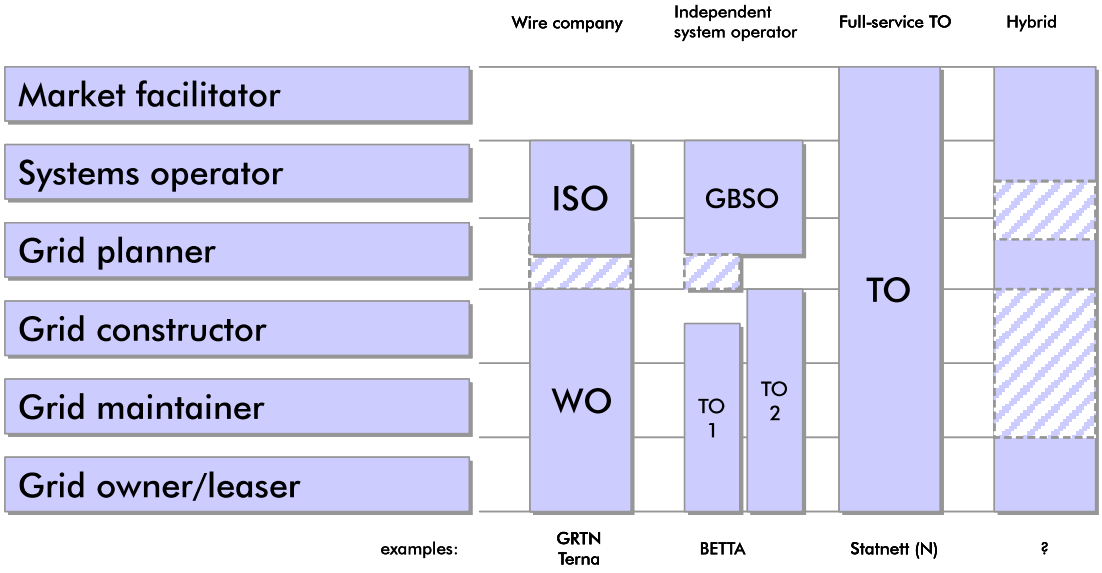

Figure 2-1 TSO Functions and Organizational Type.

X Market Facilitation

2.04 The establishment, monitoring and enforcement of an advanced electricity exchange require to some extent the informational support of the transmission system operator. The TSO will necessarily be involved in the final settlement of the delivery of the good and may also pose additional fees for its transmission. Independent market operators normally handle the clearing, trading and management of financial instruments for the electricity market. The activities for this function involve all information costs and direct resources related to the management, facilitation or administration of market places, including measurement, calculation and dissemination of price signals (node prices, price zones), preparing annual surveys and forecasts for use by the market's current and potential players and to illustrate compliance with public service obligations, information for settlement of claims and contract flows from exchanges, backup agreements and research and development into market functioning, mechanisms and contracts. If applicable, responsibilities related to the information flows to related markets (green certificates, renewable fuels, DSM, DER, preferential feed-in tariffs) are also considered market facilitation.

2.05 Costs and revenues related to transitional or permanent retail engagements, such as procurement, billing, losses and resale of energy to captive or non-captive clients are considered specific cases of market facilitation.

S System Operations

2.06 The purpose of system operations is to ensure the real-time energy balance, to manage congestion, to schedule and dispatch generation (or to review the technical feasibility of schedules submitted by others) to perform failure analysis and detection, to manage the availability and coordination for preventive and reactive reparations, and to acquire ancillary services such as disturbance reserves and voltage support, maintaining technical quality and balance within the coherent electricity supply system, also ensuring that the necessary supply capacity for physical regulation of the system is available. System operations are subject to the limitations of the existing grid, but information arrangements and tariff structure may either aggravate or alleviate congestion management problems. It also deals with the day-to-day management of the network functionality, including personnel safety (instructions, training), equipment security including relay protection, operation security, coordination with operations management of the neighboring grids, coupling and decoupling in the network and allowances to contractors acting on the live grid.

2.07 System operations may entail delegating operational balance services to subordinate (regional) transmission coordinators with limited decision rights. If this delegation entails a contractual relationship with another grid, these costs are included in system operations to the extent that the services correspond to the services defined in 2.06.

2.08 In particular, we refer all costs and revenues from national and international congestion management to system operations, as well as all direct and indirect costs related to balance markets.

2.09 Costs, imposed or not, for spinning reserves, primary and secondary reserve, capacity provision, out-of-market guarantees or caps in case of power shortage are for the purposes of this project allocated to system operations.

P Grid Planning

2.10 The analysis, planning and drafting of grid expansion and network installations involve the internal and /or external human and technical resources, including access to technical consultants, legal advice, communication advisors and possible interaction with governmental agencies for preapproval granting.

2.11 Grid planning also covers the general competence acquisition by the TSO to perform system-wide coordination, research and development, in line with the EC(2009/72) art 37 §8 and the ENTSO-E tasks by EC(714/2009) art 8 § 5. Consequently, costs for research, development and testing, both performed in-house and subcontracted, related to functioning of the transmission system, coordination with

other grids and stakeholders are reported specified under grid planning P. This provision also includes membership fees to research organizations and sector organs such as UCTE, ETSO, IEEE, NordEl etc. The name of the affiliated organizations should be specified.

C Grid Construction

2.12 The grid constructor implements the plans from the grid planning once all necessary authorizations have been granted. Construction involves tendering for construction and procurement of material, interactions, monitoring and coordination of contractors or own staff performing ground preparation, disassembly of potential incumbent installations, temporary site constructions and installations, installation of equipment and infrastructure, recovery of land and material, test, certification and closure of the construction site.

2.13 In particular, all expenses related to site selection and environmental impact analyses are classified as grid construction. These costs are normally activated with the investment, but may also be expensed if minor, non-specific or not leading to actual investments.

2.14 Note that costs related to the expropriation of land for construction, remodeling or dismantling of grid assets, including direct legal costs for the process and costs potentially paid to claimants as consequences of legal proceedings are to be specified separately in the Out-of-Scope Exclusion. This is valid for both activated and non-activated costs during the benchmarked period.

M Grid Maintaining

2.15 The maintenance of a given grid involves the preventive and reactive service of assets, the staffing of facilities (e.g. maintenance, repair and inventories) and the incremental replacement of degraded or faulty equipment. Both planned and prompted maintenance are included, as well as the direct costs of time, material and other resources to maintain the grid installations. It includes routine planned and scheduled work to maintain the equipment's operating qualities to avoid failures, field assessment and reporting of actual condition of equipment, planning and reporting of work and eventual observations, supervision on equipment condition, planning of operations and data-collection/evaluation, lawn moving, tree cutting and emergency action.

F Grid Owner

2.16 The grid owner is the function that ensures the long-term minimal cost financing of the network assets and its cash flows, including debt financing, floating bonds, equity management, general and centralized procurement policies, leasing arrangements for grid and non-grid

assets, management of receivables and adequate provision for liabilities (suppliers, pensions, etc). Eligible costs here are directly calculated from the Annual report and derive from the cost of debt and equity financing. The Grid Owner function is subject to specific review and will not be included in the general assessment of controllable costs for the TSO, as the financial costs predominantly are decided as a result of direct regulatory rulings on e.g. credit ratings, equity-ratio requirements and WACC allowances.

A Administrative Support

2.17 The costs for administrative support by direct definition include the non-activated salaries, goods and services paid for central and decentralized administration of human resources, finance, legal services, public relations, communication, organizational development, strategy, auditing, IT and general management. The direct costs for executives, CEO, Board of Directors or corresponding are included in A, as are fees and honoraries paid to consultants and experts engaged in project not directly assigned to any other function. In terms of direct costs, the A function also has a residual role, meaning that any and all non-activated cost that is not assigned to any of the six core functions of the TSO or subject to the Blanket Exclusion, is considered a cost for unspecified support A.

2.18 The idea behind the administrative support function is to create neutrality between different organizational form for support. As many of the support functions may be obtained through leasing or service contracts that include a non-specified cost for the use of non-grid assets, the corresponding depreciation on non-grid assets (subdivided as below) is included in the cost for A.

Summary

2.19 Consider the organizational chart for a full service transmission system operator in Figure 2-2 below. The activities are divided into functions under the joint management of a CEO, answering to a Board of Directors or corresponding. The central management is supported by some off-line support unit that performs joint activities, monitors and reports implementation of central policies, typically strategic planning, communication, human resources, and legal services. Each function performs the activities previously discussed using staff, fixed and variable resources. The importance weights of the functions may be deducted from letters of instruction, electricity acts, internal mission statements, annual reports and accounting statements. The e3GRID2012 study covers in principle all costs except the Blanket Exclusion, but using different models certain costs. E.g., functions X and P in Figure 2-1 and in Figure 2-2 are subject to non-frontier review of primarily informative and validation purpose. The grid financing role

F is subject to a specific review conditioned on regulatory parameters for informative purposes. The System Operations will be subject to a specific analysis related to data call Y. Finally, the functions C, M and Support A (after some adjustments) are subject to a frontier assessment. The remainder of this guide provides an example of how to recreate this basis of comparison from an arbitrary organizational model under separated accounts as in the IEM Directive EC(2009/72).

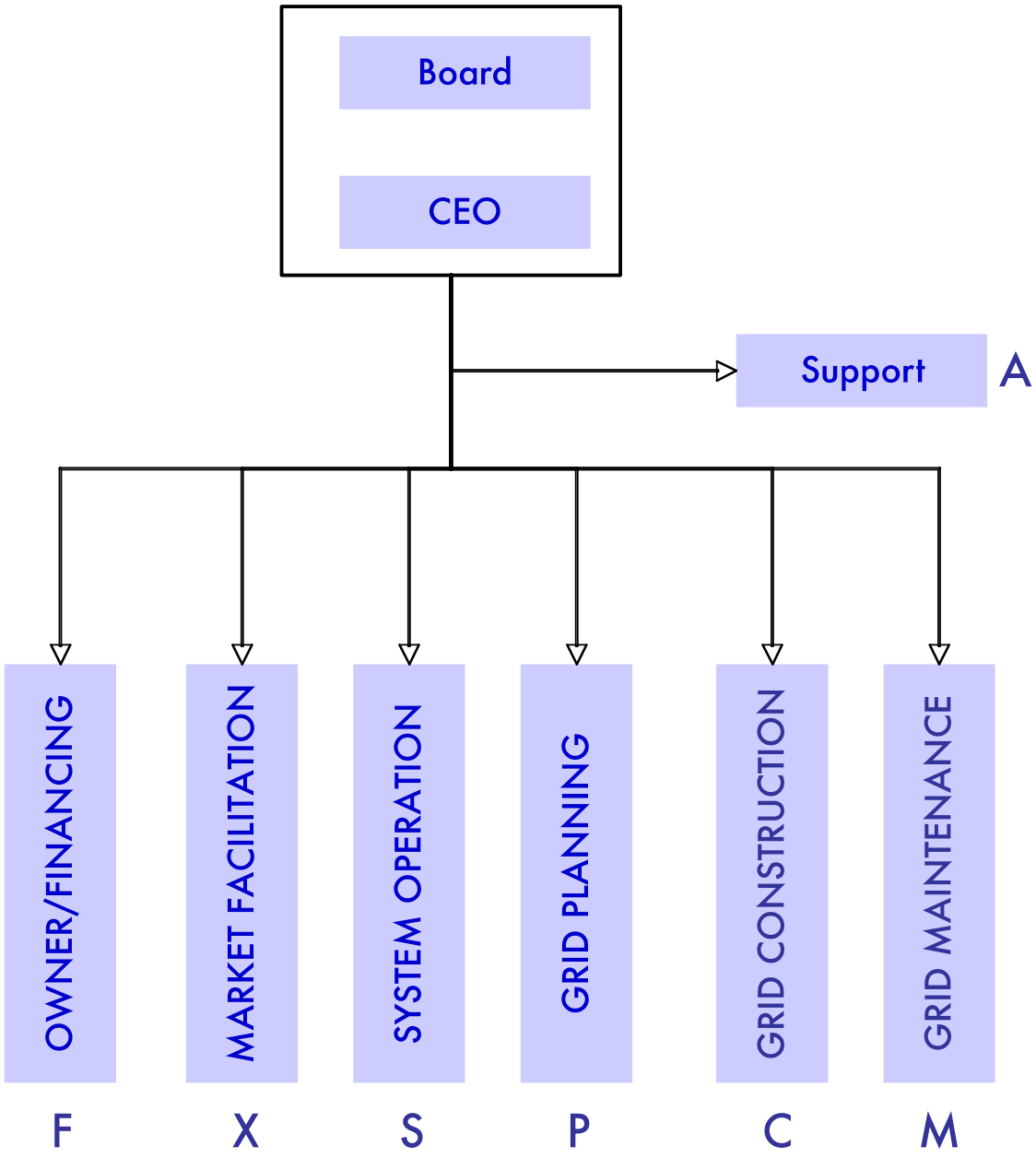

Figure 2-2 Organizational chart of transmission system operator.

3. Audited out-of-scope items

3.01 As the objective of the e3GRID2012 study is to compare the relative performance of TSOs in Europe, it requires a set of structurally comparable units. Although corrections can be made for many specific conditions, such as labor cost differences, equipment specifications and service requirements, certain costs are intrinsically related to national cost levels and legislations. Including such costs in the benchmarking, even after some partial adjustments, would potentially create misleading targets and decrease the applicability of the results. Hence, certain costs are to be specified and excluded in their entirety from the study. However, this also means that their amount will have to be endorsed by an accompanied statement from an auditor or equivalent.

Out of scope costs

3.02 The following cost types are out of scope::

a) Land-owner compensation
b) Right-of-way and easement fees
c) Taxes on property and operation
d) Rents and leases of land and buildings
e) Depreciation on land, buildings and improvements

Land-owner compensation

3.03 Non-activated payments to property owners as a result of a legal process (e.g. expropriation or compensation agreement), procurement or negotiation, related to the damage or injury of land, and /or the right to use land for the activities of the TSO. The direct costs for judicial assistance, court fees etc for legal processes (terminated or non-terminated) related to the use, damage or injury of land for the activities of the TSO are also out of scope.

Right-of-way and easement fees

3.04 Non-activated payments to third parties as a result of a legal process (e.g. expropriation or compensation agreement) or negotiation related to the use of specific land or installations (roads, waterways) for the activities of the TSO.

Taxes and levies

3.05 Non-activated state, municipal and regional taxes, levies and public fees paid for the ownership of specific assets (e.g. property taxes, packaging), to use of specific processes (e.g. environmental levies), for investments and procurement (stamp taxes, legal fees, customs), for non-claimed value-added taxes (foreign VAT), and taxes paid on declared annual profits. Note that taxes, charges or fees related to salaries, pensions and other payroll items are considered in scope.

Rent of land, buildings and infrastructure

3.06 Rents and leasing fees paid for the right to use land, buildings, building improvements and/or land/building infrastructure are excluded. However, rents that include other assets or equipment, such as vehicles, communication and computer equipment are in scope.

Depreciation on land, buildings and improvements

3.07 Depreciations on all land (if applicable), buildings, building improvements, land/site improvements, and building infrastructure are part of the out of scope. However, depreciation related to vehicles, furniture and equipment related to joint or non-grid use, including communication and computer equipment are in scope of the study.

Offshore grid operations

3.08 The ownership and operation of offshore transmission systems are out-of-scope in this study. An offshore transmission system is defined[1] as a system of EHV or HV electric lines used for the transmission of electricity between the offshore and onshore substation(s). Offshore transmission assets are any hardware (plants, lines, meters) that constitute the offshore transmission system. The offshore transmission system is for the purposes of this study defined to include the onshore connection point for the offshore transmission system. Investment costs, depreciation or other derived capital expenditure for offshore transmission assets are part of the out of scope material. Likewise, direct operating costs under any of the functions defined for a transmission system operator related to the operation of offshore transmission systems are out of scope.

[1] Sinclair Knight Metz (2012) *DECC- Research into GB offshore electricity transmission development. A comparative assessment with key countries*. Final report for DECC. Ch 2 Definitions, p. 4-5.

3.09 Joint costs for the operation, ownership and construction of offshore transmission systems are considered in scope and cannot be allocated to the direct costs for out of scope submission.

Out of scope investments (assets)

3.10 The investment data reflects the grid assets reported in the Asset Data Base.

3.11 The following asset types are out of scope and should not be reported in the investment stream:

a) Land and land improvements
b) Buildings, other than substations and transformers
c) Immaterial assets (goodwill, patents, rights)
d) Energy

4. Principles

4.01 The functional decomposition of costs for the reporting in e3GRID2012 is based on a set of predetermined principles. Below, the five principles, viz capitalization, correspondence, separation, verifiability and comparability are described.

CAP. Capitalization principle

4.02 Capital expenditure means the cost of the asset including the cost to put it in place, prior to any deductions linked to ordinary or exceptional depreciation allowances (e.g. impairment losses). Capital expenditure for equipment means the net invoice price of the equipment, including the cost of any initial modifications, attachments, accessories, or auxiliary apparatus necessary to make it useable for the purpose for which it was acquired. It also includes the cost of incoming transportation incurred on shipments from external suppliers. Equipment means a grid asset of non-expendable, tangible, property which stands alone, is complete in itself, does not lose its identity, and has a useful life of more than one year. The Capitalization principle [CAP below] is applied as threshold and is a supplementary information for the other rules that are applied. Insofar interest is part of the activated expenditure, it has to be separated and reported to the specific function F to assure structural comparability (cf. Art 5.30).

4.03 Enhancement parts with an acquisition cost of at least 6,500 Euro, which permanently increase the value of an item of minor equipment to 50,000 Euro or greater and are acquired within 120 days of the acquisition date of the item of minor equipment will have their cost added to the cost of the item of minor equipment being enhanced and both the enhancement part(s) and the item of minor equipment will be capitalized; otherwise, they will be expensed. The treatment of spare parts is analogous and follows the correspondence principle [COR], cf. art 6.11).

4.04 By definition, any asset that benefits more than one fiscal period potentially could be classified as a capital asset. As a practical matter, however, their only higher cost assets capitalized. That is, TSOs specify a capitalization threshold that assets must exceed if they are to be capitalized. The TSO are free to select different capitalization thresholds for different capital asset classes, just as they are free to apply different depreciation methods to different capital asset classes. To maintain comparability [COM] while assuring a feasible reporting, we accept the investment data with specification of the capitalization

threshold per asset category. The capitalization threshold per asset category has to be specified in the Cost Reporting template.

COR. Correspondence principle

4.05 The accounting objects of the investment stream data should correspond to the grid assets reported in the asset reporting sheets. Thus, any asset included in the asset data base should have its correspondence in terms of investment data in the investment stream reporting. Analogously, investments in assets excluded from the asset data base should normally not be included in the investment stream (see specifications in Chapter 6).

SEP. Separation principle

4.06 Primarily, the functional vertical separation into the benchmarked range of activities (in particular construction and maintenance) is used to define the costs and assets. For specific activities, the separation has been explained above. However, for joint costs a specific principle applies, see VER below, see also Chapter 2.

4.07 The separation principle implies that the benchmarked entity is a viable organization, which means that it in principle should be comparable to the overall cost from a subcontracting offer for the corresponding services. This means that the entity does carry the necessary human and technical management resources to cover its operational planning and management functions, as well as the cost of the technical know how necessary to define the tasks of the subcontractor.

VER. Verifiability principle

4.08 According to the verifiability principle, joint assets or costs should not be disaggregated beyond the point of a verifiable reference. This means, e.g., that an arbitrary allocation of fixed costs to an activity is inferior to one of three alternatives: complete exclusion of costs, complete inclusion of costs and inclusion of net effect of costs and revenues. The last application would imply that a potentially non-regulated activity (revenue source) is contributing to the operating efficiency of the firm. For joint costs related to administration, a pragmatic cost allocation key may be chosen by the e3GRID 2012 project management to curb the incentives to reassign dedicated resources to joint units. For joint costs related to other functions and/or assets, the reporting company will be asked to provide the documentation for its allocation key.

4.09 Whenever the verifiability regarding the allocation of a cost or asset is subject to ambiguity, it is the responsibility of the reporting entity to

provide documentation regarding (i) used principles for its allocation and (ii) the motivations for the principles applied. In absence of satisfactory documentation, the e3GRID2012 project management may reassign costs and/or assets to benchmarked costs as the default option. Any cost allocation may be subject to control by the data validation team (PWC) within the project. In case the control reveals cost allocation based on non-verifiable elements, the default option is to consider the joint cost as allocated to the function A.

Example: A helicopter leased by a TSO is used for both maintenance and transportation of staff for another company. The fixed cost (depreciation/leasing cost, equipment maintenance contract) is allocated to M and X with respect to the number of hours flown in respective service, which are recovered from the invoices for variable costs (fuel, pilot hours) that are directly allocated to M and X. This allocation can be said to fulfill the condition stated in 4.09.

COM. Comparability principle

4.10 Although respecting the separation principle, a given cost item may be unique, inevitable or uncontrollable. Certain costs of this type, such as land owner compensations, right-of-way rents, property taxes, are excluded from the benchmarked cost since they distort the comparability of the data without adding any useful information about the individual performance. Exclusions of this type are explicitly declared, either in this guide (cf. Chapter 3 for details) or through communication on specific country specific costs in response to motivated TSO claims (cf. Call Z Guide).

Reporting formats

4.11 Although the level at which the e³GRID2012 project is situated is the function level, the reporting starts at the lower level of the activities or services that, taken together, form the functions. The decomposition in activities is voluntary and free in format.

4.12 The advantage of this is to offer flexibility to the reporting TSOs while at the same time enabling the construction of a multiplicity of cost measures using a building block approach to be used in different parts of the benchmarking. This reporting format also facilitates the standardization of included costs elements and the verification of the reporting against public accounts.

4.13 The details of what to report is given in the Excel cost reporting template and summarized in Appendix A to this guide.

4.14 The overall idea of the reporting is that each activity into which a function is decomposed must be described in terms of

the total labor cost of the direct manpower, i.e. the staff directly involved in the activity or service that is described.

the cost of services purchased externally to perform the activity or service concerned, such as maintenance, administration (billing, HR), construction, specified by:

- services that are not activated in the books, but that are expensed in the profit and loss accounts of the year in which they were purchased.
- services that are activated in the books, and whose cost is then split over several years through the depreciation cost. Here, a further distinction is made between :
  - depreciation cost of grid related assets
  - depreciation cost of other assets (e.g. ICT equipment, cars)
- services that are activated, but not forming grid assets included in the benchmarking (e.g. enhancements of non-grid buildings).
- the total number of hours of service provision billed for, differentiated by country of jurisdiction for the service provider (or the labor provider, if different from the main service provider).

the cost of goods used to perform the activity or offer the service concerned; here a distinction is made between:

- goods that are not activated in the books, but that are expensed in the profit and loss accounts of the year in which they were purchased.
- goods that are activated in the books, and whose cost is then split over several years through the depreciation cost. Here, a further distinction is made between :
  - depreciation cost of grid related assets
  - depreciation cost of other assets (e.g. ICT equipment, cars)
- goods that are leased, in which case the leasing fees have to be reported

indirect costs of management and support services that are situated at the level of the function

other costs that are, by definition, not included in any of the categories mentioned above

from this total will be deducted:

- activated work that was performed for own account (only applicable to the function C – Grid Construction)
- revenues that are generated by the sale of the products or services that are not part of the benchmarked outputs

5. Cost reporting

5.01 Below, we give an overview of specific costs and their treatment in the e3GRID2012 reporting. For each cost, explicit reference is given to the principle(s) applied to determine its inclusion or exclusion in brackets [ETC], cf. above. As mentioned above, the guide below is primarily of use for the decomposition method to exclude certain costs, cf. Appendix A. The idea is explained in Figure 4-1 below that is an adaptation of the organizational chart found in Figure 2-2 above. For any given cost item in the accounts, allocation should be made to a function (X, S, P , C, M, F) as either a direct cost (by identification of type or source) by indirect cost, or by default (A). A straightforward example is regular forest clearance (cf. 4.16) that is a direct cost for M (grid maintenance). However, joint costs can be directly assigned to functions based on the principles applied. In Figure 4-1, the central management cost of a board and a CEO is directly assigned to A (support), cf. 4.08. Some other joint costs, such as joint general expenses related to administration and support (cf. 4.11 and below) are assigned to the functions based on an allocation key.

5.02 The benchmarked cost in e3GRID2012 is subject to corrections for local labor cost levels. The basis for this correction is the reported staff intensity in full time equivalents (f.t.e) for each operator. The rationale is based on its verifiability and generality as a cost driver for administrative costs, expenses and services. Thus, separate reports should be made of the number of staff (in f.t.e.) assigned to each function. [SEP]

5.03 Fulltime equivalent staff (f.t.e) is calculated as the ratio of total number of hours effectuated by TSO staff and outsourced or subcontracted labor, divided by total annual working hours.

5.04 Direct functional assignment is based on hierarchical arguments (staff that directly report to any manager included in 5.08) and/or task consistency (staff responsible for activities included in the functional description). Two examples in a non-conforming organization: (i) An IT-engineer works with service and development of software in a department headed by the responsible for maintenance. By hierarchy, the engineer is assigned as staff in function M. (ii) A staff member in a support unit is uniquely charged with monitoring and closure of supplier relations within existing construction contracts. By virtue of the task consistency, the staff member is assigned to function C. The assignment follows the principles internally accepted in each TSO.

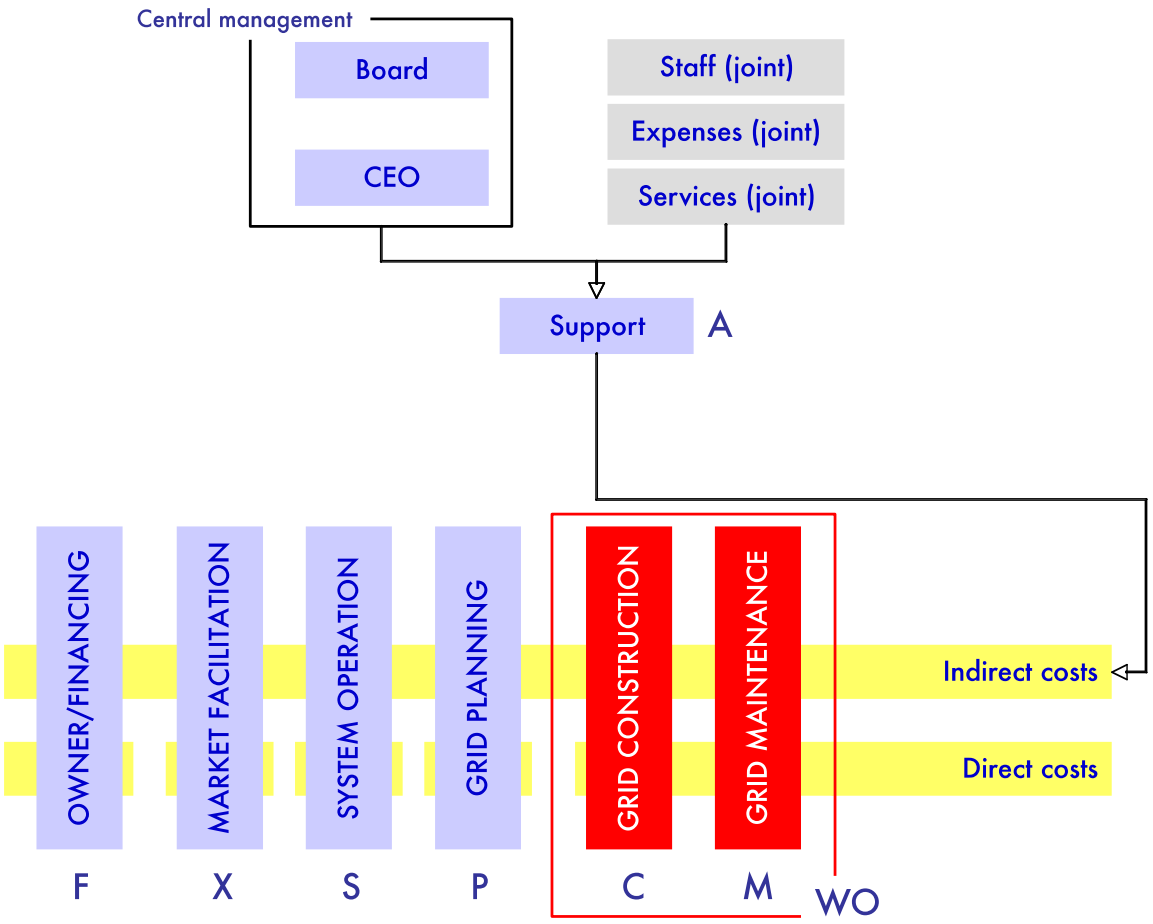

Figure 5-1 Functional cost allocation (compare Fig 2-2).

Sales and revenues

5.05 The decomposition of revenues is of interest in this context only as so far it provides correction for operating expenses. Working hours by internal staff sold to other companies should be reported. [COR]

Operating expenses

Purchase of goods

5.06 Capitalized costs for grid assets should be excluded and reported as investments in the investment stream data. All extension investments and replacement investments above the activation threshold reported in 4.03 are included as investments (capital expenditure); Replacements below the limit are included in the profit and loss account. Purchases for non-outsourced maintenance are included in M. [CAP]

5.07 Purchase of energy for covering network losses, as well as contracts for energy for resale are direct costs for X. [SEP].

Payroll costs: Functional staff

5.08 Gross personnel costs (including fringe benefits, pensions, employers' contributions and direct levies on salaries) are to be specified by function; Costs for managers for operations, constructions and maintenance units are included. Other personnel costs (training, child care, travel costs, etc) are included in general operating expenditure by function, or if not specified, in function A. [SEP]

5.09 Payroll costs (or honorariums, participation tokens or similar) of Board of Directors, Advisory Boards (similar) and Chief Executive Officer are considered central management and directly assigned to A. [COM, VER]

Payroll costs: Joint staff

5.10 Payroll costs (including fringe benefits, pensions, employers' contributions and direct levies on salaries) for administrative (legal, accounting, controlling, communication, human resources) and support (security, information systems, office and equipment maintenance) that are not directly assigned to any function by virtue of 5.07 are considered joint payroll costs and consequently allocated to A and allocated according to the defined key in 4.02. [SEP]

General expenses: Functional

5.11 Expenses related to supplies, minor tools, repairs, oil etc. that are directly related to grid installations, operations and maintenance are reported under respective function. [VER, COM]

General expenses: Joint

5.12 The non-specified operating expenses cover costs like office supplies, rental charges, insurance, traveling expenses, repairs, marketing, illumination, heat, etc. We also find costs for maintenance of non-grid assets (buildings, etc.) in this category. These costs are considered joint general expenses in A and consequently allocated according to the allocation key in 4.02. [VER, COM, SEP]

Services: Functional

5.13 Outsourced services related to operations and maintenance of regional or central control rooms are directly reported to S. [SEP]

5.14 Costs for outsourced tower painting are to be specified under M. [COM]

5.15 Costs related to the legal processes (not related to such proceedings as described in 3.04), communication and third-party valuation, including feasibility and impact studies, are assigned to P. [COM]

Services: Calculation of FTE

5.16 The basis for the calculation of a full-time equivalent is the average number of working hours per year in the jurisdiction of the operator.

5.17 External services bought under open contracts, specifying the number of hours provided, are naturally used to split the costs into labor cost and other services, where only the first item is used to calculate the corresponding FTE for the service provider.

5.18 External services under closed contracts, not specifying the labor volume involved, should be reported per type of activity and country of service provider. Default values, corresponding to the average labor contents in the service costs, will be used by the consultants to calculate the FTE for these costs. The resulting values are disclosed prior to each run in the specific data summaries.

Services: Administration/overhead

5.19 External services that are not functionally assigned by any of the articles above, or by virtue of 4.07, such as joint administrative and support services, costs for housing and facility services, are considered joint external services and consequently allocated according to the allocation key in 4.02. [COM, VER].

Services: Telecommunication costs

5.20 The operational telecommunication includes incomes and costs from rental of telecommunication capacity on high voltage towers, installation, depreciation and operating costs of optic cables. These costs and revenues are to be specified in their entirety under function S. [VER]

Services: Forest clearing, logging, ground preparation

5.21 Costs for forest clearing, logging and ground preparation are to be specified as either C (construction) or M (maintenance), unless capitalized with an associated investment. [SEP]

Services: Research and development

5.22 The overall costs for research and development, both in-house and external services, are to be allocated to P. If the development activity is minor or lack reporting, the corresponding cost is reported in the category for which is has a dominant share (e.g. M, P) [COR, SEP, VER]

Other operating expenses: Insurances

5.23 Insurance premiums can be either directly assigned to functions or indirectly as joint insurance cover. Property and liability insurances premiums for construction or maintenance operations, including civil responsibility for third party damages related to grid assets, are assigned to M. If applicable, insurances related to the economic liability of market information, timeliness and/or financial operations are directly assigned to X. As joint insurance expenses in A for allocation according to the allocation key in 4.02 are considered costs for insurances for liability and property of staff and office equipment. Contracts for fire, property and liability on out-of-scope assets such as office buildings, land and land improvements are considered out-of-scope. [COR]

Other operating expenses: Leasing of installations

5.24 If leased components are reported as elements directly in the asset data base or associated with reported items, then costs related to leasing those installations should be reported. Vice versa, if leased installations are not considered as grid assets, then leasing fees are to be reported to other functions. [COR]

Other operating expenses: Interconnector costs

5.25 Costs for operations of interconnectors between neighboring countries should be specified to S, M, and X. The correspondence principle applies: if interconnectors are included in the benchmark then the associated operating costs are to be included as well in M. [COR]

Depreciation

5.26 Capital costs and annual planned or exceptional depreciation on grid assets are not used in calculations of the benchmarking, as they are based on nominal values, vary between countries and have a fiscal connotation. Reporting of these depreciations are however necessary to allow the verification of reported costs against public accounts. Depreciation of non-grid assets (equipment, vehicles and furniture are considered as joint costs under A and allocated according to 5.02

unless they are attributed to specific functions. [COM] Depreciations for building and installations are reported as out of scope (cf. 3.07)

5.27 Costs related to dismantling of scrapped equipment are included in C if the underlying asset is included. Grid assets that are sold and dismantled are deducted from the investment stream. When a grid asset is sold or scrapped a corresponding change should be made in the investment stream in the year of the change. [COR]

Extraordinary costs

5.28 Extraordinary costs related to losses, damage and/or repair of grid assets are included, net of any compensation paid. Note that IAS/IFRS no longer recognizes extraordinary costs, thus they should be included in the operating expenses. [COR]

Financial Results

Losses on accounts receivable

5.29 Losses on accounts receivables are directly assigned to X. [SEP]

Construction interest

5.30 Interest during construction (bridging finance) is assigned to F (grid financing). If not separated, specify to what extent construction interest is included in activated assets or in direct expenses. [SEP]

Taxes

Public duties, fees and taxes, property tax

5.31 Excluded by Out-of-Scope Exclusion (cf. art 3.05).

6. Investment reporting

6.01 The investment stream data is reported when it occurred, not when the underlying assets are put into operation. [VER]

6.02 The investment stream contains the undepreciated asset values for all grid assets, as they are in use and correspond to the equivalent asset in the Asset Data Base (cf. art 4.02). This means that exceptional depreciation, subsidy or direct support should not be deducted from the investment value. [COR]

6.03 The investment stream for a specific part of the benchmarked period (indicated in the reporting template) is to be split into the following components:

- Total investment value (gross)
- Activated labor cost (internal and external)
- Activated planning costs (excluding labor as above)
- Activated costs for out-of-scope assets (cf. Chapter 3)
- Activated financial costs (construction interest etc)
- Activated taxes, fees and levies

6.04 Specific provisions may apply in the interpretation of CAPEX results to operators that have benefited from significant amounts of investment subsidies.

Upgraded grid assets

6.05 Grid assets, bought any time since 1965, that are upgraded at a later time and that are in service during all or part of the benchmarked period are listed in the Asset Data Base in their upgraded quality at the year of upgrading, the original asset is not listed in the Asset Data Base (cf. Call X). For the investment stream, both the original investment and the activated costs for upgrading are included at the time of occurrence.

Scrapped grid assets

6.06 Grid assets that are scrapped without replacement prior to the benchmarked period are neither listed in the Asset Data Base, nor part of the investment stream (cf. Call X).

6.07 Grid assets, bought any time since 1965, that are used part of the benchmarked period and then scrapped are included in the investment

stream at the year of original investment. The year of service withdrawal, the asset is deducted from the Asset Data Base and any proceeds from the salvage of the item may be deducted from the gross investments in the investment stream.

Pure reinvestments

6.08 With a pure reinvestment is meant the exact replacement of a technically depreciated grid asset with an equivalent asset. Some care is necessary to avoid double-counting of assets in the benchmarking.

6.09 If the reinvestment occurs prior to the benchmarking period (<2007), then the 'old' asset does not enter the benchmarking, neither in the Asset Data Base, nor it original investment cost. The asset is reported from the year of the replacement investment, both in the investment stream and the asset data base.

6.10 If a pure reinvestment occurs during the benchmarked period (2007-2011), then the Asset Data Base is unchanged and the investment data is entered in the investment stream. If the replaced asset is at, or beyond, its standardized technical life (see summary of parameter for each run), no additional action is necessary.

Spare parts

6.11 The overall cost/investment in spare parts related to grid assets is to be included in either the investment stream (if capitalized) or the operating costs (if expensed), c.f. 5.06. [SEP]

Grid assets not in data base

6.12 Buildings and land installations in substations are considered implicitly included in the standard values for the grid assets. Thus, costs for maintenance or repair of such installations are to be included in benchmarked costs (M) to the extent that they are not activated and included in the reported investment stream.

6.13 For specific grid assets of considerable value, such as HVDC stations, see Call X: Asset Data Definition Guide.

Activated easements, land-owner compensations etc

6.14 Activated costs for land-owner compensations, land, easements, right-of-way fees or costs related to legal and extra-legal processes for the expropriation or acquisition of such rights or assets, are considered out-of-scope (cf. art 3.03 and 3.04) and should be deducted from the investment stream. If the amount related to this provision are not

specified for part or all of the period, a conservative estimate based on an audited sample may be used after approval by the e3GRID 2012 project manager.

Activated investment taxes et investment levies

6.15 Activated costs related to investment taxes and levies, imposed for the operator during part or all of the period for grid asset investments included in the benchmarking, are considered out-of-scope and should be separated and excluded by specification (cf. art 3.05). If the amount related to this provision are not specified for part or all of the period, a conservative estimate based on an audited sample may be used after approval by the e3GRID 2012 project manager.

Grid assets not owned by the operator

6.16 Investment costs (capital expenditure) is relevant only or assets owned by the operator[2]. If the operator is using grid assets put at the disposal of other firms or network operators, the corresponding leasing or rental cost is reported as such and no entry is made for the corresponding investment (cf. 5.24)

[2] Financial holding companies with same ownership is considered equivalent, in non-standard settings the project team should be notified about the asset ownership situation.

7. Appendix A: Use of the Cost Reporting Templates

Introduction

7.01 The functions whose cost and efficiency levels will be benchmarked, can be split into three types :

- the purely operational functions, sometimes also called the vertical functions, which comprise market facilitation (X), systems operation (S), grid planning (P), grid construction (C) and grid maintenance (M)
- the joint support function (A), also called the horizontal function, whose cost is composed of the cost of the board + the general management, the central staff and other central services
- the financial function (F), whose cost is essentially composed of the cost of financing the investments in the grid, either in actual terms (interest on loans, notional interests) or in terms of WACC × RAB.

7.02 Although the level at which the e3GRID 2012 project is situated is the function level, the templates start at the lower level of the activities or services that, taken together, form the functions. The reason for this is double :

- it is reasonable to suppose that most, if not all, TSO use some form or another of Activity Based Costing, at a granularity level that suits their needs. Hence, figures on the level of the activities performed or services offered should be readily available
- it is also reasonable to suppose that not all TSO use the same definitions in the description of the different functions, or even if they do, that there will be differences in the type and intensity of activities performed or services offered within a given function. In order to make comparisons at the function level relevant, it is necessary to take into account such differences, which implies that the exact composition of the activities or services be known, and that adjustments for differences between TSOs can be made.

7.03 This being said, the templates for the different operational and financial functions leave all the liberty as far as the level of granularity is concerned at which the activities performed or services offered are to be described. The templates foresee for each function up to 12 activities or services, but should this be insufficient, you can ask for a new version of the templates with an adequate number of activities or services to be specified. Note also that for the benchmarking purpose it suffices also to have a given function described as one single activity. Again this gives you flexibility in other costs that are, by definition, not included in any of the categories mentioned above

7.04 When adding up the net costs of each function + their shares in the joint services, to which is then added the cost of the financial function, we should obtain the same figures as published in the annual P&L accounts, provided the following adjustments are made :

- we have already considered elements that are «out of scope» at the level of the operational functions (X, S, P, C or M); there may also be elements «out of scope» at the level of the joint support function (A) or that do not belong to any of the considered functions
- the actual cost linked to the financing of the grid assets may differ from the regulated cost in terms of WACC × RAB as is to be reported in the template for the financial function (see further), because of the fact that the regulated value of the assets differs from their book value (and thus from the book value of the loans with which they have been financed), and/or because the real cost of capital employed differs from the regulated WACC value.

7.05 Provided these adjustments are correctly made, a validation of the data reported in the templates, through a comparison with the P&L accounts that were published, is possible. Obviously, the contents and the costs of the «out of scope» elements will have to be certified either by the NRA or by a third party before they can be left out.

7.06 The different elements described above are also visualized on the sheets in the template.

Description of the sheets

Sheet «contents»

7.07 As its name indicates, this sheet gives an overview of the different sheets of the template.

7.08 Please start by selecting your country from the drop down menu. In case there is only one TSO, its name and identification number will appear automatically – in the other cases (Germany and the UK), you will have to select your name from the drop down menu that appears.

7.09 By clicking on the name of a sheet, you can automatically access it.

7.10 Please note that most sheets allow you to formulate remarks and comments on the definitions that are proposed and that might not coincide with the way you work.

Sheet «introduction»

7.11 Your name and identification code on this sheet and the next ones will already be filled in (see sheet «Contents»).

7.12 As is explained there, a yellow background indicates that input is required; whenever an error or inconsistency is detected, this background will turn into red.

7.13 Values on a light blue background are calculated (essentially totals) on the basis of your input.

Sheet «buildings blocks»

7.14 This sheet gives an overview of the principles that will be used in the data collection on costs as described in the introduction :

- costs will have to be detailed on the level of five so-called operational functions : market facilitation (X), system operations (S), grid planning (P), grid construction (C) and grid maintenance (M)
- the costs of the joint services (A) will be allocated to the operational functions in relation to their relative importance, which will be measured by taking the number of fulltime equivalents (fte) working in or for each of the five operational functions. Since cost data are to be reported for the entire benchmarking period, we need the average number of fte for each of these years, whereby the averages are simply calculated as the mean between the situation on the first and final day of the year (numbers to be filled in on the yellow fields).

7.15 Please note that we also ask you to specify the total number of annual labor hours that corresponds to 1 fte in your country (jurisdiction). This

number corresponds to the denominator of the labor intensity calculated in art 5.03.

Sheet «code key»

7.16 This sheet summarizes the different codes and definitions that are used throughout the template :

- the identification number of each TSO, in alphabetical order of the name of the country
- the currency units in which the costs reporting is likely to be done
- the definitions of the different cost types that have already been described
- last but not least, this sheet offers you the possibility to add your comments on the definitions proposed to facilitate validation.

Sheet «out of scope»

7.17 It is clear that all the aforementioned «building blocks» will only add up to the P&L accounts provided that all the elements «in scope» and especially also those «out of scope» are correctly identified and that their costs will be correctly evaluated. Since the number of elements «out of scope» should be limited as compared to those that are «in scope», it has been decided that NRA will either themselves or through third parties audit the data entered in this sheet.

7.18 The elements that are «out of scope» are defined in Section 3 as

- Land compensations, right-of-way fees, easements
- Taxes, levies and fees on property and operation
- Depreciation for buildings, installations, improvements.
- Rent paid for buildings, installations, [land] improvements.
- Cost for primary and secondary reserves
- Insurance costs related to buildings, non-grid installations and improvements
- Costs for off-shore grids

Sheets «X, S, P, C and M»

7.19 These sheets all follow the same concept : first, we give a general description of what is to be understood by each of these functions, and then you have to give in the following elements :

- a description of the different activities that you identify in your company and that belong to this function
- the manpower for each activity for internal and external services (in full time equivalents; situation on the 1st day of each of the years in the benchmarking period).
- the costs (split in direct manpower cost, cost of services purchased, etc.) for each of the years in the benchmarking period (please do not forget to choose the appropriate currency).

7.20 The program will automatically check if the number of manpower adds up to the total that was given in on the sheet «building blocks».

7.21 We have foreseen in the template the possibility to describe up to 12 different activities per function. Should this not be enough, please contact us for a new extended version of the template.

Sheet «A»

7.22 This sheet is basically identical to the sheets X, S, P, C and M, with the addition of the calculations to allocate the cost of the joint services to the operational functions on the basis of the manpower employed.

Sheet «investment stream»

7.23 This sheet is intended to collect information on the amounts invested in the years mentioned concerning installations that are still in use.

7.24 The amounts to be reported should fulfil the following criteria :

- be related to grid assets in the proper sense of the word, excluding money invested in the out-of-scope assets
- be related to tangible assets only (hence excluding rights of way or other intangible assets)
- be net of VAT or any other taxes or levies
- net of revenue from the sales of dismantled assets

7.25 For the later years (see the matrix in the template), the investment values should be split up on specific components, see art 6.03. If this information is unavailable to you, the residual should be reported as gross investment without specification.

e³GRID2012

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