



# LRIC Bottom-up model for interconnection

Addendum to the  
Consultation Document 3.1

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In collaboration with Bureau van Dijk Management Consultants

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## **1. INTRODUCTION**

On April 23<sup>rd</sup>, 2002, a third consultation document was issued for the development of a bottom-up model for interconnection. In this document, a technical meeting was announced in the week of May 20.

This addendum summarises the comments made by the operators and the BIPT/BvD regarding the contents of the 3<sup>rd</sup> consultation document during the meeting of May 21. In a first chapter, some general remarks made by the BIPT/BvD are discussed. The second chapter summarizes per paragraph the remarks made by the operators.

## 2. GENERAL COMMENTS OF THE BIPT/BvD

### 2.1 Period for which tariffs will be calculated

The BIPT and its consultant will initially develop the bottom-up model based on 2002 data. This has several reasons. First of all, the development of a robust model is an absolute priority. To ensure acceptance of the model and a reasonable smooth reconciliation process, the use of 2002 data will be the appropriate decision since no lengthy discussions will have to be made with regard to several parameters concerning growth provisions, price evolutions, new technologies, etc.

However, it was stated very clearly in the BIPT's answers to the first consultation document that the model to be developed would be forward looking. This implies that future demand volumes and price changes need to be taken into account. Therefore, after establishing a robust model based on 2002 input, the necessary adaptations can be made in order to obtain 2003 figures, which should eventually be used for determining tariffs.

The final objective of a forward-looking model is to eliminate the impact on the tariffs of the interval between the year of the information available and the year for which the tariffs are calculated. Therefore, changes in prices and volumes, as well as potential technological changes should be taken into account.

The table below indicates for the different parameters in the top-down and bottom-up model what period the information for calculating Forward-Looking tariffs for the BRIO 200X is related to:

	Top-Down model	Bottom-Up model	
		Based on 200X-1 input	Based on 200X input
<b>Costs</b>			
OPEX – kosten	200X –1	Expressed in %, based on CAPEX	Expressed in %, based on CAPEX
CAPEX – kosten (network-related)	200X-1	200X-1	200X-1* growth percentage of demand volume
CAPEX – kosten (non-network related)	Historic depreciations	Expressed in %, based on network CAPEX	Expressed in %, based on network CAPEX
<b>Cost Drivers / Allocation keys</b>			
Traffic volumes	Budget / Outlook 200X-1	200X-1	200X-1* growth percentage
Technical volumes (capacities, routing factors (RF), ...)	200X-1	200X-1 (RF) Other technical volumes = Based on demand volumes	200X-1 (RF) Other technical volumes = Based on demand volumes
Others (results of internal ABC-exercises, ...)	200X-2	N/A	N/A
Other general allocation keys (FTE's, revenues, ...)	200X-2 or 200X-1	N/A	N/A

Errata on page 7 :

- Paragraph 1.1.4 : These volumes are equal to the actual number of minutes and calls of 2002...
- Footnote 3 : ....., information on the BHE in 2002 will be used.

## ***2.2 Determination of the accommodation costs for the transmission and switching centers***

Almost all operators agree that the best cost driver for the accommodation costs is the number of m<sup>2</sup>. The total surface needed for a certain transmission or switching center depends on the total equipment installed in the network nodes. In order to be able to evaluate the total surface needed, information will need to be collected on the footprint of the different equipments needed and on the average percentage of 'overhead' -floor that are needed (for corridors,...) .

It should be clear that the additional surface needed for e.g. collocation and the extra costs for additional access facilities to the building of the incumbent are not considered here as they are covered by means of distinct tariffs in the collocation agreements.

The operators draw the attention to the fact that it should be clearly indicated what costs are included in the accommodation costs per m<sup>2</sup>.

### Comments of the BIPT/BvD :

*Regarding the evaluation of the total number of m<sup>2</sup> needed :*

The total number of m<sup>2</sup> needed will be evaluated based on the equipment installed in each transmission and switching node. The BIPT/BvD would like to receive an indication of the footprint needed for transmission and switching equipment.

The questions on the total number of m<sup>2</sup> needed will be treated in an additional consultation document, which will be provided at the end of the week of 10 June.

Additionally, the BIPT/BvD will request Belgacom to provide information on the floor area (for equipment and for 'overhead' -floors) of a sample of buildings.

*Regarding the evaluation of the total accommodation cost per m<sup>2</sup> :*

The BIPT/BvD would like to specify that the following costs categories are included in the total accommodation costs :

- floor space ;
- power consumption ;
- heating/airco ;
- fire prevention and lightning protection;
- maintenance and cleaning.

## ***2.3 Determination of the transmission equipment needed***

### *Transmission equipment on the regional rings*

The operators confirm that the SDH line termination equipment on the point-to-point connections consist of T-MUX equipment on the side of the LDC and dedicated tributary cards in ADMs on the side of the transmission center of the regional ring.

### *Transmission equipment (DWDM) in the express network layer*

At this moment, no algorithms are identified for the modelling of the DWDM equipment. These algorithms will enable the BIPT/BvD to assess the need for these kind of equipment and, if necessary, to determine the cost of these equipments.

As the modelling of the DWDM equipment is a very technical issue, it will be dealt with in small working groups with technical experts of different operators. At the time of writing, more information on the DWDM equipment is being provided by Belgacom.

This information will be analysed by the consultants of the BIPT and will serve as an input when discussing the issue with technical experts from several operators. It will also be treated in the additional consultation document.

## ***2.4 Signalling network***

Currently, more information on the signalling network is being provided by Belgacom. The modelling of the signalling network will be communicated in a transparent way in order to prevent double-counting of any kind. The signalling network is the third subject that will be dealt with in the additional consultation document.

### 3. SUMMARY OF THE REMARKS OF THE OPERATORS

#### ***Paragraph 1.1.1. Conversion of the number of minutes and calls in BHE and BHCA***

One operator is concerned that the use of information at the node level (with implicit assumptions on the volume of unsuccessful calls taken are taken into account, on the blocking factors,...) does not enable the operators to assess the efficiency of the Belgacom network as the implicit assumptions are not known. The operator also wonders if information on the total volumes of minutes and calls is available.

#### **BIPT/BvD :**

The BIPT/BvD confirms that information on the total volume of minutes and calls is available.

In order to enable the other operators to assess the efficiency of the Belgacom network, the detailed traffic information at the node level will be aggregated per network layer. These results can then be compared with the information on the total volumes of minutes and calls, combined with the routing factors (cf. infra).

This exercise of comparing the volumes at the node level, as provided by Belgacom and the volumes per node of each network layer, as derived in a more theoretical way<sup>1</sup> is, given the strict planning, not considered as a priority for the calculation of the first results of the bottom-up model.

#### ***Paragraph 1.1.2. Conversion of the number of minutes and calls in BHE and BHCA***

A general question is raised on the *definition* of the circuit efficiency (?) and the capacity utilization (?) that are used in several algorithms for dimensioning the network.

#### **Definition of the circuit efficiency:**

The circuit efficiency indicates the technical restrictions of the network. It does not take into account the need to supply with spare capacity. Circuit efficiency has to be considered when translating BHE in Mbps.

#### **Definition of the capacity utilization:**

The capacity utilisation factor indicates the planning margin that is taken into account when dimensioning the network. In other words, the capacity utilisation factor gives an indication of the degree of spare capacity – or: the proportion of the installed capacity that is utilised today.

When determining this correction factor, the BIPT/BvD proposes to take into account a planning horizon of two years.

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<sup>1</sup> Figure 1 on page 6 of the third consultation document.

During the meeting, another remark was made concerning the *application* of the circuit efficiency and the capacity utilization factors in the paragraphs 1.2, 1.3 and 1.4. The example was given that in a local exchange (BU), utilisation ratios are not necessarily the same for the access facing ports and network facing ports. These remarks will be taken into account.

### ***Paragraph 1.2.1. Determining the quantities of the switching components***

The question is raised whether the market can challenge the value proposed by the BIPT/BvD for the circuit efficiency. Furthermore, one operator asks the exact reference of the Europe Economics' bottom-up model.

#### **BIPT/BvD :**

It should be clear that all values proposed by the BIPT/BvD can be challenged by the market.

The values proposed by the BIPT/BvD that are based on the Europe Economics bottom-up model are taken from the following document:

*'Study on the preparation of an adaptable bottom-up costing model for interconnection and access pricing in European Union countries – A Final Report for Information Society Directorate-General of the European Commission by Europe Economics – April 2000.'*

It can be downloaded from the European Commission's website:

<http://europa.eu.int/ISPO/infosoc/telecompolicy/en/Study-en.htm>

#### **Erratum on page 8 :**

The capacity of the connection ~~between the LDC and its host~~, will be calculated by means of...

### ***Paragraph 1.3.2 Modelling the Regional Transmission network (Regional Rings)***

The question is raised whether the trade-off between the cost of the transmission links and the costs of the ADMs will be made in the bottom-up model.

#### **BIPT/BvD :**

The first objective of the bottom-up model is to model the existing transmission paths with the existing transmission links at today's prices. In a next step, the actual capacity of the transmission links needed for PSTN/ISDN, leased line and broadband services will be evaluated. The choice of how to translate this capacity in a configuration of 1 or more SDH-rings on 1 or more fibres / cables will be done while considering the cost of the transmission equipment needed for each configuration.

A correct trade-off can only be made when sufficient insight is obtained in these algorithms.

### ***Paragraph 1.4.1 Modelling the transmission equipment in the LDCs***

p. 18 : The sentence *'The BIPT proposes again to take into account a filling ratio (?) of 0,5<sup>16</sup> and to assume that there are 30 64 kbit/s channels per EI'* should be replaced by *'The BIPT proposes again to take into account a utilization ratio of 60%<sup>16</sup> and to assume that there are 30 64 kbit/s channels per EI'*.

### ***General remark on the allocation of the network costs between the PSTN/ISDN services and the leased lines and broadband services.***

The question is raised how the total costs of the network will be divided between PSTN/ISDN services, leased lines and broadband services.

#### **BIPT/BvD:**

The allocation of the total network costs will be based on the capacity needed for each of the categories of services. In the third consultation document, no detailed algorithms concerning this allocation are provided since these will depend on the exact way in which the capacity for each of the categories of services will be calculated. This latter depends on the reactions on the algorithms in the third consultation document.

### ***Paragraph 1.6 Routing factors***

Comments are made on the last sentence of the first paragraph: *'The validation of these rules by the market implies the acceptance of the Belgacom specific routing factors for the development of the bottom-up model'*.

#### **BIPT/BvD:**

When developing a theoretical bottom-up model, routing factors will be used for two different objectives; namely the dimensioning of the network and the allocation of the total cost per network layer to the different communication types.

As the bottom-up model that is currently under construction takes into account the BHE information at the node level, the actual routing factors of the incumbent are implicitly taken into account when dimensioning the network. The provision of more detailed information on the routing rules that are applied by Belgacom are meant to demonstrate the efficient routing of Belgacom.

At the end of paragraph 1.6, the following sentence should be added:

“The CAE structure presented above makes that zonal, interzonal, international and calls to the Value Added Services (VAS) are secured for at least 60% of the peak traffic.”

## ***Chapter 2 Costing information***

In order to adapt the first version of the bottom-up model (for the year 2002) to future periods, information of the evolution of the prices of the different network components is needed. Therefore, it will be specified in the tables with the costing information that prices for 2002 are requested, including the evolution for 2003.

A new version of the Excel-file with the tables on costing information has already been provided to the market.

### ***Paragraph 2.6 Non-network related overhead costs for the PSTN/ISDN network***

One operator asks if the proposed cost drivers can be commented.

BIPT/BvD: It should be clear that all propositions made by the BIPT/BvD can be commented by the market.

### ***Paragraph 2.8: Remuneration of capital***

The values of all parameters of the WACC-formula were communicated to the market for the BRIO 2001. A new communication on the value of the WACC-parameters for the BRIO 2002 will be published on the BIPT-website shortly.

### ***Paragraph 2.9.1: Depreciation methodologies***

One operator is making the remark that another depreciation methodology; 'Tilted annuities methodology' is also often proposed in consultation documents for the development of bottom-up models.

BIPT/BvD:

The operators are free to comment on this depreciation methodology as well.

### ***Paragraph 2.9.2. Depreciation periods in the bottom-up model***

There seems to be some confusion on what is exactly meant by the 'asset life'.

BIPT/BvD:

The depreciation periods taken into account in the bottom-up model are economic depreciation periods that are equal to the technical asset life of the respective assets. This means that the 'Asset lives' can be longer or shorter than the depreciation periods that are usually applied in the financial accounts.

### *Paragraph 3.1 Separate costs for individual network components*

A remark was made that some regrouping of the cost categories in Table 2 on page 54 is necessary to enable international comparisons of the results obtained from the model. Any suggestions for a useful regrouping of the cost categories are welcome.

## **4. PLANNING**

Any reactions on this Addendum to the third consultation document should be submitted in writing before **Monday, June 17 at 17.00 p.m.** to:

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