

Colombia Mini-Case Study 2003

Implementing Capacity-Based Interconnection
Charges To Promote Affordable Internet Access

This mini-case study was conducted by Gustavo Tamayo of JOSE LLOREDA CAMACHO & CO., Bogota, Colombia. The views expressed in this report are those of the author and do not necessarily reflect the views of ITU, its members or the Government of Colombia.

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International Telecommunication Union

Place des Nations

CH-1211 Geneva, Switzerland

The Telecom Vs. Telefónica de Pereira Case:

Implementing Capacity-Based Interconnection Charges To Promote Affordable Internet Access

This case study describes how Colombia introduced a capacity-based interconnection charge regime in an effort to promote greater competition among Internet Service Providers (ISPs) to foster more affordable Internet access by end users. Replacing a time-based interconnection charge mechanism with a capacity-based approach may enable countries to promote greater Internet take-up by end users. The Colombia approach attempts to balance the needs of potential Internet users with the needs of local operators for interconnection revenue. Colombia's capacity-based interconnection regime further aims to reduce long-distance and mobile interconnection charges.

1. General Background

Located in the Northern region of South America, Colombia has a population of over 43 million and a gross domestic product (GDP) of about USD 81.1 billion. In 2002, it had over 7.7 million fixed lines in service, for a fixed line teledensity rate of about 17.9 and approximately 4.6 million mobile subscribers, for a mobile cellular penetration rate of 10.6. The personal computer ownership rate in 2002 was 4.93 per 100 inhabitants, and Internet user density was about 4.62 per 100 inhabitants¹.

Additional information regarding the telecommunications sector in Colombia is included in Annex 1.

2. Sector Overview and Regulatory Background

There are 32 local telephone companies operating in Colombia, many of which were initially established as private companies providing local telephone services. Today, however, many of these local companies have become public concerns, owned by their respective municipalities and cities. As a result, the participation of private capital in local telephone companies today is very small. This trend, however, is changing. The city of Bogotá, for example, has initiated a public stock offering for its local operator.

Telefónica de Pereira (TDP), owned by the city of Pereira, is one of 32 local operators in Colombia. Colombia Telecommunications (Telecom) is a government-owned long distance operator. Telecom was the sole long distance operator for fifty years. Today Telecom competes with two other long distance operators, Orbitel and 007 World ETB².

For many years, the local operators and Telecom shared long distance calls revenues in an arbitrary manner, without taking into account the actual use of their respective interconnected networks. Local operators received a substantial portion of the revenues generated by high international call tariffs, allowing them to charge very low tariffs for local telephony service. Indeed their tariffs were subsidized by international revenues and were set below the real costs and efficient performance of the service. Resolution 087 of 1997³ expressly abolished such cross subsidy practices.

¹ ITU World Telecommunication Indicators Database (see <http://www.itu.int/itu-d/ict/statistics>). CRT Indicators from www.crt.gov.co/paginas/internas/infsector and "The Global Information Technology report 2001-2002: Readiness for the Networked World: Country Profiles-184. Colin McClay with Jorge Aramburo.

² Orbitel is 50% owned by the City of Medellín and 50% by local Colombian investors, Grupo Santo Domingo and Grupo Sarmiento. 007 World ETB is owned by the City of Bogotá and by private investors who hold a minority share.

³ Resolution 87 of 1997 abolished the cross subsidy scheme created by former Decree 1593 of 1976. Decree 1593 regulated the relationship among the local telephone companies and the long distance operator until 1997.

In 1994, the Congress issued Law 142, granting CRT the authority to establish rules for the use of telecommunications networks and to develop the formulas necessary to calculate access charges. Law 142 also stipulates that tariffs to end-users should be based on efficient costs plus a reasonable profit⁴.

In order to comply with its legal mandate to terminate cross-subsidy practices and to rebalance local and long distance tariffs, CRT issued a series of regulations⁵ including the Unified Interconnection Regime, known in Colombia as RUDI⁶, the Spanish acronym for “Régimen Unificado de Interconexión”⁷. CRT defined access or interconnection charges as mandatory payments made by long distance or cellular operators to local operators for their use of the accessed network. Colombian regulations use the terms “interconnection charges” and “access charges” interchangeably. Network use may be measured in terms of time units, for example, minutes, or in any other appropriate manner, for example, capacity, such as the availability of an E-1 line⁸. In other words, the term “access charges” refers exclusively to the use of the accessed network and does not include those services categorized as “additional services.” Additional services include traffic registration and measurement, consumer claim management, failures and error correction and installation services.

3. Convergence and The Unified Interconnection Regime - RUDI

Today, multiple services can be offered over a single network. In 2000 CRT addressed convergence by issuing the Unified Interconnection Regime “RUDI”. RUDI includes a clear set of obligations and principles that apply to all telecommunications operators and service providers, as well as special obligations that apply only to selected operators.⁹ While the RUDI regime provides for as little intervention as possible from CRT, it also enables the regulator to facilitate interconnection negotiations and stimulate convergence and the efficient use of existing infrastructure. One of the main tools RUDI adopted is the option of capacity-based interconnection charges, under which the operator that interconnects with another operator pays a flat monthly charge. The price is calculated based on the premise that the operator providing interconnection for the service shall recover its costs of operation, maintenance of the network, plus a reasonable profit, independently of the volume of traffic. The operator that purchases capacity assumes the risks associated with traffic fluctuations. CRT also set per-minute charging alternatives, meaning that operators requesting access have the choice between per-minute and capacity-based rates.

CRT’s capacity-based approach to interconnection is unique in Latin America. It responds to a need for efficient and economic access charges that result in lower tariffs for the consumer.

CRT established the interconnection tariff at prices that permit local companies to continue operating in a more efficient way. The idea was to prevent local operators from continuing to charge excessive interconnection tariffs to finance other operations, usually in response to political requests from their

⁴ Law 142 applies to public utilities including water, sewage, trash collection, electric power, natural gas, fixed public telephony and rural mobile cellular telephony.

⁵ Resolution 23 of 1995 established the per minute access charge that long distance operators pay local operators, replacing the previous revenue sharing arrangement. Resolution 23 further adopted the access charge mechanism called the Index of Tariff Updating, explained in further detail in Annex 2. This Index replaced existing interconnection agreements made between local and cellular operators, between long distance and cellular operators and between local operators. Resolution 23 further set the framework for intervention by CRT, defining the legal, technical, operative and economic conditions by which CRT may impose mandatory interconnection. Resolution 055 of 1996 introduced the concept of efficient costs as a requisite in establishing end user tariffs. Resolution 087 of 1997 reiterated that tariffs to end-users should be directed to efficient costs. Decree 1130 of 1999 granted CRT the authority “to issue all the regulations of general and particular character in the matters related to the interconnection regime, competition rules and those inherent to the resolution of conflicts between operators”.

⁶ Annex 3 describes the principles and obligations set forth in RUDI.

⁷ RUDI was adopted into Colombian regulations through Article 1.1, Resolution 469 of 2002.

⁸ An E-1 line carries signals at 2 Mbps (32 channels at 64Kbps, with 2 channels reserved for signaling and controlling). A T1 line carries signals at 1.544 Mbps (24 channels at 64Kbps). E-1 and T1 lines may be interconnected for international use.

⁹ A summary of RUDI obligations and principles is available in Annex 3.

Colombian city and municipality owners. In other words, the interconnection or access tariffs set by CRT focus on the operational costs of the local companies and not on political considerations¹⁰.

CRT assigned local operators to one of three categories based on each company's size, traffic and level of income from interconnection fees. CRT then applied a different access charge tariff to each category, as described in Annex 4. The first category includes local operators whose financial situation is less dependant on interconnection charges; the second includes operators who depend on interconnection charges to some extent, and the third category includes operators that depend heavily on interconnection charges. CRT set interconnection tariffs for each of the years between 2002 and 2005, decreasing the tariffs by approximately 10% each year.

TDP falls into the second category. The monthly interconnection tariff for this category was set at COP 11,540,000 (approximately USD 4,615)¹¹ and it is scheduled to decrease to COP 9,350,000 by 2005 (approximately USD 1,245)¹². CRT is expected to review these tariffs in 2005. Although operators may request CRT to review the tariffs before 2005, should they be found unfair, the regulator has not yet found it necessary to do so. CRT has also set a capacity based interconnection tariff for cellular operators, including personal communication systems PCS¹³, that applies only to communications initiated from the long distance carriers' network or from another cellular operator and terminated on a cellular terminal device. In the case of fixed local to mobile network traffic, the cellular operators are paid at their full tariff and thus are not subject to interconnection tariff regulations.

4. The Telecom and Telefónica de Pereira (TDP) Conflict. Implementation of Capacity Based Interconnection Rates.

The Conflict: Under the RUDI regime, the operator requesting interconnection or the operator who had previously requested it under the former legislation, (usually a long distance operator¹⁴), has the right to choose between the traffic-based tariff or the capacity-based tariff. At the beginning of 2002, Telecom requested Telefónica de Pereira "TDP" to amend its interconnection agreement and adopt capacity-based charges. After the parties failed to reach agreement, TDP requested CRT to intervene on 8 March 2002. TDP alleged that Telecom's decision to adopt capacity-based charges would cause serious damage to its financial situation since it would have to modify its interconnection infrastructure to adapt to Telecom's requirements. In fact, the previous interconnection agreement between Telecom and TDP required 90 E-1 lines, but Telecom argued that only 36 E-1s were necessary. TDP also alleged that the payments for access charges made by Telecom to TDP would be reduced substantially under the new regime. This dispute marked the

¹⁰ CRT set the interconnection tariff after reviewing a variety of reference materials, including the value of the investment in an E1 line, equivalent to USD 8,000 amortized over a five-year term in accordance with the actual interconnection agreements already executed by local companies. Likewise, CRT used decisions of the national regulatory authority of Spain, the "Comisión del Mercado de las Telecomunicaciones de España CMT", as a reference in the final stages of preparing the regulation. The CMT introduced interconnection capacity based charges in CMT Resolution Sobre la Modificación de la Oferta de Interconexión de Referencia de Telefónica de España, S.A., dated 9 August 2001, and fixed the tariff at COP 4,055,000, approximately USD 1,500. This decision may be found at <http://www.cmt.es/cmt/document/decisiones/2001/RE-01-08-09-22.pdf>. This decision was further modified on 10 July 2003 in response to a request from Telefónica. The main changes to the earlier decision include (i) a more flexible parameter for calculating the minimum capacity unit; (ii) clarification of certain routing criteria to simplify Internet interconnection; and (iii) a decision that interconnection charges in the event of traffic overflow will be determined on a per-minute bases. <http://www.cmt.es/cmt/document/decisiones/2003/RE-03-07-10-00.pdf>

¹¹ At the exchange rate of USD 1= COP 2,750.

¹² At the exchange rate of USD 1= COP 2,750.

¹³ PCS: Abbreviation for Personal Communications Service, a set of capabilities that allow terminal mobility, personal mobility, and service profile management. The flexibility offered by PCS can supplement existing telecommunications services, such as cellular radio. Under Colombian law PCS has the same prerogatives as cellular companies and competes with them on an equal basis.

¹⁴ Annex 5 documents traffic volume trends and shows greater traffic flow from long distance to local operators.

first conflict to arise after the introduction of the capacity-based tariff regime in which CRT's intervention was requested.

CRT Resolves the Conflict: In May 2002, CRT called the parties to mediation, but no agreement was reached. CRT therefore issued an administrative act setting the procedures to be followed to resolve the conflict. CRT appointed an expert¹⁵ who based his recommendation on traffic measurements, interconnection safety factors, and capacity usage. CRT followed the expert's recommendation and published in Resolution 541 of 19 September 2002 its decision requiring TDP to proceed with the interconnection of 47 E-1 capacity links, 11 E-1s more than Telecom had requested. TDP was ordered to increase its capacity within three days following the date the decision became enforceable. In addition, CRT fixed the monthly price to be paid for each E-1 to COP 11,540,000 (approximately USD 4,150) payable retroactively including all the time elapsed since Telecom's request for CRT intervention was filed on 17 April 2002. The decision was appealed¹⁶ by TDP and CRT affirmed its final decision in December 2002.

This decision has had an important impact since it laid the foundation for subsequent dispute resolution and sent a clear message to the telecommunication sector on how CRT is likely to handle and solve future interconnection disputes.

The future: It is expected that this decision will promote more efficient network usage by local telephony companies as well as operators requesting interconnection. In addition, since the biggest local operators are also Internet Service Providers (ISPs), the reduction in access charges will most likely force local operators to seek other means to increase their revenues and thus compete more aggressively with other ISPs operating in Colombia. The decision is expected to encourage local operators to try to increase their traffic in ICT market segments such as data communications and the Internet.

Although consumers have already benefited from substantially reduced rates for Internet access due to Colombia's flat-rate Internet access tariff system,¹⁷ it is expected that capacity based interconnection charges will lower end-user prices even further. Since ISPs now pay lower interconnection charges they may, in turn, reduce the tariffs they charge consumers. Unfortunately, the full effect of capacity based interconnection rates on Internet costs for end users is still to be realized since implementation has been slowed by local operators' challenges to the interconnection regulations, as explained below.

The capacity based interconnection charges have also promoted lower long distance and mobile interconnection costs. Thus, it is also expected that the reduction in interconnection charges will result in lower end-user tariffs for voice services. This is particularly important for data customers where packaged information and flat tariffs are required. Likewise, capacity-based interconnection charges will most certainly provide for greater competition in the local market, an increase in Internet penetration figures, and will secure efficient and non-discriminatory entrance of PCS services¹⁸.

Local telephone operators have challenged CRT's decisions arguing that the regime could only be applied to new interconnection agreements, and not to interconnection agreements already in effect at the time RUDI was issued. If the courts were to accept these arguments, the implementation of capacity based interconnection costs would be delayed but not reversed. While it may be difficult for local telephone

¹⁵ The expert appointed by CRT was registered on CRT's list of experts. To be registered, experts must have experience in network design, an electronic engineering degree and substantial regulatory experience. All of the experts presently registered are from Colombia.

¹⁶ A reconsideration petition was filed with the CRT by Telefonica de Perira.

¹⁷ CRT introduced the flat fee system in Colombia through Resolution 307 of 2002. Under this system the fees to access the Internet are lower than normal telephone fees: USD 7.15 for the first 90 hours per month. Customers are charged at the substantially higher regular telephone rate for more than 90 hours of monthly Internet access

¹⁸ PCS Service began in Colombia in November 2002.

companies to accept a reduction of income from access charges, the general public also has a strong interest in lower tariffs and increased Internet access¹⁹.

5. Conclusions and Recommendations

There are several conclusions and recommendations that may be learned from Colombia's experience with capacity-based interconnection. First, capacity based interconnection charges may be a useful mechanism to lower interconnection charges where it is virtually impossible to establish cost-based charges or where incumbent local operators are unwilling to cooperate to enable regulators to determine cost-based interconnection charges. Second, lowering interconnection charges without further intervention by a regulator may prove insufficient to reduce end-user rates. It will likely be necessary for regulators to verify that lower interconnection rates actually result in lower consumer tariffs. Third, regulators should consider conducting a careful analysis of the economic impact on local operators of migrating to capacity-based interconnection charges prior to implementation. This will enable affected operators to respond to the new market conditions and technical requirements so that service levels are not compromised. Fourth, regulators can expect and more importantly prepare to confront legal challenges from local operators. Finally, as established in Section 6.1.5 of the Inter-American Telecommunication Commission Guidelines and Practices for Interconnection Regulation²⁰, capacity based interconnection charges optimize the existing transmission infrastructure and promote lower and more flexible tariff schemes that could benefit long distance, mobile and Internet end users, increasing competition levels in the telecommunication industry.

¹⁹ Telefónica de Pereira and other local telephony operators have challenged CRT's decisions with respect to capacity based interconnection. The Administrative Courts have not yet issued any decision. The time frame for a decision to be rendered is a maximum of two years.

²⁰ CITELE III Meeting of the Permanent Consultative Committee I: Telecommunication Standardization OEA/Ser.L/XVII.4.1 CCP.I.TEL/doc.312/03, September 24 2003, Original: in Spanish. www.citel.oas.org/ccp1-tel.asp

ANNEX 1

BASIC STATISTICS ON THE COLOMBIAN TELECOMMUNICATIONS SECTOR

Sector Income Evolution

Income (COPBillion)	2000	2001	2002
Local Telephony ¹	1.396	3.553	3.802
Long Distance	1.408	1.584	1.519
Cell-Phone Telephony	826	1.072	1.585
Valued Added Service	283	371	415
Other	1.418	1.916	2.088
Total	5.331	8.496	9.409

¹ Includes local extend, rural mobile telephony, access charges

Local Telephony. Largest Companies/2002

Company	Working Networks	%	Income	Net Profits
ETB	2.033.972	27%	1.310.446	253.792
TELECOM ¹	1.646.431	22%	1.530.422	-677.618
EPM GROUP	1.622.944	22%	1.126.548	184.412
TELEASOCIADAS	1.008.412	13%	416.522	59.350
EMCALI	507.004	7%	269.374	27.811
OTHER	703.237	9%	255.994	13.202
Total	7.522.000		4.909.306	-139.051

¹ Projected based on information from SSPD – June. Evolution of the Income and net profits in Col\$ million

Evolution of the indicators of Local Telephony

	2001	2002 py
Return over Patrimony (Roe)	6,44%	2,13%
Net Margin	9,27%	3,38%
Operational Margin	-1,33%	-3,46%

Profitability including Telecom

National Long Distance Traffic	2000	2001	2002
Telecom	2.828	173	2.150
Orbitel	514	582	768
007 Mundo	272	386	466
Total	3.614	1.141	3.384
International Long Distance Traffic	2000	2001	2002
Telecom	209	173	132
Orbitel	71	100	121
007 Mundo	62	80	102
Total	342	353	355

In Million Minutes

Mobile Telephony. ARPU Evolution	2001	2002
East Bellsouth	0,4	0,45
Comcel	0,3	0,3
West Bellsouth	0,5	0,5
Occel	0,2	0,3
Bellsouth Costa	0,4	0,5
Celcaribe	0,3	0,37
Total Country	0,3	0,34

COPMillion. ARPU: Average revenue per Working networks (million)

Mobile Telephony	2001	2002
East Bellsouth	0,6	0,7
Comcel	1,2	1,8
West Bellsouth	0,4	0,5
Occel	0,7	1,1
Bellsouth Costa	0,2	0,3
Celcaribe	0,2	0,2
Total Country	3,3	4,6

Source: CRT. Sector Report 2002 (http://www.crt.gov.co/documentos/biblioteca/informe_semestral.pdf)

ANNEX 2

HOW THE TARIFF UPDATING INDEX (IAT) WORKS

<http://www.crt.gov.co/paginas/normatividad/resoluciones1995.htm#fin1>

CRT has defined the IAT in order to update the interconnection charges for the monthly use of local, extended local and rural mobile networks. The index is formed by elements that generically reflect the cost structure of an average telecommunications operator in Colombia. The ingredients are as follows:

- Employees' Minimum Salary Index (ISS). This element is incorporated into the IAT to reflect the local labor component, and contains variations in salary levels in Colombia. It has a relative weight equivalent to 33% of the total index.
- Producer Price Index (IPP). This component measures the variation in the cost of local inputs acquired by operators. It has a relative weight equivalent to 29% of the total index.
- Average peso duties on telecommunications imports (USD). This component attempts to measure materials, goods and services required by the industry from other countries. There are two elements involved: the average import duty for telecommunications goods and the peso/dollar exchange rate. It has a relative weight equivalent to 38% of the total index.

Access charges are updated when there is a variation of at least 3% in any of the indicators used in the IAT formula. A summary of the original interconnection charges in Colombian pesos is:

Interconnection	Date	Amount
Local cellular	Oct 1993	24/minute
Local – long distance	Mar 1997	30/minute
Local-Extended local	Sep 1996	10/pulse ²¹

In December 2000 the IAT formula was applied and interconnection charges rose to the following charges in Colombian pesos:

Interconnection	Date	Amount
Cellular-local	Dec 2000	67.20/min
Long-distance – local	Dec 2000	51.15/min
Local – Extended local	Dec 2000	17.05/pulse

²¹ The pulse is the unit of measurement for charging and billing local telephony, and is approximately 3 minutes.

ANNEX 3

RUDI PRINCIPLES AND OBLIGATIONS²²

<http://www.crt.gov.co/documentos/normatividad/resoluciones/00000575.pdf>

Type A General Principles and Obligations for all telecommunications operators.

- Right to interconnection. Applications should be made to suit traffic needs and characteristics of the services to be rendered.
- Duty to allow interconnection. Operators must provide interconnection directly or otherwise without imposing any requirements other than those in the regulations.
- Direct negotiation. The operators have the right – and a matching obligation – to work on access contracts in good faith and by direct negotiation, only calling on CRT to intervene if no agreement is reached.
- Indirect interconnection. This is the right to route traffic of other operators to the network of the interconnected operator without contravening the regulations for each service, and subject to certain rules.
- Non-discrimination (neutrality). The principle is satisfied by applying equal access for equal charges.
- Remuneration. The operators' right to receive reasonable consideration for the use of its infrastructure.
- The right to free negotiation of access costs, use and interconnection of networks. If no agreement is reached the operator making the request will bear the costs required to reach the interconnection points of the interconnecting operator.
- Separation of costs by elements of the network. The costs for effecting interconnection will be suitably unbundled so that the requesting operator does not have to pay for elements he does not need.
- Interconnection points. Interconnection will be provided at any point of the network where it is economical and technically feasible to do so, and requesting operators may not be required to connect at a larger number of points than necessary to guarantee the quality of the service.
- Additional services and provision of essential installations. Operators must negotiate for these services and for the installation of the equipment required for interconnection. Prices should be based on cost plus a reasonable profit.
- General technical aspects. Nine technical aspects are defined, including the establishment of alternative routes, minimum lag times and indicators of completed communications.
- Signaling. Operators are free to negotiate the adoption of the signaling standard that best suits them.
- Provision of necessary information. Operators entitled to interconnection must receive effective and prompt access to technical and commercial relevant information.
- Information on traffic for proposing and maintaining interconnection. Operators will keep available, and will circulate among each other, information on traffic estimates in order to dimension their interconnection; this must be reviewed every six months and be included in the interconnection contract.
- Use of information and public knowledge of the contracts, confidentiality clauses and the handling of public information.
- Information for CRT. All operators must provide CRT with the technical, operational and economic information related to their networks at the request of CRT and for CRT's purposes.
- Other: network indicators, signaling for international interconnections, minimum signaling conditions, transmission, compliance with international commitments, traffic routing restrictions.

²² Not an official translation, adapted by author from the main headings of RUDI principles and obligations.

B-Type Obligations, for PSTN, Mobile Cellular and PCS operator when interconnecting with each other:

- Absolute obligation to interconnect with networks of:
 - PSTN with local PSTN
 - Local and Extended Local with Extended Local
 - Long-distance with Extended Local
 - Rural Mobile with other telecommunications networks
 - Rural Mobile using satellite solutions
 - Mobile Cellular and PCS with PSTN networks
 - Mobile Cellular with PCS networks
 - Special rules for Long-distance interconnection
 - Access to PSTN by operators of telecommunications services using trunking access systems
 - New PSTN operators with the PSTN, Mobile Cellular and PCS operators
- Characteristics of interconnection nodes
- Availability of capacity to provide the interconnection
- Interconnection orders may be temporarily postponed by CRT for up to one year in the event that CRT considers that an operator does not have the technical or financial means to permit interconnection with a third party who has requested such interconnection and if CRT has ordered interconnection within a determined period.
- Basic offer of interconnection. Operators must make their offers available and update them for consultation by anyone. The offer must be registered with CRT before 1 November each year and be published and updated on the web page of each operator.
- Availability of essential installations. “Essential installations” for interconnection are defined as follows:
 1. Switching
 2. Signaling
 3. Transmission between nodes
 4. User Assistance services
 5. Operational support systems
 6. Civil infrastructure
 7. Billing, distribution and collection
 8. Automatic roaming between mobile network operators
 9. Physical space and additional services necessary to install equipment required for interconnection. CRT may include or exclude, on a case-by-case basis, the list of installations considered essential.
- Signaling for PSTN, mobile cellular and PCS networks
- Parameters of signaling quality
- Routing
- Availability of overflow
- Routing of PSTN international traffic
- Synchronization
- Distribution of degradation
- Transmission

- User information
- Numerical information of users and telephone directory service
- Access charges to telephony networks:
 - Charges between local PSTNs
 - Special cases for local PSTN service
 - Special cases for towns with the same numbering
 - Access and use charges for extended local networks
 - Access and use charges for the Rural Mobile networks by PSTN and mobile telephony operators
 - Access and use charges for calls from public telephones
 - Access charges between PCS and Mobile Cellular networks.

C-Type obligations applicable to operators in a dominant position in relations to any other operator:

- Determination of the existence of the dominant position for interconnection purposes. Analysis of the relevant market(s) that are or might be affected by the interconnection or service analyzed.
- Segregation. Any operator with a dominant position may be obliged to offer separately the element(s) of its network or services that give it that position, as determined by CRT.
- Access charges for network operators with a dominant position in the market.

D-Type obligations, To be satisfied by all operators and by persons who own, hold, possess or on any title exercise rights over an item which can be considered an essential installation to allow them to make use of it, as determined by CRT.

- Access to essential installations
- Charges for access to items considered to be essential installations

ANNEX 4

TABLE OF ACCESS CHARGES AND OPERATOR GROUPS

Art. 4.2.2.19, Res. 463/2001

“ACCESS CHARGES FOR TELEPHONY NETWORKS: As of 1 January 2002 telephony operators will offer at least the following two options of access charges to operators requesting interconnection:

		Option 1: Per minute interconnection tariff ¹			
Group of companies		January 1/02	January 1/03	January 1/04	January 1/05
1. PSTN LOCAL NETWORKS ²	ONE	49.35	43.26	37.16	31.07
	TWO	50.98	46.50	42.03	37.56
	THREE	53.59	51.73	49.87	48.01
2.	Cellular Networks ³	66.92	97.49	142.02	206.90

(1) Expressed in constant pesos of 30 June 2001 (constant pesos means that the numbers after June 30, 2001 are adjusted to prevent inflation distortion). The updating of constant pesos to current pesos will be effected as directed by Section 4.3.8. This corresponds to the value of access charges that Local PSTNs receive from operators of other services when the latter use the former's networks for incoming and outgoing traffic.

(2) Annex 008 defines the local PSTN operators that form each of the Groups mentioned here. The values in this option correspond to remuneration per minute. All fractions are rounded up to the next full minute.

(3) Access charges may not be collected at the same time as airtime. This applies to incoming calls for the International Long-Distance PSTN service and any other determined in regulations.

		Option 2: Maximum interconnection capacity charges ¹			
Group of companies		January 1/02	January 1/03	January 1/04	January 1/05
1. PSTN LOCAL NETWORKS ²	ONE	11,230.000	9,920.000	8,760.000	7,740.000
	TWO	11,540.000	10,760.000	10,030.000	9,350.000
	THREE	11,960.000	11,960.000	11,960.000	11,960.000
2.	Cellular Networks ³	14,700.000	22,180.000	33,480.000	50,520.000

(1) Expressed in constant pesos of 30 June 2001. The updating of constant pesos to current pesos will be effected as directed by Section 4.3.8. The values in this option suppose a monthly rental of 2,048 kbps/month E-1 or equivalent links. Operators may agree different values depending on bandwidth required. For the purposes of blocking at interconnection points, operators will observe 1%.

(2) Annex 008 defines the local PSTN operators that form each of the Groups mentioned here.

(3) Access charges may not be collected at the same time as airtime. This applies to incoming calls for the International Long-Distance PSTN service and any other determined in regulations.

PARAGRAPH 1: When the interconnection is not effected directly at the switching nodes in the upper part of the hierarchy of the local PSTN operator, the interconnecting operator will be entitled to receive payment for carrying traffic to other points at the same level at which the interconnection is to be made. Access charges shown here include local dispersion and domestic dispersion for mobile cellular and PCS services.

PARAGRAPH 2: Operators may set differential access charges in Option 1, taking account of peak traffic hours on their networks, provided that they can show that the weighting corresponds to the value provided in this Article.

PARAGRAPH 3: The interconnecting operator may insist on a minimum term of contract for the option of access charges by capacity, which may only be that required to recover the investment in the adaptations for the interconnection. If there should be a dispute on this, the interconnecting operator will immediately supply the interconnection at the prices shown in the table for the option of capacity access charges until the parties reach an agreement or CRT has settled the dispute. If the interconnection is over-dimensioned, the operators may request CRT to settle the differences that may arise from a future return of links. For this purpose the interconnecting operator may insist on the maintenance of the links required to comply with a minimum quality level of 1% blocking, even for peak traffic hours”.

CLASSIFICATION OF LOCAL PSTN OPERATORS FOR THE PURPOSES OF CALCULATING ACCESS CHARGES

(Annex 8 of Resolution 463/2002)

Company	Group
EPM	1
ETB	1
EDT B/quilla	2
Emcali	2
Emtelsa	2
Metrotel	2
Telebucaramanga	2
Telecartagena	2
Telfonica de Pereira	2
E datel	3
E T Girardot	3
Emtel popayan	3
Telebuenaventura	2
Telearmenia	3

Company	Group
Telecalarca	3
Telecaqueta	3
Telecom	3
Telehuila	3
Telesaicao	3
Telenariño	3
Teleobando	3
Telepalmira	3
Telesantamarta	3
Telesantarosa	3
Teletolima	3
Teletulua	3
Teleupar	3

The Local PSTN operators that do not appear on this list should apply as a maximum use/capacity access charge, corresponding to the local PSTN that operates in the same market as they do”.

ANNEX 5

International Long Distance Traffic (millions of minutes)

Year	Incoming	Outgoing	Ratio
1994	285	97	2.9
1995	344	121	2.8
1996	378	124	3.0
1997	362	154	2.4
1998	398	175	2.3
1999	438	211	2.1
2000	482	342	1.4
2001	530	363	1.5
2002	583	355	1.6

- Source: Telecom - Division of International Relations. Calculations by the National Planning Department
- Source: CRT. 2002 Telecommunications Sector Report
- Simulated . There are no CRT statistics. An annual 10% income traffic increase was stimulated