CHAPTER 4
IMPLICIT SUBSIDIES

20. DRA addresses in this chapter certain issues raised by parties in their response to Q.10 of the February 21, 1996, ALJ Ruling. Specifically, DRA responds to the rate rebalancing proposal of the LECs and to AT&T's proposal to use Yellow Page revenues as an offset to the universal service subsidy.

I. IMPLICIT SUBSIDIES AND RATE REBALANCING

21. Pacific, GTEC, and Citizens agree that the implicit subsidies in the current rate structure of the LECs should be identified and be made explicit through the adoption of a universal service subsidy mechanism.[13] They propose that the universal service subsidy be based on the TSLRIC of basic service plus a reasonable contribution toward shared and common costs. They further propose that once the universal service funding mechanism is in place, the Commission could then decrease the subsidies implicit in LEC rates and allow "rate rebalancing in the form of rate reductions to offset any net positive amounts" the LEC receives from the fund.[14] Pacific would apply such rate reductions to end-user services, such as toll, instead of to intrastate switched access. GTEC and Citizens, on the other hand, would have such reductions apply to rates of access, toll, local exchange, and other services currently providing implicit subsidies.

22. As a matter of policy, DRA fully endorses the proposal that the Commission should not allow the universal service fund to provide a windfall for the incumbent LECs. DRA agrees that to

---

13. Opening testimonies of R. G. Mitchell (Pacific), pp. 7, 14-15, 20, 24; R. Emmerson (Pacific), pp. 8 and 11; D. Weller (GTEC), pp. 16-17; W. Lafferty (Citizens), pp. 7-8, 11.

14. Opening Testimony of R.G. Mitchell (Pacific), p. 20.

the extent the incumbent LECs derive a net gain from the fund, the Commission might consider the LECs' offer to implement offsetting rate reductions for services that are currently generating implicit support to basic services.[15] DRA is concerned, however, that such rate reduction proposals might lead to a more extensive and contentious rate rebalancing exercise, which DRA believes is best considered in a future proceeding as the Commission intends to do.[16]

II. YELLOW PAGES REVENUES

23. AT&T argues that the incumbent LECs' Yellow Pages directory business is a de facto monopoly with large profit margins that historically has been used to subsidize universal service. AT&T suggests that it is economically efficient to use Yellow Page revenues to subsidize basic service because of externalities -- i.e., the demand for Yellow Page advertising being directly related to subscribership to basic service. AT&T therefore recommends that profits from Yellow Pages be used as a source of funding for universal service and be used as an offset to the universal service subsidy fund.[17]

24. While DRA generally agrees with AT&T's characterization of the LECs' Yellow Pages business, DRA differs with AT&T on how to use the net revenues from Yellow Pages. As DRA discussed in its opening report, instead of using Yellow Pages revenues as an offset to the universal service subsidy, these revenues should be allowed to flow to the incumbent LECs as a means to recover portions of shared and common costs not recovered through rates for unbundled BNF services and other services which DRA proposes should be priced at TSLRIC. Channeling the Yellow Pages revenues

---

15. Examples of the types of price changes being proposed by Pacific are discussed in R. G. Mitchell's opening testimony, pp. 22-24.
16. See D.96-04-060 at page 11.
17. Opening Testimony of L. Selwyn (AT&T), pp. 91-102.

as an offset for the LECs' shared and common costs rather than as a direct subsidy for universal service will not divert these revenues to the LECs' shareholders, as AT&T argues.[18] To the contrary, under DRA's proposal, the profits derived from Yellow Pages would essentially be used to keep rates low for inputs that competing carriers purchase from the LECs; hence, would serve to subsidize the competitive process. DRA believes that its proposal offers the most reasonable balance between the competing interests of the LECs and CLCs, while promoting ratepayer interests through potentially lower prices and increased competitive choices in the market.

###

18. Id., p. 102.

TABLES

Cost Proxy Model - Sensitivity Runs

	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Statewide
CPM OUTPUT WITHOUT DRA'S MODIFICATIONS								
1. Total Operating and Capital Cost	$117.25	$53.82	$44.41	$31.73	$27.21	$24.60	$21.19	$26.81
2. Subsidy Per Line Per Month	$100.70	$37.62	$28.43	$15.69	$11.31	$9.08	$6.11	$11.20
3. Access Lines	77,113	268,156	348,418	768,422	3,260,956	5,820,827	2,251,089	12,794,983
4. Total Subsidy Per Month	$ 7,765,060	$ 10,089,113	$ 9,904,995	$ 12,057,813	$ 36,874,864	$ 52,844,728	$ 13,754,901	$ 143,347,588
MODIFICATIONS								
Drop Assumption								
5. Total Operating and Capital Cost	$116.60	$53.16	$43.77	$31.34	$26.96	$24.35	$21.05	$26.55
6. Subsidy Per Line Per Month	$100.05	$36.96	$27.79	$15.31	$11.06	$8.83	$5.97	$10.94
7. Subsidy Amount Per Month	$7,714,920	$9,911,657	$9,681,881	$11,760,712	$36,064,013	$51,418,664	$13,431,606	$140,039,566
8. Incremental Subsidy Amount Per Month (L7-L4)	($50,140)	($177,456)	($223,114)	($297,101)	($810,851)	($1,426,064)	($323,295)	($3,308,022)
9. Incremental Subsidy Per Line Per Month (L8/L3)	($0.65)	($0.66)	($0.64)	($0.39)	($0.25)	($0.24)	($0.14)	($0.26)
10.Incremental Change Per Month(L8/L4)	-0.65%	-1.76%	-2.25%	-2.46%	-2.20%	-2.70%	-2.35%	-2.31%
. Utilization Assumption								
11. Total Operating and Capital Cost	$101.58	$51.06	$42.52	$31.17	$26.73	$24.19	$20.72	$26.22
12. Subsidy Per Line	$85.03	$34.87	$26.54	$15.14	$10.83	$8.67	$5.64	$10.61
13. Subsidy Amount Per Month	$6,556,617	$9,349,404	$9,246,168	$11,633,397	$35,316,876	$50,458,859	$12,693,005	$135,787,764
14. Incremental Subsidy Amount Per Month (L13-L4)	($1,208,443)	($739,709)	($658,827)	($424,416)	($1,557,988)	($2,385,869)	($1,061,896)	($7,559,824)
15. Incremental Subsidy Per Line Per Month (L14/L3)	($15.67)	($2.76)	($1.89)	($0.55)	($0.48)	($0.41)	($0.47)	($0.59)
16. Incremental Change Per Month (L14/L4)	-15.56%	-7.33%	-6.65%	-3.52%	-4.23%	-4.51%	-7.72%	-5.27%
Fiber Feeder Cutoff Assumption								
17. Total Operating and Capital Cost	$112.59	$52.61	$43.45	$31.17	$27.03	$24.18	$21.02	$25.89
18. Subsidy Per Line	$96.29	$36.46	$27.44	$15.17	$11.13	$8.69	$6.03	$10.30
19. Subsidy Amount Per Month	$3,888,175	$9,212,548	$9,860,609	$12,077,177	$38,905,676	$52,456,428	$10,745,352	$131,380,580
20. Incremental Subsidy Per Month (L19-L4)	($3,876,885)	($876,565)	($44,386)	$19,364	$2,030,812	($388,300)	($3,009,549)	($11,967,008)
21. Incremental Subsidy Per Line Per Month (L20/L3)	($50.28)	($3.27)	($0.13)	$0.03	$0.62	($0.07)	($1.34)	($0.94)
22. Incremental Change Per Month (L20/L4)	-49.93%	-8.69%	-0.45%	0.16%	5.51%	-0.73%	-21.88%	-8.35%
Switching Assumption								
23. Total Operating and Capital Cost	$115.18	$51.88	$42.73	$30.22	$25.94	$23.44	$20.35	$25.62
24. Subsidy Per Line	$98.63	$35.69	$26.75	$14.19	$10.04	$7.92	$5.27	$10.01
25. Subsidy Amount Per Month	$7,605,939	$9,569,653	$9,320,923	$10,901,677	$32,744,150	$46,083,111	$11,857,846	$128,139,413
26. Incremental Subsidy Amont Difference (L25-L4)	($159,121)	($519,460)	($584,072)	($1,156,136)	($4,130,714)	($6,761,617)	($1,897,055)	($15,208,175)
27. Incremental Subsidy Per Line Per Month (L26/L3)	($2.06)	($1.94)	($1.68)	($1.50)	($1.27)	($1.16)	($0.84)	($1.19)
28. Incremental Change Per Month (L26/L4)	-2.05%	-5.15%	-5.90%	-9.59%	-11.20%	-12.80%	-13.79%	-10.61%

HPM - TOTAL CALIFORNIA
Basic Serivce Cost per Line
Source: Mercer Testimony Attachment 4B

	Density Zones -- >	0-5 (a)	5-200 (b)	200-650 (c)	650-850 (d)	850-2550 (e)	>2550 (f)	Avg (g)
1	**Total Investments**	**$2,430.88**	**$894.52**	**$588.91**	**$518.29**	**$449.95**	**$389.27**	**$481.34**
2	**Total Number of Bus/Res Lines**	**146,183**	**1,308,261**	**1,573,499**	**617,764**	**6,031,350**	**8,995,698**	**18,672,755**
3	**Monthly Shared Costs:**							
4	Structure Capital Cost	$20.59	$1.77	$0.41	$0.29	$0.75	$0.77	$0.94
5	Tax (5% of ln 8)	1.17	0.10	0.02	0.02	0.04	0.04	0.05
6	Overhead (6% of ln 8)	1.40	0.12	0.03	0.02	0.05	0.05	0.06
7	Uncollectible (1.4% of ln 8)	0.33	0.03	0.01	0.00	0.01	0.01	0.02
8	**Total Monthly Shared Costs**	**$23.50**	**$2.02**	**$0.46**	**$0.34**	**$0.86**	**$0.88**	**$1.08**
9	**Monthly Volumne Sensitive Costs:**							
10	Network Capital Cost	$28.34	$10.43	$6.87	$6.04	$5.25	$4.54	$5.61
11	General Support Capital Cost	4.79	1.19	0.71	0.62	0.59	0.52	0.64
12	Network Expenses	7.15	2.59	1.66	1.45	1.27	1.10	1.37
13	Network Operations	4.15	4.17	4.18	4.18	4.19	4.20	4.19
14	Network Support	0.41	0.08	0.04	0.03	0.03	0.03	0.04
15	Customer Support	0.70	0.70	0.70	0.70	0.70	0.70	0.70
16	Billing and Collection	0.55	0.55	0.55	0.55	0.55	0.55	0.55
17	White Pages	0.15	0.15	0.15	0.15	0.15	0.15	0.15
18	Operator Services non-charged	0.07	0.05	0.04	0.04	0.03	0.02	0.03
19	Tax (5% of ln 22)	2.63	1.13	0.85	0.78	0.72	0.67	0.75
20	Overhead (6% of ln 22)	3.16	1.36	1.02	0.94	0.87	0.80	0.91
21	Uncollectible (1.4% of ln 22)	0.74	0.32	0.24	0.22	0.20	0.19	0.21
22	**Total Monthly Vol Sen Costs**	**$52.85**	**$22.73**	**$17.00**	**$15.71**	**$14.55**	**$13.47**	**$15.15**
23	General Support Capital Cost (ln 9/(ln 2 + ln 8))	9.79%	9.79%	9.79%	9.79%	9.79%	9.79%	9.79%

APPENDIX A
REPLY TESTIMONY

REPLY TESTIMONY

OF

ANGELA YOUNG

Q.1. Are you the same Angela Young who prepared the "Qualification and Prepared Testimony of Angela Young" as part of the Opening Report of the Division of Ratepayer Advocates Regarding the Cost Proxy Models and Other Issues in the Universal Service Proceeding that was mailed on April 17, 1996?

A.1. Yes, I am.

Q.2 What is the purpose of this reply testimony?

The purpose of this reply testimony is to present Chapter 1 and Chapter 3 of DRA's "Reply Report of the Division Ratepayer Advocates Regarding the Cost Proxy Models and Other Universal Service Issues." This reply testimony presents DRA's response to certain issues raised by other parties in this proceeding. Specially, DRA responds to the expense estimates for the HPM and to the subsidy proposal for the small and mid-size LECs.

Q.3 Does this conclude your testimony?

A.3. Yes, at this time.

REPLY TESTIMONY

OF

HASSAN M. MIRZA

Q.1. Are you the same Hassan M. Mirza who prepared the "Qualifications and Prepared Testimony of Hassan M. Mirza" as part of the "Opening Report of the Division of Ratepayer Advocates Regarding The Cost Proxy Models And Other Issues in the Universal Service Proceeding"?

A.1. Yes, I am.

Q.2. What is the purpose of this reply testimony?

A.2. The purpose of this reply testimony is to present Chapter 2 of the "Reply Report of The Division of Ratepayer Advocates Regarding the Cost Proxy Models and Other Universal Service Issues." This reply testimony presents DRA's response to certain issues raised by other parties in this proceeding and also provides DRA's incremental impact to the CPM relating to the four changes that DRA recommended in the opening report.

Q.3. Does this conclude your reply testimony?

A.3. Yes, at this time.

REPLY TESTIMONY

OF

ZENAIDA CONWAY

Q.1 Are you the same Zenaida Conway who prepared the "Qualifications and Prepared Testimony of Zenaida Conway" as part of the "Opening Report of the Division of Ratepayer Advocates Regarding the Cost Proxy Models and Other Issues in the Universal Service Proceeding" that was mailed on April 17, 1996?

A.1 Yes, I am.

Q.2 What is the purpose of this reply testimony?

A.2 The purpose of this reply testimony is to present Chapter 4 of DRA's "Reply Report of the Division of Ratepayer Advocates Regarding the Cost Proxy Models and Other Issues in the Universal Service Proceeding." DRA addresses in Chapter 4 certain issues raised by parties in their response to Q.10 of the February 21, 1996, ALJ Ruling. Specifically, DRA responds to the rate rebalancing proposal of the LECs and to AT&T's proposal to use Yellow Page revenues as an offset to the universal service subsidy.

Q.3 Does that conclude your testimony?

A.3 Yes, at this time.

DRAFT

BEFORE THE
PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

FILED
PUBLIC UTILITIES COMMISSION
AUG 23 1995
SAN FRANCISCO OFFICE

Rulemaking on the Commission's Own Motion to Govern Open Access to Bottleneck Services and Establish a Framework of Network Architecture Development of Dominant Carrier Networks.	)	NO. R.93-04-003
Investigation on the Commission's Own Motion into Open Access and Network Architecture Development of Dominant Carrier Networks.	)	I.93-04-002

CONSENSUS COSTING PRINCIPLES/BASIC NETWORK FUNCTIONS; OANAD COST METHODOLOGY WORKSHOPS

CALIFORNIA TELECOMMUNICATIONS COALITION

By William C. Harrelson
Senior Counsel
MCI Telecommunications Corp.
201 Spear Street, 9th Floor
San Francisco, CA 94105
(415) 978-1090

August 23, 1995

DRAFT

CONSENSUS COSTING PRINCIPLES

The parties participating in the OAND cost study workshops have reached agreement that the following nine costing principles, with associated explanatory text, should replace the principles and text that appear in Attachment A of the Assigned Commissioner's Ruling.

Principle No. 1: Long run implies a period long enough that all costs are avoidable.

Long run is a period of time long enough so that all costs are treated as avoidable. Variable is synonymous with volume-sensitive and therefore not synonymous with avoidable. Avoidable costs can include both volume-sensitive and volume-insensitive costs. The purpose of this principle is to preclude the possibility of cross-subsidization by ensuring that TSLRIC estimates include all costs necessary to provision a telecommunications service.

Principle No. 2: Cost causation is a key concept in incremental costing.

Cost causation is a consistent and fundamental principle of TSLRIC studies. The principle of cost causation should be utilized to determine the appropriateness of including a cost in a TSLRIC study. The basic principle of cost causation is that only those costs that are caused by a cost object in the long run should be directly attributable to that cost object. Costs are considered to be caused by a cost object if the costs are brought into existence as a direct result of the cost object or, in the long run, can be avoided when the company ceases to provide the cost object.

For example, within the telecommunications industry, the principle of cost causation is best viewed from the standpoint of providing a service and what costs are necessary to offer that service. All costs caused by a decision to offer a service should be included in a TSLRIC study of that service.

DRAFT

Principle No. 3: The increment being studied shall be the entire quantity of the service provided, not some small increase in demand.

1. TSLRIC studies for "disaggregated pieces"[1] of the LECs' networks shall form the basis of TSLRIC studies for LEC "services"[2] so that the results of the cost studies for "disaggregated pieces" will be blind to the "services" that use those pieces.

2. The TSLRIC study for each "disaggregated piece" shall use an increment of demand equal to the aggregate demand for that "disaggregated piece" across all its uses as an input to LEC "services" and, if applicable, as a separately tariffed LEC "service." The TSLRIC study for each "disaggregated piece" shall separately identify the volume-insensitive and volume-sensitive costs for that "disaggregated piece," taking into account the entire aggregated demand for the "disaggregated piece."

3. The TSLRIC study for each LEC "service" shall include the volume-sensitive costs of shared "disaggregated pieces" and the total costs (both volume-sensitive and volume-insensitive) for all "disaggregated pieces" or functions that are dedicated uniquely to the LEC "service" being studied.

---

[1] For purposes of this consensus item, the term "disaggregated piece" has been used in place of the terms "resource," "basic network function" and "basic network component/basic network element" that were used in individual parties' filings. Although not precisely defined here, "disaggregated piece" refers to a higher level of aggregation than "nuts and bolts" items such as line cards, but (typically) a lower level of aggregation than tariffed LEC services. Some "disaggregated pieces" may, however, be offered as separately tariffed services in addition to being used as inputs to bundled LEC services.

[2] The term "services" refers to separately tariffed LEC service offerings or contracts, which may bundle together "disaggregated pieces" or may offer a single "disaggregated piece" for public purchase.

DRAFT

4. The TSLRIC study for each individual LEC "service" shall not include volume-insensitive costs of shared "disaggregated pieces." Instead, the TSLRIC for the group of services that share "disaggregated pieces" shall include the volume-insensitive cost of the shared "disaggregated pieces" plus all relevant volume-sensitive costs.

5. The total increment of demand at the "disaggregated piece" level is used to determine the size and the characteristics of the technology that shall be used to determine the TSLRIC.

The parties agree that this costing principle would produce costs that are relevant for determining whether cross-subsidization exists. All parties reserve the right to produce or request additional cost studies for other purposes and to identify other purposes for TSLRIC cost studies.

Principle No. 4: **Any function necessary to produce a service must have an associated cost.**

This principle assumes that any function necessary to produce an output or telecommunication service has an associated cost — whether that cost is volume-sensitive or volume-insensitive. The associated cost necessary to offer a service should in turn be included in a TSLRIC analysis. There shall be a presumption that no costs are sunk unless demonstrated to the contrary. The party seeking to demonstrate sunk costs has the burden of proof.

Principle No. 5: **Common costs, if any, are not part of a TSLRIC study, except for a TSLRIC study of the firm as a whole.**

DRAFT

TSLRIC studies shall includes costs that are often called overhead costs if those costs are caused by the decision to offer the cost object. TSLRIC studies of individual services shall exclude overheads that are not demonstrated to be caused by the cost object. Recognition of such costs will be treated as a pricing issue. No cost shall be assumed to be volume-insensitive common cost on the basis of its accounting treatment.

Principle No. 6: **Technology used in a long run incremental cost study shall be the least-cost, most efficient technology that is currently available for purchase.**

This principle assumes that a TSLRIC analysis should be based on the existing or planned location of switching and outside plant facilities using the least-cost, most efficient technology. The least-cost technology should reflect a known and proven technology that is clearly identified and is in use, at least partially, today.

Principle No. 7: **Costs shall be forward looking.**

TSLRIC studies shall be "forward looking"; *i.e.*, they shall not reflect a company's embedded base of facilities. Rather, the study shall account for only the most efficient and cost-effective means of providing the service. Efficiency requires that future costs be taken into account. Future costs must include all cost components required to provision a telecommunications service.

Principle No. 8: **Cost studies shall be performed for the total output of specific services and will use as a basis the basic network functions which comprise the services plus all other service specific costs.**

DRAFT

The cost methodology implementation should ensure that costs for services which use the network in the same way are treated consistently in terms of the network functions contributing to their respective costs. Specifically, the parameters of volume, distance and duration, and time of day, as to their effect on cost, should be consistently applied from service to service to the extent that the services use the network in the same way and to the same extent. For example, peak/off-peak cost differences shall be based on the aggregated usage patterns of all directly substitutable services within a given market.

Principle No. 9: **The same long run incremental cost methodology shall apply to all services, new and existing, regulated and non-regulated, competitive and non-competitive.**

A TSLRIC study shall be based on a specific set of costing principles and data that yields consistent cost results that can be compared to all services, new and existing, regulated and non-regulated, competitive and non-competitive.

Types of Costs

Throughout this discussion, various costing terms have been used. These terms — such as "direct," "indirect," "common" and "joint" — have been taken from the two-volume cost study report submitted to the Oregon Public Utility Commission (PUC) in Docket UM-351 (1993). This report identified the following types of costs associated with basic network functions:

Volume-sensitive costs — Costs that vary with changes in the output measured according to the cost drivers established for the output. (It is important to note that the term volume-sensitive is not synonymous with the terms usage-sensitive or traffic-sensitive.)

DRAFT

Volume-insensitive costs — Costs that do not vary with changes in the quantity of output, but are avoidable by not supplying the output.

Shared costs — Costs that are attributable to a group of outputs but not specific to any one within the group, which are avoidable only if all outputs within the group are not provided.

Service-specific costs — Costs, other than basic network function specific costs, that are caused by offering a service (*e.g.*, service advertising).

Common costs — Costs that are common to all outputs offered by the firm. While these costs are not considered part of a TSLRIC study, recovery of such costs is required. Recovery of common costs is a pricing issue.

Inclusion of Annual Charge Factors

In Docket UM-351, the Oregon PUC adopted the use of factors and loadings as one of its main costing principles. Factors and loading are used when costs cannot be identified directly. Examples are operations and maintenance, depreciation, taxes and rate of return. These factors and loadings are an appropriate part of a TSLRIC study.

DRAFT

BNF Costs vs. Service-Specific Costs

The LECs will report all investments and associated capital costs (*i.e.*, cost of money, taxes and depreciation) as BNF costs. The LECs will report cash operating expenses other than maintenance expenses as service-specific costs. The parties do not agree as to whether maintenance expenses shall be treated as costs of services or costs of BNFs.

DRAF

CONSENSUS BASIC NETWORK FUNCTIONS

The parties participating in the OAND cost study workshops have agreed that the following definitions of Basic Network Functions ("BNFs") and specifications of cost drivers for each BNF should replace the discussions of the corresponding categories of BNFs and associated cost drivers that appeared in Attachment B of the Assigned Commissioner's Ruling. Those BNFs that are not specifically addressed in this "Consensus Basic Network Functions" document are not the subject of agreement among the parties.

NETWORK ACCESS CHANNEL

General Category

BNFs for subcategory Network Access Channel.

Pacific Bell[3]

Feeder	A cost function formula for feeder facilities for each wire center showing cost varying as a function of distance from the wire center.
Distribution	A cost function formula for distribution facilities for each wire center showing cost varying as a function of distance from the serving area interface (SAI).

[3] Cost equals unit investment cost.

Electronics	The service-specific electronic facilities necessary to utilize feeder and distribution for that service.
Fiber Ring	A per access line unit cost.
Service Map	A map or description of how much fiber ring or feeder and distribution facilities and which service-specific service electronics are necessary to establish network access for each service. The "map" will also include the customer density distribution, by service, for each of the areas for which the facilities information is provided.

GTE

Copper Technology[4]	Cost detail will be provided by density category (*e.g.*, high, medium and low) and by distance for basic level network access channels (*i.e.*, loops). Copper technology will be used for shorter loops (*e.g.*, up to 12 kilofeet).
Pair-Gain Technology[4]	Cost detail will be provided by density category (*e.g.*, high, medium and low) and by distance for basic level network access channels (*i.e.*, loops). Pair-gain technology (*i.e.*, fiber cable leaving the central office, a pair-gain device and copper cable) will be used for longer loops. The cost will be

[4] Unit (or monthly) cost detail, by density category, by distance, and by bandwidth, and examples will be available for mapping to final services.

identified for copper cable, fiber cable, support structures (*i.e.*, poles and conduit systems common to both), and pair-gain devices (*i.e.*, electronics).

Fiber Technology[4] Cost detail will be provided by system size for DS-1 and DS-3 network access channels. Costs will be identified for fiber cable, support structures and associated electronics.

Channel Performance, Other Features and Functions (CP) This category of cost will address equipment components (*e.g.*, electronics) which are used in conjunction with the basic network access channel to meet the quality or utility of specific services (*e.g.* , private line).

Cost Drivers: distance from the wire center (or central office); electronics; fiber ring length; size of cable/system; bandwidth; wire center size/density. Pacific's studies may not show facilities' costs varying as a function of density within a wire center, reflecting unit investments per wire center.

BNFs for subcategory NA Channel Connection. The subcategory of BNFs that provide the interface between the NA Channel, the switched network, another NA Channel or a Dedicated Transport interoffice transmission path.

(1) **Network Access Channel Connection - Switch Interface**[5]

(2) **Network Access Channel Connection - Cross-connect** (*i.e.*, the jumper)

E.g.:
- Analog
- DS-0
- DS-1
- DS-3

(3) **EISCC** (*i.e.*, the connection between the point of interconnection and the LEC's cross-connect point)

E.g.:
- Analog
- DS-0
- DS-1
- DS-3

SWITCHING AND SWITCHING FUNCTIONS

BNFs for subcategory Switching. The subcategory of BNFs that establish a call and a temporary transmission path through the switch architecture for originating, terminating, intraoffice (single office), interoffice (multi-office) or tandem switching. Each BNF consists of a particular call setup, by time-of-day (TOD) and duration by TOD

[5] This is also referred to as non-traffic-sensitive switching (*i.e.*, a line termination, cable to the main distribution frame, *etc.*).

ISSUE: The TOD cost driver distinguishes between peak and off-peak usage. Pacific Bell defines the peak period as the busy-hour; MCI defines the peak period as the billing period in which the peak occurs (*e.g.*, day).

BNFs for subcategory Switching.[6]

(a) **BNFs for subcategory Intraoffice (Single-Office) Switching: Setup and Duration.**

(b) **BNFs for subcategory Interoffice (Multi-Office) Switching - Originating Office: Setup and Duration.**

(c) **BNFs for subcategory Interoffice (Multi-Office) Switching - Terminating Office: Setup and Duration.**

(d) **BNFs for subcategory Tandem Switching: Setup and Duration.**

SS7 SIGNALLING NETWORK FUNCTIONS

BNFs for subcategory SS7 Signalling. The subcategory of BNFs that provide the temporary signalling transmission path through the network. The signalling network consists of the signaling links, Signal Transfer Point (STP) and Service Control Point (SCP).

---

[6] The cost drivers are (a) for setup: office technology, on-peak/off-peak, digits dialed, forwarding

DRAFT

BNFs for subcategory SS7 Signalling

(1) **Setup:** Cost drivers are busy-hour octets.

(2) **Queries:** Cost drivers are busy-hour octets.

(3) **Links:** Cost drivers are bandwidth and distance.

(4) **STP interface:** The bandwidth-specific standard interface to STP node. Cost drivers are number of 56kbs link terminations.

TRANSPORT

General Category

Subcategories within Transport

6) **Dedicated Transport** - A full period, bandwidth specific (DS-0, DS-1, DS-3) interoffice transmission path between switching offices and/or serving wire centers of an LEC.

Termination - An interface between the channel connection and the dedicated transport facilities.

(6-1) DS-0 Level

(6-2) DS-1 Level

(6-3) DS-3 Level

Facility - The full period, bandwidth specific (DS-0, DS-1, DS-3) interoffice transmission path established between two points of dedicated transport termination.

(6-4) DS-0 Level

(6-5) DS-1 Level

(6-6) DS-3 Level

Possible cost drivers: Bandwidth, whether office is on or off the fiber ring, nodes on the ring, number of rings (*i.e.*, for inter-ring application), system size and/or distance.

7) **Switched Transport** - The temporary time-sensitive interoffice transmission paths between switching offices and/or serving wire centers of the LEC.

(7-1) **Termination** - An interface between the switching function and switched transport facilities.