

(Decision No. C93-612)

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF COLORADO

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IN THE MATTER OF PROPOSED RULES)
REGARDING THE COSTING AND PRICING)
OF TELEPHONE SERVICES.)

DOCKET NO. 92R-596T

STATEMENT OF ADOPTION OF RULES

Adopted Date: June 1, 1993

BY THE COMMISSION:

The Colorado Public Utilities Commission adopted the rules appended to this Statement of Adoption at its Open Meeting of June 1, 1993.

ADOPTED IN OPEN MEETING June 1, 1993.

(SEAL)



ATTEST: A TRUE COPY

Bruce N. Smith

Bruce N. Smith
Executive Secretary

THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF COLORADO

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RULES PRESCRIBING PRINCIPLES FOR COSTING AND PRICING OF REGULATED SERVICES OF TELECOMMUNICATIONS SERVICE PROVIDERS

BASIS, PURPOSE, AND STATUTORY AUTHORITY

The basis and purpose for these rules are to standardize the determination of costs for pricing of regulated services of telecommunications service providers in the State of Colorado. The Colorado Public Utilities Commission (Commission) is entrusted with the regulation of rates and charges of all products and services offered by telecommunications providers under its jurisdiction. In the regulation of those rates and charges, the Commission has the responsibility to ensure that the rates and charges are just and reasonable (*See* § 40-3-101, C.R.S.).

The advent of competition into many telecommunications markets and the deregulation of products and services by either state or federal authorities have greatly complicated the Commission's responsibility to determine whether rates and charges of telecommunications services regulated by the Commission are just and reasonable. These rules provide specific guidelines for all telecommunications providers in the area of appropriate market and cost analyses which underlie just and reasonable rates.

These rules do not conflict with any other provision of law, and there are no duplicating or overlapping rules. In particular, these rules are not intended to affect or modify existing rules found at 4 CCR 723-24 (Part 3 rules) and 723-27 (Cost Allocation Rules). In the event of any inconsistency between these Costing and Pricing Rules and the Part 3 Rules or the Cost Allocation Rules, the latter shall apply.

The statutory authority for these rules is §§ 40-2-108, 40-3-101, and 40-3-110, C.R.S.

RULE 1: APPLICABILITY

Rules 2 through 7 are applicable to all telecommunications service providers whose rates are regulated by the Commission. Rule 7 contains provisions for exceptions and waivers for specific providers or services.

RULE 2: DEFINITIONS

As used in these rules, unless the context otherwise requires:

(1) **Average Cost Pricing:** A practice where a firm sets the price of a product equal to the average total cost of that product. Such a result can be achieved by adding a mark-up to the average variable cost of the product.

(2) **Average Fixed Cost:** The sum of the relevant fixed costs of producing a given quantity of output, divided by the total number of units produced.

(3) **Average Service Long-Run Incremental Cost:** Total service long-run incremental cost divided by the total number of units of the service.

(4) **Average Total Cost:** The total cost of producing a given quantity of output, divided by the total number of units produced. Average total cost is equal to the sum of average variable cost and average fixed cost.

(5) **Average Variable Cost:** The summation of all variable costs of producing a given quantity of output, divided by the total number of units produced.

(6) **Bundling:** A situation in which the rate elements and tariff provisions for a service are aggregated so that customers may not buy some features and functions within the collection without buying them all.

(7) **Cost Accounting Standards:** The assignment of costs to products, services, or customer classes using the following five criteria:

(a) **Cost Causation:** Costs are assigned to the revenue-producing products or services that cause those costs to be incurred;

(b) **Traceability:** Costs are assigned using the cost attribute that permits the resources represented by the costs to be identified in their entirety with a revenue-producing activity;

(c) **Variability:** Costs that vary in total with variations in some measure of the volume of activity that is associated with the revenue-producing product or service but that are not traceable to a revenue-producing product or service, are assigned to the revenue-producing product or service based upon the estimated rate of variability;

(d) **Capacity Required:** Costs of capacity are assigned according to whether they are necessary for the performance of the service; and

(e) **Beneficiality:** Costs are assigned to various services based upon the degree of benefit derived by each service.

(8) **Direct Cost:** A cost specifically identifiable with the production of an individual service, without requiring the use of allocations to separate it from costs incurred in the production of other services.

(9) **Economies of Scale:** Economies of scale exist if the average cost of producing any group of services increases less than proportionately to an increase in quantity of those services.

(10) **Economies of Scope:** Economies of scope exist if the cost of producing any group of services by one firm is less than the sum of the costs of producing the same group and quantities of those services by two or more firms providing mutually exclusive subsets of those services.

(11) **Elasticity of Demand:** The percentage change in the quantity demanded of a service, divided by the percentage change in the price of the service.

(12) **Elasticity of Supply:** The percentage change in the quantity supplied of a service, divided by the percentage change in the price of the service.

(13) **Fixed Cost:** A cost which is invariant with respect to the volume of output, within the specified planning horizon. Such a cost must be paid regardless of how many units the firm produces, or whether it produces at all, as long as the firm does not withdraw entirely from the relevant market.

(14) **Fully Distributed Costs:** The costs derived from the process of assigning the total historical costs of the firm to individual products or services using cost accounting, engineering, and economic standards. Fully distributed costs include not only all justifiable costs related to the provision of service but also the return on investment.

(15) **Functional Component:** A cost element or group of cost elements representing the smallest feasible level of unbundling capable of being tariffed and offered as a service.

(16) **Historical Costs:** The investment or expenses incurred at the time an input or resource is purchased, which is not necessarily equal to the costs of replacing the input or resource in the current time. Historical costs are directly obtainable from accounting records of the provider.

(17) **Imputation:** In the instance where Part 2 or fully regulated Part 3 services are bundled with other services or where Part 2 or fully regulated Part 3 services are used as inputs by a provider to provide either a final or intermediate service, imputation is the practice whereby the tariff price of the Part 2 or fully regulated Part 3 service must be included in the price floor for the service in question.

(18) **Incremental Service Incremental Cost:** The change in total cost resulting from increasing (or decreasing) the quantity of output of a service by a small number of units, divided by that small number. If total cost changes in a continuous fashion as output changes and the increment is sufficiently small, incremental service incremental cost will approximate marginal cost.

(19) **Joint Cost:** A cost that occurs when the production process involves intermediate or final outputs that maintains fixed proportions with respect to two or more services.

(20) **Local Exchange Carrier or LEC:** A provider of Part 2, Title 40, Article 15, services that are regulated by the Commission.

(21) **Long-Run Costs:** The costs incurred by a firm operating in a planning horizon where all elements of the production process can be varied, including the size and type of facilities and other utilized resources.

(22) **Marginal Cost:** A theoretical change in total cost resulting from an extremely small change in output. In mathematical terms, marginal cost is the first derivative of the total cost function with respect to output.

(23) **Marginal Cost Pricing:** A theoretical practice in economics where a firm prices its competitive products at marginal cost of the last unit of output.

(24) **Market Power:** Any market power exerted by a firm in a market where the competitive process cannot produce the theoretical outcomes and benefits of perfect competition. The degree of market power is determined by a consideration of the following factors:

a. Relevant market, which is determined by service and geographic substitutability on both the demand and supply sides of the market;

b. The market share of the particular service held by the regulated telecommunications service provider in the relevant market;

c. The supply responsiveness (or elasticity) of competitors in the relevant market, which is basically an assessment of entry and expansion conditions of competitors; and

d. The market demand characteristics in the relevant market. For example, the more elastic the total market demand is, the more customers view other services as substitutes or alternatives for the provider's service in question.

(25) **Monopoly:** In its strictest sense of the term, a firm is a monopoly if it is the only supplier of services for which there are no substitutes but many buyers. The simple economic analysis of monopoly relaxes the assumption of no substitutes, but assumes that the monopolist faces a relatively stable and predictable downward-sloping market demand curve.

(26) **Natural Monopoly:** Natural monopoly exists if a single firm produces its set of outputs at less cost than could be achieved by dividing that set among two or more firms.

(27) **Overhead Costs:** Those shared costs related to the production of all services offered by a firm.

(28) **Perfect Competition:** A market structure is perfectly competitive when the following conditions hold:

- (a) There are a large number of firms each with an insubstantial share of the market;
- (b) The firms produce a homogeneous service using identical production processes and possess perfect information;
- (c) There is free entry into and exit from the industry.

Perfect competition implies that both marginal revenue and average revenue are equal to price in long run equilibrium. Thus, firms are price takers and can sell as much as they are capable of producing at the prevailing price.

(29) **Price Ceiling:** A maximum level above which a regulated telecommunications service provider shall not price a service.

(30) **Price Discrimination:** The act of selling different units of a service at price differentials not directly corresponding to differences in cost. This includes both (1) the sale of identical units of the service to different customers at different prices, and, (2) the sale of identical units of the service to the same customer at different prices. In order for a firm to practice price discrimination profitably with respect to a particular service, it must have: (1) some control over the price it charges for that service; (2) the ability to segregate its customers for that service into groups with different price elasticities of demand; and (3) the ability to prevent resale of the service by those customers who can buy at the lower prices.

(31) **Price Floor:** A minimum level below which a provider shall not price a service.

- (32) **Provider:** Provider means telecommunications service provider.
- (33) **Ramsey Pricing:** The practice of pricing all products and services such that the sum of consumer and producer welfare is maximized, subject to relevant regulatory constraints.
- (34) **Replacement Cost:** The costs that the provider would incur if it were to construct its plant and facilities using the current, best technology at current prices. The physical positioning of the facilities would not change, however.
- (35) **Residual Pricing:** A service is residually priced if its price is set so that revenues from the service equal all costs not covered by revenues from all other services offered by the firm once their prices are set.
- (36) **Service-Specific Fixed Cost:** A fixed cost caused by the existence of a specific service within the array of services currently offered. It does not vary with changes in the number of units produced but would be eliminated if the specific service were deleted from the current array of services offered.
- (37) **Services:** Intrastate telecommunications products or services offered by providers.
- (38) **Shared Cost:** A cost incurred for facilities and resources used in common in the production of two or more services.
- (39) **Short-Run Costs:** The costs incurred by a firm operating in a planning horizon where many elements of the production process are fixed and cannot be readily varied, including the size and type of certain utilized facilities.
- (40) **Stand Alone Cost:** The total cost incurred by a firm to produce a given volume of a service or group of services as if it were the sole service or group of services produced by that firm.
- (41) **Sunk Cost:** A cost that has already been incurred and is considered irretrievable. Such a cost cannot be avoided, even by discontinuing production entirely.
- (42) **Total Cost:** The sum of all costs incurred by the firm to produce any given level of output; it includes both fixed and variable costs.

(43) **Total Incremental Cost:** The change in total cost resulting from an increase or decrease in output. In mathematical terms, total incremental cost equals total cost assuming the increment is produced, minus total cost assuming the increment is not produced.

(44) **Total Service Incremental Revenue:** The change in the firm's total revenues resulting from adding or deleting a service.

(45) **Total Service Long Run Incremental Cost:** Total service long run incremental cost is equal to the firm's total cost of producing all of its services assuming the service (or group of services) in question is offered minus the firm's total cost of producing all of its services excluding the service (or group of services) in question.

(a) The strict definition of total service long run incremental cost requires that it be calculated by first doing two total cost studies and then subtracting one from the other. On the other hand, an estimate of total service long run incremental cost can be made directly.

(b) The strict definition of total service long run incremental cost incorporates a forward looking concept which should, therefore, include the costs that the firm would incur today if it were to install its network from scratch. On the other hand, an estimate of total service long run incremental cost can be generated by assuming that the geographic locations of routes and possible switching locations are the same as those available to the firm today and that the types of technological change in the future can be anticipated. In making this estimate, the assumptions behind it should be made explicit; in addition, the estimating procedure should reflect the time period in which the resulting prices are anticipated to be in effect.

(c) Total service long run incremental cost includes both fixed and variable costs specific to the service (or group of services) in question.

(d) The total service long run incremental cost for a group of services is at least equal to the sum of the total service long run incremental costs of the individual services within the group. If the total service long run incremental cost for the group is greater than this sum, the difference is equal to the shared costs attributable to the group of services and/or to some subset of that group. In other words, these shared costs are part of the total service long run incremental cost of the group but are not part of the total service long run incremental cost of any individual service within the group.

(46) **Unbundling:** A situation in which the rate elements and tariff provisions for a service are disaggregated to the lowest level practicable to permit customers to buy the features and functions desired by them without having to purchase unneeded features and functions.

(47) **Variable Cost:** A cost that changes (but not necessarily proportionately) either with the number of units produced of a given set of services or with the number of services provided.

RULE 3: SERVICE APPLICABILITY

Colorado statutes (§ 40-15-101 *et seq.*, C.R.S.) categorize telecommunications service regulation into three segments: Deregulated ("Part 4"), Emerging Competitive ("Part 3"), and Regulated Telecommunications Services ("Part 2"). The statute, Commission decisions, and Commission rules (*see* 4 CCR 723-24) have provided the categorization of specific telecommunications services into three regulatory schemes. The level of actual competition in a specific service is the primary determinant for the extent of regulation of that service under the statute.

(1) These rules have no applicability to telecommunications services deregulated under statute (Part 4 services, § 40-15-401, C.R.S.). Prices for deregulated services are assumed to be determined by competitive markets. Additional protection is provided by applicable Commission rules prohibiting cross-subsidization (See 4 CCR 723-27).

(2) Emerging competitive telecommunications services (Part 3 Services) will be treated under these rules differently dependent upon the amount of actual demonstrated competition for each service.

(a) Emerging competitive telecommunications services (Part 3 Services) for which the Commission has determined competition is sufficient to warrant relaxed regulatory treatment shall be covered under Rule 5 for Emerging Competitive Services Subject to Relaxed Regulatory Treatment, below.

(b) Emerging competitive telecommunications services (Part 3 Services) for which the Commission has not made a determination regarding the level of competition or has determined that competition is absent or negligible (*i.e.*, the provider has significant market power for the service(s)) shall be covered under Rule 4 for Fully Regulated Telecommunications Services below.

(3) Regulated telecommunications services (Part 2 Services) shall be covered under Rule 4 for Fully Regulated Telecommunications Services, below.

RULE 4: FULLY REGULATED TELECOMMUNICATIONS SERVICES

(1) **Costing:**

(a) At the time of a service rate proposal, both total service long run incremental cost and fully distributed cost studies must be provided. Other cost studies may be provided if deemed relevant. Total service long run incremental cost studies will be used to establish price floors as described below in Rule 4 (2) (a). Fully distributed cost studies will be used as a component of the actual pricing process as described below in Rule 4 (2) (d).

(b) If a provider offers a new service which uses a part of the existing investment, a surrogate for a fully distributed cost study must be performed for the new service in order to allocate an appropriate portion of that existing investment to the new service. This is termed a surrogate study because most fully distributed cost studies are performed on existing products and services using historical information. This surrogate fully distributed cost study shall allocate the existing investment and expenses that the new service utilizes employing either actual historical or pro forma adjusted investments and expenses. The pro forma adjusted investments and expenses would be considered in cases where the provider desires to reflect a more current view of expenses and/or investments. This would occur in situations wherein the provider has obsolete investments or one-time expenses on the books of account that would be inappropriate to include in a cost study for a new service. The estimates of existing costs to be allocated to new services would reduce in total the allocations of these costs to existing services by the same amount.

(c) Cost studies must be performed either for all specific service offerings or for all functional components that make up the entirety of services offered. The provider shall notify the Commission in its documentation that it is using either service level or functional component level cost studies. If functional component level cost studies are used, the provider must also provide information sufficient to match functional components to services.

(d) The fully distributed cost studies must use the cost accounting standards defined in Rule 2 and the total service long run incremental cost studies must use the standards presented in the definition of that term in Rule 2 to properly include all costs identifiably related to a given service. Any deviation from these standards must be clearly stated and a justification provided. These deviations must be approved by the Commission.

(e) Cost studies must include, but are not limited to, the relevant costs for billing, marketing, advertising, and network costs in addition to any other relevant costs associated with the service.

(f) Cost studies for any service offerings that include, as underlying functionalities, any tariffed Part 2 services or fully regulated Part 3 services must impute the tariffed rates as a part of the costs of the services in question.

(g) Cost studies must be approved by the Commission.

(h) Individual cost studies for each service or functional component must not have been performed more than three years prior to their being filed.

(2) Pricing:

(a) The commission shall set the prices for all fully regulated telecommunications services. Prices for fully regulated telecommunications services shall be set to advance universal service at just and reasonable rates. The price for each service must be set so that the following conditions are satisfied:

(i) Total revenue from the given service is equal to or greater than its total service long run incremental cost.

(ii) Total revenue from any group of services in which the given service appears is equal to or greater than the total service long run incremental cost of the group of services.

(iii) In theory, total revenue for the given service (or any group of services in which the given service appears) should be equal to or less than the stand-alone cost for the service (or group of services). In practice, however, stand alone cost studies may be difficult and burdensome to execute so the Commission may use the fully distributed cost for the service (or group of services) plus some determined mark-up as a surrogate price ceiling. For a new service, the fully distributed cost study would be done as outlined above in Rule 4(1)(b).

As an example, consider the access loop. The access loop is not a separate service but rather is an input necessary for the provision of many telecommunications services. As such, costs associated with the access loop will not appear in the total service long run incremental cost of any single service requiring the access loop but will appear as part of the total service long run incremental cost of the entire group of services requiring the loop. Consequently, prices must be set so that the sum of the revenues from all services requiring the access loop covers not only the sum of the total service long run incremental costs for the individual services but also the shared cost of the loop. Finally, regarding the computation of stand alone costs, since each service in this group requires the access loop, the entire cost of the loop will appear in the stand alone cost for each of these services.

(b) The only exceptions to Rule 4(2)(a) will be when the Commission specifically has determined that, for reasons of public policy, the price for a fully regulated telecommunications service may be below the price floor or above the price ceiling established in Rule 4(2)(a). The public policy considerations used should be made explicit.

(c) When a fully regulated telecommunications service, with Commission approval, is priced below its respective price floor, the dollar amount below the price floor and the source from which that deficit is made up must be identified and specifically approved by the Commission.

(d) The price of a fully regulated telecommunications service, as set by the Commission, may include some portion of the overhead costs of the provider in order for the provider to recover its overall revenue requirement. The amount of these overhead costs to be recovered by each fully regulated telecommunications service must be specifically identified; these amounts represent the contributions of various services to the covering of overhead costs. In this pricing process the Commission will definitely consider fully distributed cost studies. Beyond that, other factors will be considered by the Commission on a case-by-case basis and may include, but are not limited to, the following:

- (i) Other cost studies;
- (ii) Market studies to determine market structure, extent of competition, etc.;
- (iii) Elasticity studies of demand and supply;
- (iv) Focus group results;
- (v) Survey results;
- (vi) Social obligations, e.g., promotion of universal service and absence of rate shock;
- (vii) Rate continuity; and
- (viii) Statutory requirements.

Which of these factors are considered will depend upon the complexity of the issues and the magnitude of the net revenue involved.

(e) Any changes in the rates for fully regulated telecommunications services will be made through the traditional tariff review process prior to implementation. This includes, but is not limited to, revenue neutral rate changes of any fully regulated telecommunications services.

(f) Residual pricing may not be used for any services.

(g) Nothing in this rule shall be construed to limit the Commission's powers to do all things necessary in fulfilling its statutory duties.

RULE 5: EMERGING COMPETITIVE SERVICES SUBJECT TO RELAXED REGULATORY TREATMENT

(1) Costing:

The cost studies needed in Rule 5 must conform to the specifications outlined in Rule 4(1).

(2) Pricing:

(a) The price floor for emerging competitive services subject to relaxed regulatory treatment shall be determined as outlined in Rule 4(2)(a). The price floor shall also include imputation, as defined in Rule 2.

(b) The price ceiling for emerging competitive services subject to relaxed regulatory treatment shall be determined as outlined in Rule 4(2)(a)(iii) unless the Commission explicitly adopts an alternative such as the current price.

(c) A provider may request that the Commission review the existing price floor and/or price ceiling. Such request shall be made by filing a formal request with the Commission. The request shall provide support in the form of the appropriate revised cost studies, with the inclusion of appropriate imputation.

(d) The exact form of regulation of an emerging competitive service subject to relaxed regulatory treatment will be specified in the Commission order(s) granting the relaxed regulatory treatment pursuant to the Commission's **Rules Regulating Emerging Competitive Telecommunications Service (4 CCR 723-24)**.

RULE 6: COST STUDIES TO BE PROVIDED TO COMMISSION

(1) Contents:

(a) At the time of a rate proposal, the cost study results submitted by a provider must specify the type of costs being estimated, using the definitions in Rule 2 of these rules.

(b) For practical reasons, all cost studies require a degree of simplification and approximation, and no study can be perfectly accurate. However, the provider's studies must be in accordance with the definition of the type of costs being estimated, as it appears in Rule 2 of these rules.

(c) The provider must explicitly identify all instances in which its estimate deviates from the specific definitions of the cost type in Rule 2 of these rules. A written explanation must be provided which justifies each such deviation on the basis of data limitations, methodological simplicity, or other practical considerations. The explanation must be sufficiently clear and detailed to allow interested parties to judge whether or not the deviation is justified and to understand its potential significance. The Commission has the ultimate power either to grant or deny each specific deviation.

(d) The provider must explicitly identify which costs (and which elements of the production process) it considers fixed within the specified planning horizon and which costs it considers variable.

(e) The provider must explicitly identify any included sunk costs and separately quantify the reduction in cost estimates that would result from the exclusion of these sunk costs.

(f) The provider must explicitly identify all shared and overhead costs and specify those included in the cost study and those excluded. The provider must separately quantify the reduction in the cost estimates that would result if shared and overhead costs were excluded.

(g) Nothing in this rule shall be construed to limit the Commission's powers to do all things necessary in fulfilling its statutory duties.

(2) Cost Estimate Requirements

(a) In any incremental cost estimate submitted, the increment of output analyzed must be relevant to the issues under consideration.

(b) In any incremental cost estimate submitted, the estimated change in costs must approximate the cost difference between a "business as usual" scenario accommodating existing and future demand and a scenario assuming output levels that are higher (lower) by the relevant increment (decrement).

(c) A cost estimate for a service that utilizes or displaces another service offered by the provider must reflect the revenue which would have been derived from the other service. For example, the cost estimate for message toll service must reflect the access revenues that are foregone when the customer purchases toll service from the provider submitting the cost studies instead of from a competitor.

(3) Required Workpapers

(a) When a provider submits a cost estimate to the Commission, it must simultaneously file a complete set of supporting workpapers and source documents.

(b) The workpapers must clearly and logically present all data used in developing the estimate and provide a narrative explanation of all formulas or algorithms applied to these data. These workpapers must allow others to replicate the methodology and calculate equivalent or alternative results using equivalent or alternative assumptions.

(c) The workpapers must clearly set forth all significant assumptions and identify all source documents used in preparing the cost estimate.

(d) The workpapers must be organized so that a person unfamiliar with the study will be able to work from the initial investment, expense, and demand data to the final cost estimate. Every number used in developing the estimate must be clearly identified in the workpapers as to what it represents. Further, the source should be clearly identifiable and readily available, if not included with the workpapers.

(e) Any input expressed as a "dollars per minute," "dollars per foot," "dollars per loop," "dollars per port," and the like must be traceable back to the original source documents containing the number of dollars, minutes, feet, loops, ports, and the like from which these figures were calculated.

(f) To the extent practicable, all data and workpapers must be provided in machine readable form on diskettes using standard spreadsheet or database software formats such as Lotus 1-2-3. Each diskette must contain a "read me" or similar file that defines the contents of each file on the diskette and contains an explanation of the definitions, formulas, equations, and data provided on the diskette.

(g) An index or detailed table of contents of the workpapers and source documents must be provided. In addition, to the extent practicable, a cross index should be included that will allow other parties to track key numbers through the various source documents, workpapers, and exhibits.

RULE 7: EXCEPTIONS AND WAIVERS

(1) Any local exchange provider having fewer than 50,000 local access lines shall be in compliance with the intent of these rules by providing the Commission with its required filing information under the Colorado Commission's Cost Allocation Rules for Telecommunications Service and Telephone Utilities Providers (see 4 CCR 723-27).

(2) If this Commission has previously granted a provider, by order, a specific form of costing and pricing for a specific service, such grant shall not be changed by this rule.

(3) The Commission may permit variance from these rules for good cause shown if it finds compliance to be impossible, impracticable, or unreasonable, if not otherwise contrary to law.