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# Government Studies Programme

Telecommunications regulation  
in Nova Scotia  
: a study of the tariff objectives  
and tariff determination  
of Maritime Telegraph and  
Telephone Company Limited

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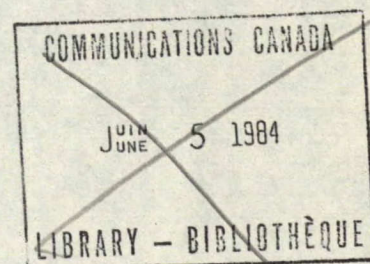
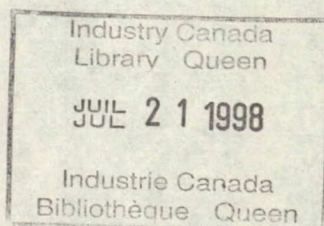
# GOVERNMENT STUDIES PROGRAMME

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DALHOUSIE UNIVERSITY  
HALIFAX, NOVA SCOTIA

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TELECOMMUNICATIONS REGULATION IN  
NOVA SCOTIA

A Study of the Tariff Objectives  
and Tariff Determination of  
Maritime Telegraph and Telephone Company Limited



## RESEARCH TEAM

①  
Barry Lesser, Department of Economics, Dalhousie University, Project Director.  
John Chamard, Department of Business Administration, Saint Mary's University.

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Needless to say, full responsibility for the final content of the report rests solely with the authors.



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## INTRODUCTION AND SUMMARY

This study addresses the question of tariff objectives, and their relationship to the tariff, of Maritime Telegraph and Telephone Company Limited<sup>1</sup> within a framework of optimal resource allocation. The tariff is the price list for the different regulated services provided by the Company and the tariff objectives are the goals and principles<sup>2</sup> which provide the rationale for the tariff.

The study develops a decision-making framework for the regulatory process in Nova Scotia which will provide an explicit rationalization of the allocation of resources being made to the telephone system and which will provide an ongoing assessment of the system's performance. This decision-making framework has three major components: a goal specification process, a tariff determination process and a monitoring process.

Particularly at the present time, the Province of Nova Scotia must be concerned with achieving an efficient allocation of its scarce resources. The resource allocation which will be made to telephone service will be influenced by the goals of the tariff and the tariff which results from those goals. The specification of goals is thus of prime importance.

The tariff, because it influences the demands made on the telephone system and the Company's ability to satisfy those demands, will be

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<sup>1</sup> Referred to hereinafter as the Company. The tariff objectives and the tariff itself are developed by the Company and are approved by the Board of Commissioners of Public Utilities of Nova Scotia, hereinafter referred to as the Board.

<sup>2</sup> This report uses the word goal to mean "the result or achievement toward which effort is being directed" and the word principle to mean "an accepted or professed rule of action or conduct".



a primary instrument for achieving desired size and quality of service goals. The tariff determination is thus crucial to goal achievement.

Once the goals and the tariff are determined, the degree of goal achievement and the performance of the Company in attempting to secure goal achievement are equally important; hence the need for a monitoring process.

Chapters 1 and 2 are an historical analysis of how tariff objectives and the tariff have been determined in the past. The purpose of this is not to determine whether the telephone system, and the regulation of that system, has been adequate in the past; rather the purpose of the analysis is to develop a decision making framework for future decisions. This is set out in Chapters 3 and 4.

#### The Current Tariff Objectives

Historically, the Company has developed a list of tariff objectives which are deemed to represent the goals and principles which the tariff is designed to serve. At each rate hearing, these objectives are presented to the Board as the basis for the tariff being proposed. The latest Company statement of tariff objectives, produced for the rate hearing begun in September 1975 listed the following objectives:

1. to provide maximum availability of telephone service of an appropriate standard at reasonable rates,
2. to provide an adequate and fair rate of return to the Company,
3. to encourage system growth,
4. to encourage maximum economical development of better grades of service,
5. to encourage long-term use of service,

6. to apportion some part of costs against particular subscribers,
7. to provide for economic operation,
8. to provide for simplicity of administration.

The key philosophy behind the interpretation of the objectives is the Company view that the telephone system is a single integrated network. Various categories of service and users are identified for pricing purposes, but the basic philosophy behind the objectives and hence the level and structure of rates is the total system concept. This system wide concept of service leads to a system wide concept of pricing which results in individual prices that are intended to reflect the overall value of the system to any individual customer and relative differences in the value of service to different customers. The overriding Company objective is to maximize the total value of the system.

Over time, the Board in its written decisions has endorsed the objectives advanced by the Company and has, with a few exceptions, approved the Company's tariff proposals which were accepted as following from the objectives.

#### The Objectives in Practice

The analysis of Chapter 2 examines the Company's objectives in terms of the role which they are designed to fulfill, their ability to perform that role, and their relationship with the tariff which has actually emerged over time.

The analysis of the role of the objectives suggests that, in theory, they should represent the goals that the telephone system in Nova Scotia is expected to achieve. Some of the objectives such as "economic operation",



"simplicity of administration", "long term use of service" and "maximum economical development of better grades of service" are, however, shown to be principles of rate making, rather than tariff goals. Principles are an intermediate part of the tariff process which can facilitate the translation of goals into the tariff which is the primary instrument for goal achievement. But in the case of those Company objectives which are principles, the goals which lie behind them are not always made explicit. The analysis shows that the relative importance of various principles with respect to system goals cannot be determined from the list of objectives itself.

Some of the Company's objectives, in theory, can be seen as goals of the system. However, the objectives are ambiguous, either because of the way they are stated, or because, in their formulation, there has been little explicit input from either government or consumers. As goals for the telephone system, the objectives imply an ordering of society's priorities as to the allocation of scarce resources. The legal monopoly status of the Company implies a responsibility for the conduct of its operation which may not always be required of a firm operating in a competitive environment. It is thus relevant to re-examine whether the goals do fit society's priorities for resource allocation.

Beyond this, those objectives which can be interpreted as goals have, in practice, become principles. For example, the objective of "maximum availability of service, of an appropriate standard at reasonable rates" has been translated in practice into the value of service principle and the goal of "encouraging system growth" is viewed as a corollary of

"maximum availability of service". Hence it is concluded that in practice the Company's tariff objectives do not represent a set of goals for the telephone system.

Since the objectives do not represent goals, the relationship of the objectives with the tariff becomes ambiguous. It is shown in Chapter 2 that there is more than one set of objectives which can be made consistent with the same tariff and more than one tariff which can be made consistent with the stated objectives. There is thus no unique relationship between the objectives and the tariff. The conclusion that there is no unique relationship means that the present objectives are not functionally useful as determinants of the tariff.

None of the above analysis is intended to imply that the system has been functioning inadequately; without a clear statement of the goals being served, and the data necessary to evaluate those goals, such a judgement is impossible. Further, it may well be that the need for explicit goal formulation has not been necessary up to this time. But it will be necessary for the future.

#### The Need for Goal Specification

Before any meaningful analysis can be done on the effects of the tariff, there must be a clear statement of the goals of the telephone system. The main focus of such goal specification revolves around the need for a rational tariff to achieve an efficient allocation of scarce resources and as a means of compensating the Company for the services it is providing.

The optimum size of the system and its various parts must be evaluated



in terms of net social benefit.<sup>3</sup> An expansion of any part of the telephone system should be justified in terms of its net social benefit as compared to other competing uses for scarce resources within the telephone system and ideally outside the telephone system.

#### The Goal Specification Process

The role of the Board in goal specification should be that of interpreting whatever guidelines had been stated by government and to otherwise within its legislative mandate, establish the system's goals, and the priorities following from those goals. It is recommended that there be established special policy hearings, distinct from rate hearings to

- a) define goals for the areas left to the discretion of the Board within its legislative mandate,
- b) more specifically define whatever goals may have been defined by government at a broad level,
- c) allow for Company and public input on the desirability and implications of the goals and alternative goal proposals and,
- d) assess the implications of the goals

The policy hearings would assist in the formulation of the goals and plans for their implementation.

Part of the goal specification process should include consultation between Nova Scotia and other parts of Canada. The telephone system in Nova Scotia is not a self-contained entity; it must interact with the

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<sup>3</sup> A detailed discussion of the considerations involved in determining the net social benefit of an expansion of the telephone system and hence of determining the optimum size of the system is set out in Chapter 3.

telephone system elsewhere in Canada and the world. Thus there is a two way flow between policy decisions made in other jurisdictions and policy decisions made in Nova Scotia.

The Board, in its role in the goal specification process, would have particular responsibility for evaluating the impact of goals and for assessing their realism. A large part of such an evaluation could be accomplished by construction of a detailed, working simulation model of the telephone system which would describe the demand functions, cost functions, and technology of the system, as well as the financial position of the Company.

#### The Tariff Determination Process

Once the goals have been firmly established, the tariff would become the primary instrument for accomplishing goal achievement. The specific level at which prices are set will determine the system's ability to meet its size and quality of service objectives.

At the time that the telephone industry in Nova Scotia was in its infancy, and for many years following a goal of achieving universal accessibility to the system may not have been misplaced. And as a corollary to such a goal, a tariff designed to induce more rapid expansion of the network, and that emphasized the total system concept of the network, may have been more desirable than a tariff which assigned the full incremental cost of an expansion to the direct recipient of that expansion. But at a time, as is the case at present, when universal access has largely been achieved, it is not clear that the social benefit, or total system benefit,



of improved service does differ significantly from the benefit of the private subscriber who is the immediate recipient of the improved service. Therefore, it is recommended that more consideration be given to the cost-of-service principle and that value of service not be treated as the basic pricing philosophy, as it is at present.

Certain social goals, if they are to be met, and/or the presence of externalities in telephone service may require prices in certain parts of the system to be less than the cost of the individual service being provided. It is not suggested that value of service be ignored but that cost of service be paid more attention.

Further, if the goals are to be met, there must be an assessment of their financing since total system costs must still be recovered in the aggregate. Alternative methods of achieving subsidization of parts of the system might be considered. If the system is to be self-financing, then there will have to be internal subsidization of some users and some services by others in order to meet certain goals. The incidence and magnitude of such internal subsidies must be explicitly rationalized in terms of the goals.

Usage-sensitive pricing, i.e., charging according to the use actually made of the telephone network, would be one way of introducing prices that give more consideration to the cost-of-service, and also provide a reasonable measure of the value of service actually received. The implications of introducing more usage sensitive pricing is one of the areas recommended for further study.

The determination of a fair rate of return to the Company is an important component of the tariff setting process because it is the means of insuring continuing provision of service by the Company. It should be viewed, however, in the context of goal achievement. One of the principle functions of the rate of return should be to promote efficiency of resource use by the Company.

#### The Monitoring Process

Once the goals have been specified and the tariff set, it will be necessary for the Board to monitor the system in order to assess the degree of goal achievement, the continuing realism of the goals, and alternative priorities which may be emerging. To exercise this function fully, the Board will need cost separation statistics, a more complete understanding of the existence and extent of externalities in the system, and the simulation model referred to earlier. The simulation model, in particular, will be of considerable benefit to the monitoring process as well as the goal specification process.

#### An Overview of the Proposed Process

Chapters 3 and 4 describe a process for regulating the telephone industry in Nova Scotia that involves three components: goal specification, tariff determination, and monitoring. The role of the government, the Board, the Company and consumers has been partially outlined above and is more specifically detailed in Chapter 3.

The aim of the proposed decision-making framework is to provide a rationale for determination of system size, quality of service, the rate of return of the Company and the level and structure of rates. The purpose

is to achieve an efficient allocation of scarce resources on a rationalized basis.

There is no presumption in any of the analysis that the system has been performing inadequately up to this time. Past experience is analyzed only to highlight the desirable decision-making framework for future regulation. It is not intended to imply inappropriate regulation in the past. Without explicit knowledge of the goals of the system up to this time, and data with which to evaluate them, such a judgment cannot be made. For the future it is necessary to very clearly indicate what the goals are and to evaluate the future performance of the regulatory process in terms of those goals and their achievement.

## CHAPTER 1

### The Tariff Objectives of Maritime Telegraph and Telephone Company Limited: The Views of the Company and the Board.

The objectives of the tariff of M T & T have been enunciated on a number of occasions by the Company and have been endorsed on each of those occasions by the Board of Commissioners of Public Utilities. The most recent statement of those objectives was presented at the 1975 general rate hearings.<sup>1</sup> In its presentation to the Board, the Company listed its tariff objectives as follows:

1. To provide the maximum availability of telephone service of an appropriate standard at reasonable rates.
2. To secure an adequate and fair rate of return to the Company from its regulated activities.
3. To encourage system growth.
4. To encourage the maximum economical development of better grades of service.
5. To encourage long term use of service.
6. To apportion some part of costs against particular subscribers.
7. To provide for economic operation.
8. To provide for simplicity of administration.

In this chapter, each of these objectives will be analyzed from the point of view of the Company and the Board. The Board's view of the objectives will be examined as it has emerged over time through written decisions on rate applications.

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<sup>1</sup> Memorandum on Tariff objectives, Maritime Telegraph and Telephone Co. Ltd., September, 1975 (mimeograph).



## Review of the Company Position

In order to understand how the Company interprets the eight specific tariff objectives, it is important to first understand the Company's view of the telephone system. The Company sees the system as one completely integrated network. As an overriding objective, then, the Company attempts to maximize the value of service of the network, subject to their financial ability to do so.<sup>2</sup>

The tariff recommended to the Board by the Company is designed to generate revenues sufficient to recover the total costs of the system plus a fair rate of return. Prices of individual services are not determined on the basis of the costs of providing those services for two reasons. First, to do so would be a contradiction of the total system concept which the Company advocates, and second, the Company does not believe that the costs of providing various services can be determined accurately. Prices for basic telephone service are determined on the basis of relative differences in the value of basic telephone service to different classes of users. The major emphasis is on the total system value and thus a tariff which will insure recovery of total system costs.

As contained in the 1975 statement of objectives, the objective of "providing the maximum availability of telephone service of an appropriate standard at reasonable rates" translates to the twin concepts of (1) system

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<sup>2</sup> Although this objective is not explicitly stated as one of the tariff objectives, it was emphasized in the course of numerous interviews held with Company officials that the value of service concept formed the basis of the first objective.

wide service and system wide pricing. System wide service is the concept of telephone service as a single, completely integrated service. System wide pricing derives from the Company's concept of system wide service, which means that the pricing policy does not recognize specific costs of any particular class of service. This does not mean that the rate making process ignores costs, but rather that costs in the aggregate must be recovered, while at the same time, relative costs of similar services should be recognized.

System wide service and system wide pricing are alternative descriptions of a pricing philosophy which has been known for a number of years as value of service pricing. Value of service pricing means that charges for telephone service are based on some notion of the value of that service to the customer in question. This has led to a rate structure where the flat rate charge for basic service is higher in an urban centre than in a rural area, the flat rate for single line business service is higher than single party private residence service and the charge per main station increases as the number of subscribers in the toll free calling area increases. This pricing practice is based on the philosophy that a phone becomes more valuable to its possessor the greater are the number of potential calls which can be made at no additional charge. As an example, a resident of Halifax can call 20 or more different pizza houses with no additional charge, whereas a resident of Wolfville can call only 3 or 4 and a resident of Middle Musquodoboit may have none which he can call. This is a slightly frivolous example, but it does embody the essence of the value of service pricing philosophy as used by the Company to justify charging for basic

telephone service according to the number of phones in a particular exchange area.<sup>3</sup>

Value of service pricing leads directly into the second objective, to "provide an adequate and fair rate of return to the Company". In reaching a determination of an adequate and fair rate of return, the Board first examines the composition of the rate base;<sup>4</sup> it then considers what the allowable rate of return on that rate base should be so as to make it approximately consistent with other existing market opportunities. On that basis, and with the Company's operating costs and the need for revenue to support future expansion and modernization, the Board makes a determination of the overall revenue requirements of the Company. Thus the value of service pricing concept leads to a price structure whereby prices on specific services are adjusted so that the total costs of providing telephone service, including a Board determined rate of return, can be recovered from total revenues.

The remaining six objectives are also, in most cases, viewed by the Company as directly related to the Company's interpretation of its service objective. The objective "to encourage system growth" is, to the Company, a re-expression of that part of the objective which leads to an

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<sup>3</sup> The preceeding discussion emphasizes the philosophy behind the rate structure outlined. The Company, with that philosophy as a starting point, looks at a variety of other information to arrive at the particular prices charged and such things as the way in which exchange rate groupings and exchange rate areas are defined.

<sup>4</sup> "Rate Base" refers to that portion of the Company's capital assets (plus provision for working capital and materials and supplies) on which the Company is entitled to earn the "fair rate of return" set by the Board.

encouragement of maximum availability of telephone service. If maximum availability of service is accepted as an objective, in the view of the Company it then follows as a corollary of that objective that the system should be encouraged to grow as fast as possible since this will further increase the availability of service.

The objective "to encourage maximum economical development of better grades of service" is also linked by the Company to the service objective. For example, it means that in the densely populated or urban areas a significant proportion of subscribers should be serviced by individual lines. This is viewed as a necessity in a densely populated area in order to secure a greater number of subscribers and to avoid major complaints by a subscribing public which would otherwise be serviced by multi-party lines. Hence the Company uses a rate schedule which is designed to induce people to take individual line service in the urban areas.

A further way of fostering the development of individual line service in those places where it can be economically provided, and thus providing better grades of service, is the Company's policy of expanding its base rate area boundaries to include areas which acquire urban characteristics. Once such peripheral areas become attached to the already existing urban core, the demand for individual line service will rise.

The purpose of providing maximum availability of service is to enhance the value of the total telephone system. Similarly, encouraging maximum economical development of better grades of service also serves to enhance the total system value.



The objective "to encourage long term use of service" is deemed by the Company to be necessary to prevent subscribers who are users of such services as large switchboard installations from imposing an undue burden on the total subscriber body. If large installations, which are expensive to install and represent a sizeable capital commitment on the part of the Company, are replaced too frequently, the Company would incur losses which would then have to be recovered from the general subscriber body. In order to prevent this, the Company has proposed, and the Board accepted, that the tariff require long term contracts for such installations.

The sixth objective is "to apportion some part of costs against particular subscribers". Typically, this objective deals with items which are of a special character.

One of the major functions of prices established by this objective is to deter demand for certain services, rather than to fully recover the incremental cost from those making the demands. A further function, in line with the first objective, is to recognize the relative costs of similar services. For example, there are some subscribers who have frequent requirements to move telephones, change telephones and have other work done. The Company's position is that these subscribers should not be allowed to shift part of these special costs to those subscribers whose service requirements are low or stable; hence there are special charges made for changes in existing service. The Company also levies special construction charges against subscribers who request particular service which is uneconomical for the Company to provide at existing charges. As an example, a special charge would apply to rural

users who request individual line service where distance makes it uneconomical for the Company to provide such a service at regular rates. In all of these cases, a major function of the price is to deter demand for such services, rather than to fully recover the incremental cost from those making the demands.

The Company also puts special prices on luxury items such as speaker phones, coloured sets, contempora sets, touch tone sets, etc., which impose additional costs but do not significantly enhance the basic value of service. On these items, it is important to note that the Company does not charge a price solely to recover the extra costs which may result, but rather, in many cases, prices the item higher than the direct costs incurred. The difference between the prices of these items and the costs of these items is used to reduce the prices of service to the general subscriber body. The Company's position is that this practice is not a contravention of its value of service pricing philosophy because these luxury items are not related to the provision of basic telephone service and they do not significantly affect the value of service of the basic telephone system. In this case, also, there is often a deterrent element to the price. The Company is concerned that new equipment not make existing equipment prematurely obsolete. Hence they charge more for certain equipment items such as, for example, coloured handsets, to deter the demand.

By the objective "to provide for economic operation", the Company means that the rate schedule should enable the Company to take full advantage of managerial and technical improvements in the provision of telephone service at the most economical cost. For example, one of the

results of this objective would be that base rate areas need not be related to the location of a switching centre, thus allowing the switching office to be placed in the most economical location. The switching centre, in terms of the definition of a base rate area, should logically be sited at the centre of population; however, this might not be the best location in terms of cost of land and other relevant considerations. Hence, in the interest of efficient economic operation, the Company may locate its switching office in one place, without necessarily using that location to define the boundaries of the base rate area for purposes of rate determination.

Finally, the Company has the objective of "simplicity of administration". This means that, subject to any constraints which the above objectives may impose, the tariff schedule should be as simple as possible so as to be readily intelligible to both customers and company employees.

#### Review of Board Decisions<sup>5</sup>

Much of the above discussion is derived from the Company's latest memorandum on tariff objectives which was presented at the 1975 general rate hearings. The objectives are not, however, in any way new to the Company. The exact same objectives appeared in the Company's application in 1965 for a general rate revision. Those in turn, with very little change, are the same rate objectives which are contained in the Company's application in 1952. In the 1974 general rate hearing, the Company

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<sup>5</sup> In calling this section, Review of Board Decisions, it should be noted that since the Board typically references Company statements in its decisions, this section will also serve to further amplify the views of the Company as they have been stated over time.

suggested that the value of service pricing philosophy dated back to at least 1918.<sup>6</sup> In general, the Board of Commissioners of Public Utilities has concurred with the Company both on the objectives and on their interpretation. The following is, a series of excerpts from Board decisions since 1918, which indicate the Board's opinion, for the time in question, on the various tariff items selected. Only general tariff revision cases are looked at.

#### The 1918 Rate Hearing

In the general rate hearing of 1918, the Board noted the following on charges for installation and removal of a telephone:

It seems fair to require the subscriber for whom the installation or removal is made to pay for it instead of making others do so. For instance a subscriber may after having a station installed continue in the same premises for many years while another subscriber may have his station removed year after year, undoubtedly he is obtaining a great deal more service and entailing much more expense upon the Company than the subscriber who occupies the same premises for many years, therefore he and he alone should pay for such additional services and defray the added cost of operation which he throws upon the Company.<sup>7</sup>

The Board's position with respect to service for business users in the Halifax exchange area was clearly in favour of message rates rather than flat rates:

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<sup>6</sup> The basis of this position was a report delivered to the Board of Commissioners of Public Utilities of Nova Scotia in 1918 by a consulting firm from Boston, the D. B. and W. B. Jackson Company.

<sup>7</sup> Report of the Board of Commissioners of Public Utilities, period ending December 31, 1919, Halifax, Nova Scotia, page 93.



The unfairness of making the small user pay as much as the large user seemed to require no argument, the equity of the principle of making a subscriber pay for just the service he receives, nothing more nothing less, cannot, at least in these days of high costs and persistent calls for economy, be questioned.<sup>8</sup>

The Board went on to add:

Another thing which the Board hopes to accomplish is to put telephone users on an even basis so far as payment for service rendered by the telephone is concerned.<sup>9</sup>

This statement suggests that customers who are making equivalent demands on the telephone system should pay on the same basis and that customers who are making different demands on the system should pay on a differentiated basis.

#### The 1952 Rate Hearing

In the 1952 decision by the Board of Commissioners of Public Utilities on the Company's application for revisions to the general tariff, there is a fairly lengthy discussion by the Board of the Company's tariff objectives. It is worth quoting at some length from that decision:

The principle followed in rate making is that the cost of service increases proportionately with an increase in the number of stations and correspondingly the value of exchange telephone service to any subscriber varies directly with the number of subscribers he is able to reach from his telephone. Other considerations have their influence on what the service is worth and what it costs but the important and easily determined factor is the value of the service as determined by the subscribers.<sup>10</sup>

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<sup>8</sup> Ibid., p.97.

<sup>9</sup> Ibid., p.99.

<sup>10</sup> Report of the Board of Commissioners of Public Utilities, year ending December 31, 1952, Halifax, Nova Scotia, p. 138.

The long and well established principle of rate making is that telephone rates are made on a system wide basis. The contrary was argued by Mr. Bethune who submitted in regard to exchange rates in the city of Halifax that Halifax would be carrying the burden of other parts of the system and the proposed schedule of rates carrying costs which should be applied to tolls or other exchanges. It is obvious however that as the size of exchange increases, increasing and more costly facilities must be provided to supply the expanding service, and this is true of the city of Halifax or any other exchange.<sup>11</sup>

The Board went on to state that Halifax could not be treated as a separate unit for fixing rates, but rather that the Province as a whole should be treated as a unit in fixing rates. The Board quoted a decision of the Indiana Public Utilities Commission of 1948 <sup>12</sup> which stated "exchange and toll services are not separate and distinct undertakings. Each supplements and adds to the usefulness and value of the other and both are but parts of an integrated business operated as a whole". The Board further discussed the rate schedule and quoted a number of principles or objectives with respect to the rate schedules presented at the hearing by Mr. A.M. MacKay, General Manager of M T & T. Those objectives were:

1. Charges for telephone service must produce in the aggregate sufficient revenue to meet all the costs of the service and to pay a fair return to the people who have invested their money in the business and to leave a reasonable amount for surplus as a margin of safety.

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<sup>11</sup> Ibid, p.136.

<sup>12</sup> (1948) 72 P.U.R. (N.S.) 212.

2. They must insure an adequate development that has to be such as to encourage the use of the service both in the business and residence classifications to meet adequately the customers' requirements and to provide complete convenient and satisfactory service. The more people or business that may be reached by telephone the more valuable the service becomes.
3. The rates must be sufficient to make possible a high quality of service to the users.
4. They must provide an equitable distribution of charges among customers. A well balanced relationship must obtain between the different classes of service offered so that they will be in proportion to the relative values of the service.
5. They must permit the maximum satisfaction of individual requirements consistent with the needs of the general body of telephone users. They must assure a reasonable stability of revenues.
6. In a determination of rates for the entire Company there are many factors which have a bearing on a properly balanced schedule. In a determination of rates for particular communities the cost of furnishing service as well as its value is important. Higher charges are necessary in the larger communities because the cost of furnishing services is higher. Since there are more telephones in the larger places the equipment required for switching calls is more elaborate. This results in a greater average investment per line in cities than in the smaller communities as well as greater expense in operating equipment and keeping it in order. Since equipment and operating costs are greater for each telephone in the city it naturally follows that the rates must be higher. Experience has taught us that the number of telephones available to a customer without the payment of a toll charge is a good measure both of the trend and relative cost to give service and of the value of service to our customers. Therefore, various localities in the Company's territory have been grouped together according to the number of stations in the local service area and the rate schedules are designed to distribute the rates among the various groups in accordance with the cost and value of the service.<sup>13</sup>

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<sup>13</sup> Report of the Board of Commissioners of Public Utilities, year ending December 31, 1952, Halifax, Nova Scotia, p.140. It is relevant to add that the Company in the course of an interview in 1976, noted that portions of Mr. MacKay's comments referring to cost, in his objective 6, are no longer felt to be valid.

The Board further commented:

The Board concurs in this statement of the basic principles or objectives of a properly designed schedule of telephone rates and has examined the proposed schedule in the light of these principles.<sup>14</sup>

On this basis, the Board approved the Company proposed system of groups and exchanges, free mileage areas for exchanges in each of the various groups, provision of continuous service in all exchanges, the abolition of any difference or distinction between rates for service in exchanges which are manually operated versus those which are automatic, the dropping of measured rate exchange service in any exchange less than 5,000 stations, the principle of higher rates to business telephones than to residence telephones and a number of changes in individual exchange services.<sup>15</sup>

Commenting on exchange rates generally, the Board noted:

As has already been pointed out, the (exchange rates) are of necessity in large measure the result of the experience and judgements of officials of the Company. These officials in designing the proposed exchange rates have indicated in evidence their belief that the business and residence subscribers in the various exchanges throughout the whole system will be paying reasonable and fair rates that are in balance one with the other and that the total exchange revenue will be in relation to toll revenue.<sup>16</sup>

#### The 1965 Rate Hearing

The Company next made application for a general revision of its tariff schedule in December 1965, with the Board rendering its decision in 1966. The 1965 application is of particular interest because it

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<sup>14</sup>Ibid., p.140

<sup>15</sup>Ibid.

<sup>16</sup>Ibid., p.146



included the Company's modernization and service improvement program. This was a proposed 10 year program which included plans for complete conversion to a dial system, complete absorption of all remaining rural telephone companies, reduction of the number of parties on rural lines to a maximum of 10 with a goal of 6 to 7, enlargement of free mileage areas where service is provided at flat rates without additional mileage charges, establishment of more extended area service between adjacent exchanges, and provision of direct distance dialing in exchanges where feasible.<sup>17</sup> Such a program obviously was to involve very large capital expenditures over the proposed 10 year period beyond the regular growth requirements of the Company and it was for this reason that the program was brought before the Board.

In looking at principles of rate making in the 1966 decision, the Board stated:

The long established general principles of telephone utility rate making were again reviewed at the hearing as was the case in the 1952 hearing and the Board confirms its approval of new schedule of rates designed by the applicant and now proposed for approval. The Board refers to the observations and comment made by it in its 1952 decision with respect to these principles and confirms them.<sup>18</sup>

The 1965 application included several changes in the specific tariff which were major departures from earlier tariffs. However, these changes were all seen as being quite consistent with the earlier objectives of the tariff which were accepted prior to 1965 and reaffirmed in the 1965

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<sup>17</sup> Report of the Board of Commissioners of Public Utilities for the year ending December 31, 1966, Halifax, Nova Scotia, p. 57

<sup>18</sup> Ibid., p.67.

application. This point was made by Mr. Fred Waller, an official of the Company, in the evidence which he presented to the Board:

A considerable revamping of the existing tariff is recommended. The changes made in it can be explained against the tariff as they are used to obtain the service objectives with the maximum economy so that the best of telephone service can be provided at the minimum cost to the telephone using public.<sup>19</sup>

The application of the Company proposed extensive revision or re-grouping of exchange classifications. One basic change involved reducing the number of exchange groups from ten to eight. An independent witness secured by the Board from the Manitoba Telephone Company, Mr. H. J. Harris, made the following comment on this change:

The new schedule presented, covering proposed exchange rates, reduces the number of rate groups from the previous 10 to 8. This appears realistic particularly from the standpoint of stability of rates ... the industry generally endeavours to avoid frequent rate changes. The limit of 8 rate groups is generally in effect in Canada and it does serve to minimize the frequency of rate adjustments.<sup>20</sup>

The Company also proposed changes with respect to the availability of two party, four party and multi-party business service within certain exchange areas and recommended changes in the system of assigning mileage charges for extension of service involving rural multi-party lines. A further important recommendation was that non-optional measured rate business service be replaced with the options of flat or measured rates in the larger exchanges, the result of which was to put nearly all business service in larger exchanges on a flat rate basis.<sup>21</sup>

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<sup>19</sup> Ibid., p.69

<sup>20</sup> Ibid., p.71

<sup>21</sup> Optional measured rate business service remained available in the larger exchanges, but since 1965 has not been encouraged by the Company.

In 1952 the Company had recommended the retention of non-optional message rate service on the grounds that it was inequitable for a business subscriber with limited telephone usage to pay the same as a subscriber with a high volume telephone usage. Also, the 1952 Company position was that it was administratively difficult to handle flat and measured rate business services together. The volume of business calls in larger exchanges warranted the cost of measuring the service and such a system assessed rates on the basis of usage.

The Company gave several reasons in support of the dropping of non-optional measured rate service. First, the Company maintained that non-optional measured service was no longer needed as an inducement to the small businessman to subscribe to telephone service since there was sufficient inducement to small businessmen without such a pricing system. Second, measured service charged the subscriber only on outgoing service. The Company's position was that telephone service was basically a two way service with incoming service being as valuable to the customer as outgoing service. Changing social and economic circumstances had made the value of incoming calls increasingly more important than they had been previously. A system of charging which overlooked incoming calls meant that these calls were not used in developing the rate even though they reflected a very high degree of the value that the service was providing. An expert from the British Columbia Telephone Company called by the Company testified that:

A good tariff should encourage maximum use of the service by the customer. In this regard I would say that the provision of a flat rate business service offering is definitely intended

to encourage the objective whereas the opposite effect occurs when the cost of service is related to usage as under the present business message offering in the higher rate group ... in this day and age any tariff which bases the cost to the consumer according to usage is naturally going to effect usage and this is not good for the telephone community at large.<sup>22</sup>

Third, the Board's expert, Mr. Harris, when questioned on his views of flat rate versus measured service for business use, made the point that measured service is more expensive for the Company to provide than non-measured service:

Measured service costs more to provide. You have to provide meters, read meters, provide cost for billing. It is against the principles for average rating.<sup>23</sup>

After considering the Company's presentation, the Board approved the proposed dropping of non-optional measured rate service.

The Company's 1965 application, for the first time, introduced the concept of system services as a philosophy for charging for key systems, private branch exchange systems and similar services. Previously, the rates for these specialized services had been based upon the number of features, attachments and type of equipment involved; thus, each individual system ordered by a customer was individually priced depending on the options chosen. The new proposal called for systems service rate to be expressed as a rate per trunk termination per central office line, or other type of line termination on the system, and per telephone. In addition, the

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<sup>22</sup> Ibid., p.75

<sup>23</sup> Ibid., p.75. It is relevant to note that the introduction of common control equipment had made the cost of providing measured service relative to the cost of measuring the cost much lower than it had been in 1952.

proposal recognized that certain customers have a greater communication requirement than others; thus certain systems would carry a rate for additional intercommunication lines. In commenting on the proposal, the Board noted:

Under the proposed method of rating there is not the same degree of relationship between the rate and the type or quality of plant actually installed on the premises of an individual customer but there is recognition that system service has become an important and distinguishable service and that within this class of service user it is appropriate that to a considerable degree rating be related to lines and telephones to reflect the value of service concept.<sup>24</sup>

The Board's conclusion on the Company's proposal for a package service pricing policy was as follows:

The revised system of rating and the revised rates will result in administrative and economic benefits to the applicant, a realistic revenue return to the applicant, and a rate structure that is appropriate and reasonable.<sup>25</sup>

With a few minor changes the Board approved the overall application of the Company to become effective May 1, 1966.

#### The 1969 Rate Hearing

The Company next made application for a general tariff revision in 1969. There were no changes in general tariff objectives nor were there any changes with the basic tariff structure emerging from those principles at that time. As stated by Mr. F. M. Waller, an official of the Company, in evidence presented before the Board:

In total concept we are proposing no change in the design of the proposed tariff from that used in the design of the

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<sup>24</sup> Ibid., p.87

<sup>25</sup> Ibid., p.88



present tariff. A system wide concept of service and rating was used and it simply means that the Company still considers its tariff as a single rate payable for the complete service provided and in such a concept it is to be recognized that exchange service is not different from toll service and that exchange customers are not different from toll customers. The designing of a telephone tariff is a project of determining the most economical conditions under which appropriate service can be provided to the total subscriber body and apportion the total cost of that service among the subscribers in such a manner as to recover the cost and meet the objectives that were outlined at the beginning.<sup>26</sup>

The Board accepted this statement by Mr. Waller and, with a few minor changes, approved the amended rate schedule introduced by the Company.

#### The 1974 Rate Hearing

The Company next sought a revision of its general tariff in 1974.

The Board at the outset of its decision on the 1974 hearing, made the following observation:

Although the emphasis had been on consideration of the financial need as expressed by the applicant, the Board also has heard evidence and submissions related to the methods and approaches implemented by the applicant in its rate making process and has concerned itself with the ever present principle that rates for services must be equitable and not unjustly discriminatory and that the rates for different classes of services must bear an equitable relationship.<sup>27</sup>

With respect to the tariff itself, the decision goes on to note the following:

The applicant's rate philosophy has not changed and according to Mr. Waller the objective is the same as all other major

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<sup>26</sup> Transcript of 1969 Rate Hearing, (Mimeograph), p.271

<sup>27</sup> Decision of the Board of Commissioners of Public Utilities in the Matter of the Public Utilities Act and in the Matter of an Application of Maritime Tel & Tel Ltd. for Approval of Certain Revisions to its General Tariff, 1974. (mimeograph, pp. 7 & 8).

telephone companies, namely to implement the twin concept of system wide pricing and system wide service in developing the new tariff for telephone service. These concepts have been explained and adopted in recent applications made to the Board and will again be accepted. Under these concepts the service cannot be fragmented into exchange, long distance, business, residence and other services, and the categories of service are useful only for price relationship purposes. System wide pricing does not reflect specific costs of any particular class of service ... the value of service overrides relative costs and it is impossible to determine with an acceptable degree of accuracy the cost of an individual service ... it is his [Mr. Waller's] view that system wide pricing or value of service pricing is the base upon which telephone service in Nova Scotia has been provided at least since 1919 and is probably the largest contributing factor in the continuing effort to achieve our public service objective of maximum availability of service to an appropriate standard at the lowest total cost to the subscriber body consistent with the financial integrity of the Company and fair and equitable treatment of employees.<sup>28</sup>

The changes in the tariff which the Company proposed in the 1974 application included an amendment to the definition of "exchange service" from "telephone communication within an exchange area" to "a class of telephone service providing for the transmission of voice message between telephones in the same exchange area"; a complementary change was also proposed to cover the definition of long distance service.<sup>29</sup> This request for redefinition of exchange service was rejected by the Board. The Company did not propose any changes in the classification or grouping of exchange areas or in the regulations governing the reclassification of exchanges. Increases in the tariff for basic service were made so as to maintain the same relationship between local and toll revenues as were in effect under the existing tariff.

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<sup>28</sup> Ibid., pp. 25 & 26

<sup>29</sup> Ibid., p. 27

With respect to residence exchange service, the Company proposed a flat increase of ninety-five cents for each grade of service in each rate group. This meant that the percentage increase for the smaller exchange groups was significantly larger than for the largest rate groups. The Company's justification for this change was that the services in all exchange groups had become very similar to those in the largest urban exchange groups, and further that the improvement in the quality and the value of the services now available to all exchanges required an acceptance by the subscribers in the smaller exchange groups of a greater share of rate responsibility.<sup>30</sup>

The 1974 decision also records opposition to the Company's proposed rate changes by the Consumer's Association of Canada, Nova Scotia Branch, which undertook an intervention in the hearing.<sup>31</sup>

The position of the Consumer's Association was that

... the value of service approach can and does result in inequities to consumers in the allocation of cost of various services, that more emphasis and consideration should be given to the pricing of various services so that they reflect the true cost to the consumer, that the pricing of some services at nominal or zero value tends to encourage and stimulate unnecessary consumption which must be supported by all consumers, that a subscriber requesting a particular service should be required to bear the real or true cost of that service, no more and no less, that the value of service approach does not enable the subscriber to make a rational choice as to the amount of or type of service he should purchase, and that flat rates are discriminatory because they do not vary with use.<sup>32</sup>

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<sup>30</sup> Ibid., pp. 29-30

<sup>31</sup> Ibid., pp. 34-35

<sup>32</sup> Ibid., p.34

The intervention was also critical of a number of rating practices of the Company, such as the installation of residence extension telephones at no service charge, the free directory assistance service, the existing regulation on exclusion of foreign attachments, donations to charity and institutional advertising, local service discounts and charges on overdue accounts, the proposed absolute increase of ninety-five cents as being more burdensome to residential subscribers in small exchanges, the higher rate payable by subscribers of luxury and similar services that may be higher than costs, the low rates payable by mobile radio equipment customers that may be less than cost, the cross subsidy rate making processes, and possible favoring of subscribers under the value of service concept.<sup>33</sup>

Even though the Board reaffirmed its support of the Company's objectives and philosophy through its decision, the Board did request the Company to prepare a number of background papers or studies before it next appeared for a rate application. Included in this list of papers, was a request for a statement on the tariff objectives.

#### The 1975 Rate Hearing

In September of 1975, the Company again made application for a general revision to its tariff. By this time the Company had completed the studies ordered in the 1974 decision.<sup>34</sup>

The basic reason given by the Company for returning to the Board for a rate increase within such a short period of time following its last application in 1974, was that it was not receiving sufficient

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<sup>33</sup> Ibid., pp. 34, 35

<sup>34</sup> Some of these studies will be referred to in more detail in later chapters.

revenues to allow it to earn the rate of return on rate base which had been approved by the Board. The reasons for this decline in rate of return was stated as being the accelerating rate of inflation, which was underestimated by the Company in 1974, and over runs in capital expenditures, the estimates of 1974 being similarly underestimated. In addition to these factors was the continuing need to provide for further growth of the telephone network and the need to continue to carry out the Company's planned program of service improvements.<sup>35</sup>

The Company proposed increases of \$1.50 per month for one and two party residential service and \$.25 to \$1.25 per month for four party and multi-party lines. Business service was increased between \$.95 and \$5.00 per month, there were to be increased charges for service requests and other miscellaneous equipment, there was to be an increase in long distance rates, and there was to be the introduction of service charges for directory assistance and overdue accounts.<sup>36</sup>

The Company's statement on its rating philosophy and its tariff objectives was essentially unchanged from previous years. Mr. Cecil Hawkins, an official of the Company, stated that it was very probable that future tariffs would reflect an objective of reducing the dollar difference between the rates in the highest and the lowest exchange groupings; the

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<sup>35</sup> Decision of the Board of Commissioners of Public Utilities in the Matter of Public Utilities Act and in the Matter of an Application of Maritime Tel & Tel Ltd. for Approval of Certain Revisions to its General Tariff, 1975, (mimeograph), p.9

<sup>36</sup> Ibid., pp. 52-53, 55-62



Company's position was that the value of service being received by the various sized exchanges was becoming more equal across the province.<sup>37</sup>

Mr. Hawkins also emphasized the Company's position that particular subscribers who imposed specific costs on the system which were not specifically related to the provision of basic telephone service should be made to bear an increasing proportion of such costs. Thus the Company was proposing increases in service charges, the introduction of late payment charges, and charges for directory assistance service.<sup>38</sup> The Company also proposed the elimination of group one exchanges.

In the opinion of the Board, all of these proposals represented changes that were significant enough to warrant individual attention and comment by the Board. In its decisions on these various matters the Board did not approve the proposed elimination of the existing group one exchange. It also did not approve the proposed interest on overdue accounts provision but rather directed the Company to further review the matter and make a supplementary report on whether interest charges or penalty procedures were the best way to proceed with the problem of overdue accounts.

The Board did approve the proposed directory assistance charge with certain amendments and further approved all the proposed rate increases with the exception of the items just mentioned. The Board directed the applicant to make a further review and study of its advance payments, deposits, and disconnection of service tariff provisions, to undertake a

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<sup>37</sup> Ibid., p.45

<sup>38</sup> Ibid., p.45

complete revision of the tariff rules, regulations, definitions, descriptions and similar content so as to eliminate duplications and interpretation problems, to convert to a method of classifying exchange areas based upon a system of counting only main stations or total telephone numbers rather than the total number of telephones prior to the time of the next application for approval of general rate revisions, and to retain independent experts to undertake a variety of studies dealing with the productivity and efficiency of the Company.

The Company was also directed to file with the Board a variety of studies relating to an outline of the proposed construction program over the next five years, the interpretation of "telephone message service", a report on guidelines to deal with future Extended Area Service (EAS) applications and related matters, an analysis of existing tariff objectives and possible alternatives,<sup>39</sup> and finally a review and justification of capital contributions by subscribers.

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<sup>39</sup> The 1975 decision did not unequivocally reaffirm its adherence to the Company's tariff philosophy and objectives, as prior decisions, since 1952, had done.

## CHAPTER 2

### An Analysis of the Tariff Objectives of Maritime Telegraph and Telephone Company.

Having presented in Chapter 1 the tariff objectives as perceived by the Company and the Board, this chapter will analyze those objectives in several ways. First, the objectives will be analyzed, both as to consistency of interpretation and consistency between the objectives themselves. Second, there will be an analysis of the role which the objectives are designed to fulfill and the ability of the objectives to perform that role. Third, the tariff itself will be analyzed to determine if there is only one tariff consistent with the objectives and to determine if alternative tariff structures are consistent with the same set of objectives.

It is important to recognize from the outset the context in which the analysis of this chapter is to be placed. The Chapter dwells heavily on an examination of past Company statements and Board decisions. The purpose of this is not to suggest that the performance of either the Company or the Board has been questionable for the points in time at which decisions were made. Rather, the purpose of the analysis is to indicate the type of reasoning which should govern future decisions. Conditions change over time and the view being expressed here and in Chapter 3 is not whether the decisions and recommendations made in the past were correct for their time, but rather whether the process for reaching those decisions is adequate for the future.

## Definitions

In the examination of tariff objectives, it is important to clarify the meaning of the terminology which will be used in this chapter and in the remainder of this study. The word "goal" is defined as the result or achievement toward which effort is being directed; in other words the end product which is desired. The word "principle" is defined as an accepted or professed rule of action or conduct. The word "instrument" is defined as a mechanism of effecting some item or activity. A dictionary definition of "objective" might be "the result that efforts are intended to attain or accomplish;" in this respect, "objective" might be considered to be synonymous with "goal". However, the specific list of items which the Company and the Board have accepted as objectives for the tariff is in fact a composite of goals and principles as these two words have just been defined. Hereafter, the word objective will refer only to the Company's list of tariff objectives.

## A Preliminary View of Goals and Regulation in Theory

The goals which are intended to be served by the tariff of a telephone company are of principal importance. Since the tariff, both through specific rates and through the rate structure, is the primary instrument for achieving the goals of regulation, the goals of the tariff became the goals of the regulatory process.

There are many possible goals which can be thought of. Three possible categories of goals would be ones relating to adequate provision of service, ensuring of the financial integrity of the Company, and protection of the

public against unfair practices and/or prices. All of these would be supportive of the major goal of regulation, from the point of view of the Board, which is protection of the public interest.

Once goals have been specified, the tariff becomes one of the primary instruments by which those goals can be achieved. If it is a goal to protect the public from unnecessarily high prices, then the absolute level of prices must be minimized. If at the same time, the Company is to receive an adequate return on invested capital, then prices must be set sufficiently high so that revenues recover the Company's costs as well as provide a margin of profit for a fair rate of return to stockholders. If there is a social goal, for example, to develop rural telephone usage, then the price mechanism can be used to achieve the goal by charging lower rates to rural telephone users than to other subscribers.

The price system is by no means the only instrument available for achieving these goals. Although there are other instruments which can and should be used, the tariff or price structure is the primary instrument for the achievement of goals.

The link between goals and instruments becomes the principles by which the rate structure is determined. The process can be defined as a series of progressive and interdependent steps towards a goal. Initially there is a specification of goals. These are translated into principles which dictate rules of action or conduct on the part of the various parties concerned. The principles, in turn, give rise to the creation of the instrument, i.e., the tariff. By this process the goals are ultimately attained.



Conceptually, goals might be envisaged as being specified by government, consumers and industry, all of which have made inputs. The regulatory agency's task would be to insure that the goals are achieved. The regulatory agency would, in order to insure goal achievement, put in place a process which might involve a number of components, such as monitoring of the industry, hearing of consumer complaints, interaction with government to determine changes in social policy, and a variety of other inputs. From this process would flow certain principles to be used in the construction of the tariff; the tariff would be one of the products of the process and the instrument for the attainment of goals.

#### A Preliminary View of Goals and Regulation in Practice

Actual practice in the Nova Scotia jurisdiction is different from the process just presented. The list of approved tariff objectives is initially specified by the Company and as will be seen encompasses both goals and principles. An analysis of the written record indicates that the Company suggests the objectives and the Board considers and, if appropriate, approves them.

The Board has, since 1952, accepted the Company's objectives, with the single exception of the most recent decision of 1975. In this decision, the Board for the first time did not uncategorically accept the Company's list of tariff objectives but rather instructed the Company to prepare a background paper on the tariff objectives and possible alternatives. At the same time, however, the Board did not initiate any changes of its own in the objectives nor was the price structure which resulted from those objectives altered.

The consuming public is able to appear and make representations at any rate hearing. In recent years, there have been very few formal consumer interventions. Through complaints and demands for service there is a more informal input process from the consuming public. Government has formally indicated certain goals for telephone service through the Public Utilities Act.<sup>1</sup> The government does not formally appear at rate hearings.

In any event, with or without such inputs, the Company has the initial task of identifying the objectives which the tariff is designed to meet. These are then presented to the Board for approval in the context of a particular rate structure which is being proposed. Thus, it is also the Company which creates the flow from objectives to instrument, and the Board in practice, if not in theory, has not been inclined to substantially alter the proposed rate structure.

If goals are improperly specified, because of lack of input from other sectors, the constituency of telephone users may not be adequately served. Moreover, improper specification of goals may result in an instrument, i.e., the tariff, that cannot be logically derived from those goals. Thus the tariff may become a very imperfect instrument for goal achievement. The "true" goals of the system may not be achieved because either the goals

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<sup>1</sup> As shown in Appendix A, the Public Utilities Act is not explicit with respect to goals. The Public Utilities Act and/or other legislative acts or Orders-in-Council can be the vehicles for government to make goals explicit.

are improperly specified and/or there is no unique relationship between the goals and the tariff structure designed to achieve those goals. The whole process may no longer serve its intended purpose.

The specific objectives of the Company represent a mixture of goals and principles, as those two terms have been defined. Further, where the objectives are in fact principles, there is typically no clear statement of the goals on which the principles are based. Nor is there any indication of the intended relationship between the principles and the goals which have been specified. By not clearly specifying the goals, and by not carefully establishing the relationship between the principles and those goals, the determination of priorities within the list of Company objectives becomes an impossible task. The objectives that the Company has listed tend to supplant the goals on which there should be concentration; they begin to be construed as ends of a process, rather than as intermediate parts of a process designed to achieve goals. In order to clarify this point, it is necessary to analyze each of the objectives of the Company.

#### The Objectives of the Company

The Company's first objective is stated to be "to provide the maximum availability of telephone service of an appropriate standard at reasonable rates". This statement would be nominally viewed as being a goal; there are, however, a number of problems in accepting it as a goal for the telephone industry in Nova Scotia.

It is not clear by what process this goal has been established. This goal implies a very large commitment of the Province's resources to such an effort. It is not clear that in formulating this goal there has been consideration of the overall allocation of society's resources.<sup>2</sup>

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<sup>2</sup> This is a question which will be addressed more fully in Chapter 3.

Beyond the general question of origin of this goal, there are two related problems arising out of the two constraints noted in the goal specification. The first problem is that of telephone service of an appropriate standard; a standard which is not clearly specified. Conceivably, an appropriate standard may be defined in many ways; thus it becomes difficult to determine if the goal is being realised.

The second problem arises with respect to reasonable rates. Here too, a number of definitions of reasonable rates could conceptually be identified. One possible definition could be rates that are commensurate with the cost of providing the service. Another definition could be rates which induce the maximum expansion of the system (additional subscribers and/or improved quality of service). It is not obvious that, in setting the goal of the maximum availability of service subject to reasonable rates, those rates should be the ones which induce the maximum expansion of the system. Rather they might be set so as to constrain the growth of the system and within that constraint provide maximum availability of service. Thus, the goal is ambiguous.

Further, this goal is translated in practice into a principle, since the Company defines this goal in terms of the twin objectives of system wide service and system wide pricing. The system wide concept of service represents the Company's view that the telephone system is an integral whole and cannot be separated into various categories of exchange, long distance, business, residence and other classes of service. System wide pricing implies that the Company attempts to price its various classes of service on a basis which is designed to reflect the overall value of the system to any individual customer. Between the parts of the system,

prices are designed to reflect relative differences in the value of service to different customers. In other words, the goal of maximum availability of telephone service of an appropriate standard at reasonable rates ultimately becomes the principle of value of service pricing.

This is not to imply that value of service pricing is not a desirable principle; the point being stressed is that it is a principle and not a goal. By concentrating on the principle rather than the goal, it is not clear that a maximum availability of telephone service will result. More particularly, it is not clear that an optimum availability of telephone service will result.

By translating a goal into a principle in this fashion and then concentrating on that principle, there are two potential dangers. First, that there is inadequate explicit consideration of how well the principle is achieving the goal; this is especially true given that the goal is very ambiguously defined. Second, by concentrating on the principle, attention is diverted from the goal itself and thus evaluation of the system may focus only on the principle and not on the goal.

The second objective of the Company is "to secure an adequate and fair rate of return". This objective might also be viewed as a goal. However, there are some potential difficulties since in practice it may become a principle.

The regulatory process allows the Company the opportunity to attain a certain percentage rate of return on some specified rate base. At this point, the question of rate base determination is not at issue. The main issue is that since the Board permits an allowable rate of return on total rate base, it does not, except in the most general way, make the Company



responsible for each of its investment decisions. All Company expenditures in excess of \$5,000 must be approved by the Board, but this review does not involve a detailed examination of the costs and benefits of the expenditure. The Company's position is that it is inappropriate to concentrate on individual investment decisions; the system must be seen as a complete unit and additions to the system must be viewed in the context of the value which they add to that complete system. The Company's view is that value must be considered not only from the vantage point of the immediate subscribers on whose behalf the new investment is undertaken but also from the point of view of all other subscribers in the system who now have a greater calling capability.

Without questioning that position at this point, the fact remains that given such a position, it is possible to evaluate the system as a whole only in a very general way. It is not possible to evaluate whether the Company warrants a return of a specified amount on the total investment which they have undertaken or on all of the parts of that total investment.

The Board, in establishing a fair rate of return for the Company, allows an average rate of return on the Company's total operation. One of the implications of this is that because it is an average there will necessarily be items with above average returns and items with below average returns. When the Company invests in a project which earns by itself more than the average allowed return, the Company would then be in a position to make a different investment which is of below average return in order for the overall average to be maintained at its appropriate level.

The Company's position is that it does not undertake an investment unless it is of value to the system as a whole; this position, however, provides no guidance as to the optimal size of the telephone system. By translating the goal of a fair rate of return into a principle which allows the Company an average return on all of its capital investment, the potential is lost for evaluating both the efficiency of the system and the optimal size of the system.

The Company's third objective is "to encourage system growth". In a sense, this objective can be viewed as the dynamic statement of the first objective, which in turn can be viewed as a static goal. The first objective, maximum availability of service at reasonable rates and of an appropriate standard, does not necessarily imply rapid system growth whereas the third objective does. A fundamental question is, therefore, whether demand should always be met, subject to the Company's financial ability to do so.

In practice, this goal has tended to become a principle; Company and Board policy has encouraged system growth over time. This is not to imply that the Board has not paid attention to individual expenditures and their effect on the entire system. What is meant is that there has been no consideration of the trade-offs between expanding the telephone system and other social goals which the economy may have, nor has there been explicit consideration, by reference to cost-benefit data, of the value of expansion of one part of the system versus another. In this larger context of allocation of scarce resources the willingness and/or ability of consumers to pay for expansion may be a very imperfect test of its need and value.

The Company has three major categories into which it groups its construction program expenditures. These are growth, modernization and movement and replacement. In the years 1972, 1973 and 1974 the Company committed 53%, 65% and 58% of its total construction expenditure to its growth objective. It has forecast that in the years 1975, 1976 and 1977 that it will commit 63%, 70% and 74% of its estimated construction expenditures to the growth objective.<sup>3</sup> These figures show that a large proportion of total construction expenditures are to be invested in meeting the growth objective, yet from the broader perspective of resource allocation, it does not appear that sufficient consideration has been given to the questions of whether there are finite limits which should be placed on the total size of the telephone system or limits which should be placed on any of the various parts of the system.

The Company's fourth objective is "to encourage the maximum economical development of better grades of service". This objective raises the problem of defining economical development which in turn relates to the potential problems that arise from the second objective, that of a fair rate of return to the Company on its investments. Further, the first objective is concerned with maximum availability of service of "an appropriate standard"; the fourth objective is concerned with "better grades of service". The relationship between an appropriate standard of service and better grades of service is ambiguous.

It is clear that the Nova Scotia telephone system is not a self-contained entity but must interact with other telephone systems in other parts of Canada and with the rest of the world. To the extent that all

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<sup>3</sup> Memorandum on Construction Program, prepared by I.E.H. Duvar, Vice-President of Planning, M T & T, presented to the Board of Commissioners of Public Utilities of Nova Scotia, September 1975, pp. 7 & 14.

telephone companies in Canada increasingly offer better grades of service as does the Company, the entire telephone system in Canada will feed on itself, influenced further by improved service elsewhere in the world. The question remains, then, as to the limits on better grades of service in Nova Scotia.

Within the framework developed earlier, encouragement of better grades of service is a principle; what is not clear is the goal that is being achieved. Better grades of service should not be an end in itself; presumably it is desirable for other reasons and those reasons should be made apparent. If the Company were operating in a competitive environment, that is, if there were more than one telephone service in Nova Scotia, there would be a basis for evaluating the need for introducing better grades of service. To illustrate, if one company were to introduce better grades of service thereby making significant market gains at the expense of other telephone companies, then it would become mandatory for the other companies to also upgrade their service in order to effectively compete. The purchase of higher quality service by consumers, when given a choice and with prices that reflected any cost differences involved, would likewise be indicative of their preferences.

The fact is, however, that the Company does not operate in a competitive environment; it operates in a legally sanctioned monopoly environment. Thus there is no obvious answer to the question of the need for introducing improvements in the quality of telephone service. From the Company's perspective, the improvements may be rational, particularly since the Company is given the opportunity to earn a fair rate of return on its total investments, but from society's point of view, they may not be.

The fifth objective of the Company is "to encourage long term use of service". Again, such a statement is not a goal in and of itself; long term use of service is valuable only if it contributes to the achievement of goals which have been otherwise specified. As an example, if items such as large switchboard installations which are very expensive to install and represent a sizeable capital commitment on the part of the Company are replaced too frequently, then the Company would be incurring losses which would then have to be recovered from all subscribers. The Company's position is that this objective is in the public interest. It is not clear, however, why those subscribers who wish changes in their service should not bear the full burden which this imposes on the Company. If subscribers were willing to pay the full cost of the new system, this would be indicative that the utility of the new system to the subscriber was worth the price. If it is not worth their while when they are being asked to pay the full cost, then the question must be raised as to the basis for shifting part of the cost to the rest of the system.

The reason the Company prefers long term use of equipment is to avoid either of these situations: but one problem with this is that there is potential conflict with the objective of economical development of better grades of service, if long term use of service allows for the possibility of keeping equipment in place potentially long after it has become technologically obsolete. This possible conflict is not surprising since these Company objectives are principles. Because the goals from which these principles are drawn are not specified it is not clear when or under what conditions one principle takes priority over another.



The Company's sixth objective is "to apportion some part of cost against particular subscribers". The Company employs this objective in two different situations. First, it is used in those cases involving demands on the system by subscribers who impose particular costs on the system that do not enhance the value of the total system. As examples, in the rate hearing of 1975, the Company requested the Board to authorize directory assistance charges and charges on overdue accounts. The service charges of the Company, which have been in place for a very long time, are another example. Partial justification for these charges is that the subscribers who impose the costs should be made to bear them. Perhaps more importantly, these charges presumably act as a deterrent, thereby preventing some subscribers from imposing additional costs on the system. The charges may not always recover all costs, but set at a high enough level, they will deter subscribers from making unnecessary demands on the system.

Second, the Company uses this objective to justify special prices on a variety of items which might be termed luxury items, such as speaker phones, coloured sets and contemptra sets. These items do not impose additional costs on the system to the same extent as some of the items previously noted, but in the view of the Company, they do not enhance the basic value of service in any significant fashion. On many of these specialty items the Company has taken the position that it will charge more than the cost of the items; the extra revenues then reduce the burden of other costs on the general subscriber body.

This immediately poses certain problems. If one of the goals of the regulatory process is that customers are to be treated in an equitable fashion, and that rates are not to be unjustly discriminatory, the justification for charging a price that is greater than the cost of the special equipment becomes questionable. Subscribers who desire luxury items are subsidizing the services of other subscribers. This inequity cannot be justified by the fact that people are prepared to pay for these items at the rate that the Company is charging. It is compounded because the price may prove prohibitive to some subscribers who might otherwise purchase the specialty items. The overall value of the system is potentially adversely affected.

The position of the Company that these items do not enhance the basic value of telephone service in any significant fashion is only partly correct. It is true that installation of a basic telephone set does create externalities or spillovers for the system; a new subscriber potentially confers a benefit on the system in that other subscribers now have the potential of calling that additional subscriber and of getting calls in return. But the value of the system is a function of both individual and collective consumption of telephone services. Because individual consumption can influence the value of the system, it is not clear what implications the Company's pricing policy on specialty items has on the total value of the system.

The Company's seventh objective is "to provide for economic operation". If this is interpreted to mean that full advantage should be taken of opportunities to provide service at the most economical cost, this is a

reasonable objective, and there is no necessary conflict between it and any of the other objectives. But as such, this objective is a principle and not a goal. Quite clearly, rates should be set so as to achieve specific goals, not principles. There is no indication as to the relative importance of economic operation with respect to the other objectives of the Company or in its contribution to the rate structure. There is thus a potential for conflict.

The Company's eighth and final objective, "to provide for simplicity of administration", is subject to the same problem. This is also a principle, and what is not clear is when it takes precedence over or becomes subservient to other Company objectives. This is a question which is not answered explicitly in the tariff.

This analysis of the Company's objectives leads to the conclusion that they are tariff principles rather than tariff goals. Some objectives might, in the abstract, be taken as goals, but in practice they all appear to function as principles. This implies that there is not a unique relationship between the Company's tariff objectives and the tariff itself. It is this issue which will now be discussed.

#### The Tariff Objectives and The Tariff

There are two principal questions to be asked with respect to the tariff as it has been derived from the objectives. The first is whether the Company's tariff objectives are consistent with more than one tariff, that is, can the same objectives generate different tariffs and second, can the same tariff be consistent with a different set of objectives. If there is a negative answer to both of these questions, then the Company's

objectives can generate only one tariff and that tariff must be consistent with only that set of objectives: thus the tariff must be uniquely derived from the objectives. Alternatively, if the answer is affirmative to either of the above questions, then it can be concluded that the tariff does not flow uniquely from the objectives.

It can be established that there is a unique relationship between tariff principles and the tariff, then in terms of goal achievement for the telephone industry, the results which are generated by the tariff will determine if goal achievement has been realized. If goal achievement is not being realized, then the problem lies in either of two directions. First, the tariff principles may be improperly specified and/or second, the tariff itself may be an imperfect instrument for achieving the goals. However, if there is no unique relationship, this does not imply that the goals are not being achieved; rather, if the goals are not being achieved, considerable difficulty is created in determining the reason why. It becomes difficult to distinguish between the effect of improperly specified principles and imperfect instrument.<sup>4</sup>

Over the last twenty-five years, there has been a significant number of changes in the tariff while at the same time, the objectives themselves have remained essentially unchanged. Illustrative of this is the Company's position on message-rate versus flat-rate service for business subscribers.<sup>5</sup> The Company's position in 1952 was that message rate service was the only proper method of charging business subscribers. It is not denied that

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<sup>4</sup> This case for a unique relationship between the Company objectives and the tariff results from the view that the objectives are tariff principles, rather than goals. As such the objectives are intermediate parts of the process. Without a unique relationship between the objectives and the tariff, non-achievement of goals may be due either to problems with the objectives or problems with the tariff.

<sup>5</sup> For a fuller discussion of this issue see Chapter 1, pp. 15-17.

circumstances had changed over time, but it must be remembered that the objectives were the same, and both pricing options were seen at their respective points in time as being logically derived from a value of service pricing philosophy.

In the 1975 rate hearing, the Company proposed the introduction of a directory assistance charge and a charge on overdue accounts. The former was approved with some amendments by the Board while the latter was temporarily deferred pending further consideration by the Company of alternative ways of assessing such a charge. Prior to 1975, the Company's position did not require charges, while after this date it did; at the same time the tariff objectives had not changed in any fashion. In other words, the charges were considered to be quite consistent with the tariff objectives, while earlier, the absence of charges was also considered to be quite consistent with the tariff objectives. Thus, again there is no unique relationship between the tariff objectives and the resulting tariff structure. Changing circumstances had led the Company to believe that the new charges were warranted but the nominal objectives had not changed.

In 1965, a Company recommendation that the number of exchange groups be reduced from ten to eight was approved by the Board. The number of exchange groups are, at a conceptual level, justified on the basis of the value of service principle, the simplicity of administration principle, and possibly, others. The Company's position in 1965, and later, is that because of growth in the Provincial telephone system, the value of service distinctions between various exchange groups has declined. The greater interaction of the total system, and hence the greater interaction of a

subscriber in any one exchange group with all other exchange groups, has meant that the value of a telephone to any individual subscriber has over time become more approximate to the value of the system as a whole. Within the context of the Company's ten-year improvement program, the access to the total system on the part of Nova Scotia customers has been made much more uniform. Thus there is no necessary inconsistency in the Company's position either in 1965 or subsequently that the number of exchange groups be reduced.

The point, however, is that there is nothing unique in any given number of exchange groups. The Company undoubtedly had what it felt to be very good reasons for the number of exchange groups proposed and the size limit for each of them. But the list of objectives does not provide such a rationale. Consistent with a value of service pricing philosophy there could be as many different exchange groups and concomitant rates as there are customers. For example, the Company might attempt to determine the value of service to each subscriber and charge accordingly. Of course, this would come into immediate conflict with the principle of simplicity of administration. The tariff objectives provide no guidance as to when or in what degree one objective takes precedence over another when the objectives conflict with rather than complement one another.

The rate differential established between different exchange groups for the same type of service is similarly not unique. Clearly, the market will impose some maximum limit on what price can be charged in any given exchange group. However, it would appear that the actual differential between the various exchange groups is determined in part by the Company's



total revenue requirement, and in part by some notion of the elasticity of demand in the various rate groupings and other information such as calling patterns and degree of usage. But again, the objectives themselves could be made consistent with an almost infinite number of different price differentials between exchange groups.

The same analysis is applicable to charges for special equipment, service charges and the differential rate between residential and business subscribers. Subject to some knowledge of the demand elasticities with respect to these particular services, an estimation could be made of the range of prices which could be charged while the revenue position of the Company remained unchanged. It is not necessary to repeat the analysis, however, since it has been established that there is more than one tariff which is consistent with the same set of objectives. Similarly, it can be demonstrated that there are different objectives which could be made consistent with the present tariff.

#### Cost of Service Versus Value of Service

It is not known at the present time what pricing structure would result if phone services were priced on a cost of service principle rather than a value of service principle. The Company's position is that it is theoretically and technically impossible to do the cost separation studies that would be necessary to establish the basis for complete cost of service pricing. However, in 1975 the Company produced a cost study at the direction of the Board in which the cost of providing service within five different exchange areas was examined. The five exchange areas chosen were a representative cross section of different sized exchange areas. One of the

important conclusions reached by the Company was the following:

"The provision of exchange plant facility reaches its highest per unit cost in the small exchange with rural characteristics and lessens in per unit cost in towns of a compact nature, such as Amherst. There is however, an indication that per unit costs tend to increase in larger cities where more than one central office is required resulting in interoffice trunking and switching."<sup>6</sup>

Assuming that the implications of this study can be generalized across the system, large urban centers such as Halifax would have a higher rate than smaller exchange areas with high density characteristics. It can be implied from the study that a group eight exchange area should have a higher charge for telephone service than an intermediate group exchange area. However, there is not enough information in the study to indicate how large the differential should be.

On the basis of the Company's value of service philosophy, there is currently a higher charge for a group eight area than for intermediate groups; based on the Company's sample cost study, the result could have been the same using a cost of service approach. This is not to imply that a cost of service philosophy would not generate a significant number of differences in the tariff; rather, it suggests that the same relative alignment between some groups could emerge from either philosophy. As illustrated in this example, the value of service might well be found to be proportional to the cost of service.

Even though it is no longer in wide use for local service, message rate service is illustrative of the same point. It is usage sensitive, and therefore can be used as a measure of the cost which a customer is imposing on the

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<sup>6</sup> Maritime Telegraph and Telephone Company Ltd., Cost of Service Study, prepared for the Board of Commissioners of Public Utilities of Nova Scotia 1975, page 8.

system just as well as it can be used as an indicator for the value of service which a customer is extracting from the system. Although there might be differences in the specific level of charges imposed, the type of rate structure is quite consistent with either a cost of service or a value of service philosophy.

As has been shown, there is no unique relationship between the existing tariff objectives and the tariff. The objectives are consistent with a number of different tariff structures and/or specific tariff charges. Similarly, the tariff structure could be consistent with other quite distinct tariff objectives. Compounding an already ambiguous situation is the fact that neither the tariff objectives nor the tariff provides a determinate solution when objectives conflict one with another.

All the Company's objectives either in concept and/or in practice are principles of rate making. Principles have no meaning in and of themselves; their meaning is derived entirely from the goals which the system has specified for itself or which have been specified for it by others. The principles assist in achieving the ends of regulation. They are not ends in and of themselves. The question which remains is that of the ends, or goals, which the system in Nova Scotia has established for itself, either explicitly or implicitly.

#### Goals of the System in Practice

At the beginning of this chapter, three general categories of goals were given which could be considered for the system. These were adequate provision of service, ensuring of the financial integrity of the Company, and protection of the public against unfair practices and/or prices.

### Adequate Provision of Service

A regulated utility will provide service in the amount and quality required only as long as it is adequately compensated. Adequate compensation would be that amount necessary to insure the provision of both present and future service. Thus a tariff on telephone service should generate enough revenue to insure the continuing provision of telephone service at an optimal level through time. To the extent that the tariff objectives in Nova Scotia give no clear indication that maximum availability of service as constrained by other objectives results in optimum system size, it cannot be determined if such an optimum size goal is considered. The Board, however, is clearly concerned with ensuring the continuing provision of service.

The other aspect of adequate provision of service concerns the fostering of what may be called social goals. These represent goals which are decided upon for both social and economic reasons, rather than economic reasons alone. Two examples of social goals in Nova Scotia, at the moment, would be the promotion of rural telephone development and promotion of Extended Area Service. They represent situations where it has been decided that there is a social benefit to the Province and/or the constituency of telephone subscribers which warrants certain expenditures, such as connecting Company takeovers, lower flat rates for basic service in small rural exchanges than larger urban exchanges, or new plant and equipment to allow for implementation of EAS. But when there is such positive promotion of certain parts of the system, the possibility is raised that those parts of the system will not directly generate revenues to cover the cost of the expenditures implied by the goal. This does not mean that the goals are unwarranted; but it does

mean that there may have to be internal subsidization of parts of the system if the goals are to be met.

A better appreciation of how social goals and internal subsidization are involved in the tariff in Nova Scotia can be obtained by examining the pricing policy of certain specialty items, the provisioning of Extended Area Service, and rural versus urban expansion.

The Company provides a variety of services which are listed in the tariff as "miscellaneous equipment". Miscellaneous equipment includes such items as coloured handsets, touch tone sets, extra long cords, and other similar equipment. These items are priced on the basis of tariff objective six: "the apportionment of some part of cost against particular subscribers". Since special equipment items are essentially independent of the basic telephone network, the demand for these items leaving the cost of, and demand for, the basic network unchanged, they can be characterized as essentially luxury items. It is also possible to very specifically identify their cost.

The first occasion for the Board to consider rates on touch tone sets was in 1968 when it approved interim rates of \$2.00 for residence service, \$2.50 for business service and \$1.50 per line, plus a per station charge, for system service.<sup>7</sup> In its application, the Company stated that the rates proposed would yield a gross revenue return on investment well above that on overall investment and thus there "should not be a burden to the general body of telephone subscribers".<sup>8</sup> The Company noted that the higher rate for the touch tone versus the dial set "would deter market development".<sup>9</sup>

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<sup>7</sup> Report of the Board of Commissioners of Public Utilities, Halifax, Nova Scotia, year ending December 31, 1968, pp. 5-13.

<sup>8</sup> Ibid., p.11.

<sup>9</sup> Ibid., p.11.

Because the service was related to modernization, no specific attempt was made to relate the incremental cost of providing the service to the rates proposed.

In these statements by the Company, several interesting points were made. First, the Company was specifically acknowledging that the rates being proposed would yield above average returns. In 1969, appearing again for confirmation of the interim rates approved in 1968, this was made even more explicit:

This witness' forecast for the future is that by the end of 1969 the Company will have 1,182 new stations or 825 new lines for a total in service of 2608 lines and 2789 touch tones sets. Based on an estimated investment of \$217,092.00 and revenue of \$67,172.00 the rate of return will amount to 30.9% and this witness justifies the return on the grounds that the service is basically a luxury service comparable to Ericofon and Princess telephones and is required by the Company in order to produce a total Company average in the vicinity of 22% in view of the very inadequate rates of return on connecting Company takeovers and dial conversion in many instances. <sup>10</sup>

In other words, with Board approval, the Company was using the revenue from touch tone sets and similar items to subsidize other parts of the system.

Second, the Company's application emphasized the improved quality of service, or modernization, offered by the item. This was used as a rationale for not relating the incremental cost of the service to its price.

Third, the Company emphasized the need for using relatively higher prices to limit demand since for technical reasons not all exchanges could

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<sup>10</sup> Report of the Board of Commissioners of Public Utilities, year ending December 31, 1969, Halifax, Nova Scotia, p.95.



use touch tone sets, but more particularly, so that present dial sets in use would not be made prematurely obsolete. The Company apparently did not consider instituting a special service charge that would be sufficient to cover all costs including a charge for obsolescence against present customers requesting a change to the new equipment (versus new customers making a first choice of type of set).

In 1969, the Company also sought confirmation of interim rates that had been set on Mobile Exchange Service. It acknowledged that "the rate of return [is] too marginal and that when a third channel is added to improve the quality of service, serious consideration should be given to making some change in the rate".<sup>11</sup> The Company further stated that:

For the time being the Company recommends that the \$42.00 rate be continued. In justification for the recommendation, the witness told the Board that the \$42.00 rate is about as high as any other company is charging for equivalent service and that such service could be provided by someone other than the Company although in the opinion of the witness, the provision of this type of service is a responsibility of the Company and it was undesirable to commence giving the service at a rate which would deter development.<sup>12</sup>

The Company was making two important points. First, it acknowledged the marginal nature of the investment and second, it justified the investment, marginal as it was, on the basis of meeting competition. The Company was, in effect, recommending a principle of allowing subsidization of competitive services by revenues derived from monopoly services (since the overall revenue requirements of the firm would have to be met). The Company's

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<sup>11</sup> Ibid., p. 102.

<sup>12</sup> Ibid., p. 102.

position implied a principle of competition irrespective of the costs of providing the service.<sup>13</sup>

Extended Area Service (EAS) has been available in Nova Scotia since 1956.<sup>14</sup> Basically, Extended Area Service is the provision of toll free calling between exchange areas that would otherwise be subject to toll charges. Any proposal for implementing an EAS plan must be approved by the Board, and further, the Board requires, at least nominally, a canvass of affected subscribers to determine their wishes with respect to adoption of the plan.

In the 1970 decision on a proposed EAS plan between Halifax and Ketch Harbour, the Board listed the following criteria for judging an EAS application:

1. The Exchanges are adjacent to one another with major centres or communities within reasonable distance.
2. A substantial volume of toll calling has been experienced between the exchanges.
3. A community of interest exists between the communities involved.
4. A large majority of the subscribers have voted in favor of extended area service.
5. The cost of establishing the service is reasonable.<sup>15</sup>

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<sup>13</sup> In 1975, the Company changed the pricing of mobile exchange service from a flat rate charge to a type of measured rate charge where the user pays an increasing price per minute for the first three minutes (15¢ for minute 1, 20¢ for minute 2 and 25¢ minute 3 and each minute thereafter). This charge was made to deter the length of calls and thus increase the access of mobile users to the system.

<sup>14</sup> The EAS plan between Halifax and Bedford was the first application for EAS in Nova Scotia. See Report of the Board of Commissioners of Public Utilities, 1956, p. 195. There had been similar linking of exchanges prior to 1956 but these were not referred to as EAS plans and there was, prior to 1956, no formal EAS policy.

<sup>15</sup> Report of the Board of Commissioners of Public Utilities, year ending December 31, 1970, p.141.

In 1974, the Board considered an EAS plan to link the exchanges of Head of St. Margaret's Bay and French Village with the City of Halifax for toll-free calling purposes. The case was considered after complaint by a group of subscribers in these exchanges over an earlier refusal to implement an EAS plan. In its decision, in which the Company was ordered to canvass subscribers to determine their preferences, the Board noted with respect to the above criteria:

The Board has not prescribed a rule that EAS plans may or must be implemented between such exchanges or so-called second fringe areas. The implementation of any of these plans must be related to public interest, the benefits to be derived therefrom, and the cost of providing such service. <sup>16</sup>

In other words, the five criteria, while serving as guidelines, were not considered by the Board to be hard and fast rules. Ultimately, after the subscriber canvass had shown a majority of the voting customers in the St. Margaret's Bay and French Village exchange were in favor of EAS, the Company was required to implement the plan. <sup>17</sup>

The Company had consistently opposed offering an EAS plan to these exchanges, mainly for reasons of cost. The Company produced figures which showed that to provide EAS to St. Margaret's Bay and French Village from Halifax would incur first year losses of \$81,404 and projections that over the life of the plant to be installed for this purpose, annual losses would never go below \$60,000. <sup>18</sup>

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<sup>16</sup> Board of Commissioners of Public Utilities, In the Matter of the Complaint of Alan Parish et.al., December 11, 1974, p. 12.

<sup>17</sup> Decision of the Board of Commissioners of Public Utilities, February 19, 1975. The total number of votes received was 55.8% of eligible voters and of those voting, 84.3% were in favor. Thus 47.0% of eligible voters were in favor of the plan, 8.8% were opposed, and 44.2% did not vote or expressed no opinion.

<sup>18</sup> In the Matter of the Complaint of Alan Parish et. al., op.cit.

The Company was also concerned because the exchanges in question were not adjacent to the Halifax exchange but were what are called "second fringe" areas, i.e., there were other exchanges in between. The Company feared that approval of such an EAS plan would lead to like demands by other second fringe areas and thus compound the losses.

In approving the introduction of the proposed plan the Board was thus implicitly approving the following: subsidization of the subscribers of St. Margaret's Bay and French Village by the rest of the system (the losses would have to be recovered from somewhere); subsidization between subscribers within the two exchanges (implementation of the plan would lead to regrouping and hence higher flat-rate charges for all customers whether they were in favour of the plan or not); and minimization of the importance of the cost factors involved.

The Board made its decision on the basis that EAS for St. Margaret's Bay and French Village was in the public interest. The public interest in this case would appear to have been defined as the interest of the 47.0% of the subscribers in St. Margaret's Bay and French Village who voted in favor of the plan.<sup>19</sup> No opinion was sought from subscribers in the total system who would have to make up the losses incurred from implementation of the plan. Moreover, subscribers in the two areas were not asked if they would take the plan at rates which would be high enough to cover the costs involved in providing the service.

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<sup>19</sup> See footnote 17.

In 1918, the Board had the following to say on the rates for rural and urban telephone subscribers:

In order to encourage telephonic development in the small rural exchange districts of a character which enables intercommunication with the larger cities, it is necessary to give service in these communities which (including a fair return on the investment required to give the service) costs more than service requisite to the rural needs alone, and any deficiency in revenues which thereby results in the smaller exchanges must be made up in favor of the smaller exchanges is, however, justified. On account of the association of the smaller rural exchanges with the large city exchanges by means of the toll circuits, it is necessary to supply a more rapid and consequently more expensive service in the rural exchanges alone. From the standpoint of the welfare of the telephone public as a whole it is to the advantage of the telephone users in the larger cities and towns to have the rural districts developed as fully as possible, and this development must be of such a character that the speeds and accurate telephone connections to which the city subscriber is accustomed may be established with the rural territory, and the rural lines and equipment must be adapted for such service. The larger cities should therefore contain in their rates a sufficient amount to cover the additional cost which the subscribers in these cities impose on the Company's service in the smaller exchanges, and which is not required by the inhabitants of those smaller exchanges. 20

In the 1975 hearings, Mr. S. Robertson, the President of the Company stated the following:

For example you can't say that the cost for providing service since I have mentioned Ecum Secum [in] Ecum Secum is \$1,000.00. That is the cost in Ecum Secum for providing service for all of Nova Scotia. Now we do in some sense make that sort of balkanization but that is in a sense improper and that we believe that those expenditures even though the revenue in Ecum Secum obviously wouldn't carry those expenditures. We don't think that it should anyway because those facilities provide service for everybody in the Province who communicates with or is communicated to from people in Ecum Secum. 21

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20 Report of the Board of Commissioners of Public Utilities, year ending December 31, 1918, p.20. This statement is taken from the Jackson Report of 1917, op.cit.

21 Transcript of 1975 Rate Hearing, p.77.

Between 1918 and 1975 then, the Company, and the Board, felt that it was in the interest of Nova Scotia to have a well developed rural telephone network. Accordingly the price of basic telephone service in rural communities has been set below the price in larger urban areas. Further, revenues from other parts of the system have been used to cover any insufficiency of revenues with respect to costs in the rural areas. Not all of these examples relating to internal subsidization properly fit the definition of a social goal given previously. In many cases the suspected presence of internal subsidies appears to be related instead to ability to pay. The charges assessed for specialized equipment would provide one example of this, as might the differential between the flat rate for basic business service versus the flat rate for basic residential service. Ability to pay is, however, not explicitly noted by the Company or the Board as the rationale for such features of the price structure. It is clear, however, that the tariff is being used to foster certain social goals, such as rural telephone development and EAS.

#### Financial Integrity of the Company

One of the primary reasons for discussing the financial integrity of the Company is that, unless the Company is earning an adequate, or fair, rate of return, the provision of adequate service goals may be compromised.

Having established a fair rate of return as a goal, however, there is more than one purpose that it can serve. In addition to helping to insure a continuing provision of service, the allowed rate of return may also be used as an instrument for promoting efficiency of operation on the part of the Company.<sup>22</sup>

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<sup>22</sup> For a more detailed discussion of this point see James Bonbright, Principles of Public Utility Rates (Columbia University Press, New York, 1961), pp. 53 and 54.



In a competitive environment, prices can be seen as playing two roles in regulating the production of goods or services by the firm. First, the role of bringing revenues in line with cost, where costs are defined to include a fair rate of return to the producer, and second, the role of creating incentives for efficient operation by forcing the reduction of production costs in order to maximize profits, and perhaps even for survival in the market.

The first of these functions appears to be met in the aggregate for the Company through Board action. Total revenue requirements of the system are determined on estimates of cost plus a fair rate of return to the Company; this may be, however, a very imperfect substitute for the traditional role of prices in a competitive environment. In Nova Scotia, as in most other jurisdictions, concentration is entirely on the total system, on aggregate revenues and costs, and not on increments to the system. In a perfectly competitive environment, price would automatically bring costs and revenues in line on individual components as well as in total.

The fact that there is no competition in the telephone industry in Nova Scotia implies that there may be little incentive for the Company to achieve such efficiency. There is, however, some incentive built into the system. The Board allows a maximum rate of return, but it does not guarantee this rate of return. The Company bears the loss if it fails to generate the allowed level of earnings; it is not able to recover a loss from future rate increases, although it can prevent a recurrence of the loss through future rate increases.

It is also possible for a regulatory commission to create an incentive by rewarding a company for efficiencies through a higher rate of return; thus the more efficient, the higher might be the allowed rate of return. Alternatively, should the firm prove itself highly inefficient, it would be penalized by having its allowed rate of return lowered. Although quite possible in practice, this approach does not appear to have been a factor in the determination of the rate of return for the Company. This conclusion results from an analysis of the written record of the Board's decisions.

The rate of return goal as applied to the Company works in practice as a principle; rather than being used primarily as a mechanism to induce efficiency, it is used as a device for maintaining the capital attractiveness of the Company. At each tariff hearing, considerable emphasis has been placed on the ability of the Company to fund its activities through normal capital markets. In its presentation to the Board, the Company has emphasized the need to determine the overall revenue requirements first and to determine the structure of rates last; overall revenue requirements are emphasized while the structure of rates is deemphasized. Although this approach does serve the capital attraction function, there are several comments that need to be made.

First, it is quite possible for entirely different tariff structures to lead to the same overall revenue but at the same time create quite distinct systems. Second, in the determination of a rate of return necessary to maintain the capital attractiveness of the firm, there is a tendency to set the rate of return at a minimum. But there may be other very good and compelling reasons why the rate should be higher than such a minimum.

In a perfectly competitive environment, a price system performs two essential functions with respect to the consumer. First, it acts as a device for restricting demand; thus, the price system rations the goods and services that are available. Second, the price system gives the consumer the freedom to make his choices subject to being able to pay the going price. It is important to note that a price system does not guarantee the provision of a service or product to every person in society. In the long run only those consumers willing and able to pay a price at least sufficient to compensate the producer for all costs, including a rate of return, would receive the service.

The rate of return goal is not necessarily inconsistent with maximum development of the system, but if the prices being charged for additions to the system are not sufficient to cover all costs incurred by the additions, then the goal may become subverted. To whatever extent maximum development of the system has been taken to be desirable in Nova Scotia and to the extent that the Company uses its tariff and other devices, such as advertising, to promote an abundant use philosophy, it is concluded that it is not a goal of the telephone system in Nova Scotia to use prices in general, as a device for restructuring demand.<sup>23</sup> This conclusion is further reinforced because individual cost of service is not explicitly considered in the determination of all prices.

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As has been noted previously, there are selected cases, such as the special construction charges levied on certain rural users, or the newly instituted directory assistance charge, where there is an attempt to restrict demand by using the price as a deterrent.

### Protection of the Public

The Public Utilities Act notes that rates, tolls, charges or schedules should not be "unjust, unreasonable, insufficient or unjustly discriminatory or [are not] to be preferential or otherwise in violation of any of the provisions of this Act".<sup>24</sup> Accordingly, the Board has set constraints on the behaviour of the Company in terms of guidelines which establish those actions or activities in which the Company is not permitted to engage.

Because there is a great deal of ambiguity surrounding the phrases "unjust", "unreasonable", "insufficient" or "unjustly discriminatory" telephone charges, it becomes difficult to know to what extent this part of the public interest goal is being met. In practice, one way in which it has been interpreted is that there should be no sudden departures from established rates and/or from alignment of various rates one to the other. Thus the Board has not permitted a rapid and dramatic alteration of the relative ratio of prices between various exchange groups.

### Summary

In general, the goals of the tariff on telephone service in Nova Scotia would appear to be:

1. to protect the public by placing certain constraints on the Company with respect to the reasonableness and equity of rates between different subscribers;
2. requiring telephone service to be self-financing operation;

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<sup>24</sup> Public Utilities Act of Nova Scotia, Revised Statutes of Nova Scotia, section 82, page 3904.

3. insuring the Company the opportunity of earning a fair rate of return with major emphasis on the capital attractiveness of the firm and to insure a continuing provision of service by the Company;
4. charging, in a number of instances, according to the subscriber's ability to pay; and
5. to foster certain social goals.

The goals of the tariff do not appear to:

1. restrict demand, except in special cases, or to otherwise use the tariff to lead to an optimal size of the system;
2. use the tariff to place limits and/or incentives on the quality of service being provided; or
3. create an incentive for efficiency within the Company.

Finally, there is no recognition of the redistributive function of the tariff. The tariff results in uniform rates for various classes of service which, given differences in the actual cost of providing different customers with those classes of service, creates a redistribution of income within the Province. However, there is no explicit consideration given to this in terms of measuring the effect of subsidization to various subscribers nor in terms of assessing the social value of such subsidization.

At this point, there are three important issues which require further examination. These are (1) the determination of adequate provision of service, (2) the determination of the tariff structure and (3) the monitoring function of the Board. These issues will be analyzed in the following Chapter.

### CHAPTER 3

#### Towards An Alternative Set of Objectives

In Chapter 1 the tariff objectives of M T & T were outlined as interpreted by the Company and the Board. In Chapter 2 the objectives were examined more closely and the conclusion was reached that in theory and/or in practice the list of tariff objectives were principles rather than goals. Also there was discussion of some of the goals which implicitly or explicitly underlay the tariff and the tariff objectives as well as alternative goals that might have been considered. The principle conclusion of Chapter 2 was that the current objectives lack specificity, both as statements of the goals of the tariff and as a basis for the determination of the tariff. Chapter 3 will be concerned with examining the process that is recommended for establishing goals and implementing them.

The regulatory process, if it is to protect the public interest by promoting certain activities by the Company and prohibiting others, subject to preserving the financial integrity of the Company, must clearly specify the goals which are to be met by the system.

The process at the present time relies on the Company to initially formulate goals, principles and instruments. The Board has, with few exceptions, approved the Company's proposals. The Board has not deemed it necessary to direct the Company to undertake alternative actions. Government and consumers both have access to the Company and the Board.



The Company has, for its part, constructed tariff objectives, service objectives and tariffs which it feels are in the best interests of the development of a good telephone network for Nova Scotians.

It is not the intention of this analysis to question whether or not the present process has been inadequate up to this time. Rather, the purpose of the analysis is to suggest that, for the future, the Board should begin to consider alternative modes of operation. The implications of expansion, in terms of resource allocation, must be looked at. More consideration should be given to cost of service pricing in conjunction with value of service pricing. Value of service pricing should be more clearly rationalized by attempting to measure, to the extent possible, how total system benefits differ, if at all, from individual subscriber benefits. If internal subsidization is to be permitted, the direction and magnitude of the subsidies should be known. More detail on these and other possible changes follows. The important point being made is that if there is to be adequate assurance in the future that the telephone system in Nova Scotia is serving the best interests of the people of the Province, the tariff goals, principles, and the tariff itself, must be rationalized in ways different from the past.

In this context, the three issues posed at the end of Chapter 2 will be considered with respect to the type of rationalization which should be attempted.

## The Legal Framework

It is useful to begin by placing the analysis of this chapter in its institutional environment; thus it will be necessary to examine the legal relationship that exists between the Board and the Company as defined by the Public Utilities Act. The analysis will also establish the ability of the Board to direct the regulatory process in the manner to be recommended in this report.

Appendix A contains a detailed review of the rights and duties of the Company and the Board as defined by the Public Utilities Act. One of the important points made in the Appendix is that parts of the Act are ambiguous. Many concepts, such as "telephone message", are undefined or are insufficiently defined. Also, the powers of the Board are not structured in a systematic fashion, resulting in repetition and ambiguity as to the relationship between the sections. The Act does however give wide powers to the Board.

As examples of the Board's authority, it may order the Company

to supply whatever information it deems necessary to enable it to fulfill its duties; prescribe record keeping methods and depreciation methods for the Company; examine the value, condition and extent of the Company's assets; make a revaluation of the Company's property; require approval of all new construction expenditures of more than \$5,000 in value; define the Company's rate base; establish the Company's allowed rate of return; control the Company's ability to abandon service; require specific service to be offered; compel, with power of subpoena, attendance of persons at hearings and production of desired documentation; compel whatever changes are necessary to ensure the furnishing of reasonably adequate services and facilities; cancel rates, schedules and contracts which are found to be unjust, unreasonable, insufficient, unjustly discriminatory or preferential; order a substitution for any

regulation, schedule, act or service that is unjust, etc.; and use such additional implied and incidental powers which may be proper or necessary to carry out, effect, perform and execute its powers as given in the Act.<sup>1</sup>

This is not an exhaustive list, as reference to Appendix A will show, but it should be clear that the Board has wide discretionary powers. Given also its non-discretionary responsibilities, it is apparent that the Board has the authority to exercise substantial control over the activities of the Company, subject to the preservation of the financial integrity of the Company. Any conclusions, in this regard, must however be qualified since there has to date been no substantial judicial interpretation of this Act.

In practice, the Board does not always use all of the powers at its disposal. It would appear that the Board is of the opinion that the extensive legal authority granted to it by the Act is to be used in dealing with extraordinary situations and thus is intended as contingency powers. The Act, however, does not make this distinction.<sup>2</sup>

Presently, the Company makes proposals on tariffs to the Board, which the Board may then accept or reject. The Board has, in some instances, substituted its own judgment as to the course of action the Company should follow. These instances occurred in the most recent 1974 and 1975 rate hearings, and in some of the very old hearings, those that took place up to 1920. It should, however, not be assumed

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<sup>1</sup> See Appendix A

<sup>2</sup> One of the rules of construction for interpretation of statutes which is quoted in Appendix A, states that the rule of construction is to intend the Legislature to have meant what they have actually expressed.

that the Board has not substituted its judgment for the Company's because of how it may interpret the Act. The major reason for the Board approving most Company applications is that the Board, in its judgment, has found the Company's principles and resulting tariff acceptable.

#### Adequate Provision of Service

In determining what is an adequate provision of telephone service, the real questions being asked are first, "what is the optimal resource allocation that should be made to the telephone system in the aggregate?" and second, "what is the optimal resource allocation that should be made to the various parts of the system within that aggregate?".

The resource allocation that should be made to the telephone system is constrained by the availability of resources. Given a limited amount of inputs or resources, there will always be a difference between what society can produce and what society would like to consume. If there is not enough resources to simultaneously satisfy all wants, then trade offs must be made. Such trade-offs should be made so as to maximize the welfare of Nova Scotians, within the resource constraint. Giving up some of one good in favor of more of another, imparts a benefit from the increased consumption of the one good and a cost from the decreased consumption of the other. Both the benefit and the cost of the change must be known if a rational decision on the desirability of the change is to be made. There must be concern not only with what is gained but also with what is lost, or given up.

It is undoubtedly true, with perhaps a few exceptions, that expansions to the telephone system increase the value of the telephone system. When the Company uses the concept of system wide service, they are correct in maintaining that not only is total system value enhanced but that also, the increased value is spread throughout the system. But in making this point, the Company has still not addressed the two essential issues involved. These are:

- a) Is the additional commitment of resources to the telephone system being used within the telephone system in that area where the greatest net social benefit will be achieved? and
- b) Is the additional commitment of resources to the telephone system realizing a greater net benefit than if those resources were committed to another sector of the economy?

In order to provide answers to these questions a number of factors would have to be looked at.

An assessment of the benefits of expanding the size of the telephone system would have to be made. In making this assessment, social benefits as well as private benefits would have to be considered. Unlike most goods and services produced in the economy, telephone service involves the presence of externalities or spillovers. This means simply that there may be benefits from an expansion of telephone service beyond the benefit to the Company or the benefit to the immediate subscriber being given service. For example, a viable provincial communications network, linked with a national and international network, may be an integral part of the infrastructure necessary to promote economic development.

Also, the satisfaction or utility that one subscriber derives from telephone service increases as others join the telephone system and the potential utility for new subscribers will be influenced by the existing size of the system. These effects follow from the fact that as the system expands, each subscriber in the system acquires a greater potential calling capability than previously, thereby increasing the potential value of the system to the individual. As another example, there are also externalities present in the placing of calls because incoming calls confer a benefit in the same way that outgoing calls do. In general, all other things being equal, the presence of such positive externalities would be an incentive for expansion of the system beyond where it might otherwise be.

Before any precise determination can be made of the implications of externalities upon the size of the system, the externalities would have to be identified and measured as precisely as possible. A rule of thumb, such as the present practice of counting the number of telephones may be a very imperfect measure of the externalities. Externalities are not easy to measure and no attempt is being made here to minimize this difficulty. But the difficulty of measurement does not alter the desirability of measurement and there is much that can be done by way of gaining a more precise understanding of the externalities and how they operate. Currently attention is being focused on this issue in other



areas, such as the treatment of environmental issues, energy, and transportation. Communications is no less important.<sup>3</sup>

In addition to identifying and measuring, to whatever extent possible, the benefits of an expansion in the telephone system, it is also necessary to know the cost of such expansion. Cost of service is as important as value of service because the ultimate aim is to know the net incremental benefit of an expansion of one part of the system versus another and versus expansions of other parts of the economy. The CIC Cost Enquiry Study is a prime example of the interest being shown in costs in other jurisdictions.

If the Board were able to determine the benefits of expanding the telephone system, even approximately, and could determine the costs of providing service by requiring the Company to provide it with cost separation statistics, the Board would be able to determine the net social benefit of an expansion of one part of the system versus another. It could thus determine, on a rationalized basis, the priorities within the system. Even though similar information might not be available for competing projects in other parts of the economy, changes in the telephone system would be based on more complete information than is currently available.

In addition to considering the costs and benefits of expansions,

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<sup>3</sup> For a further discussion of the externalities of telephone service, see R. Artle and C. Averous, "The Telephone System as a Public Good: Static and Dynamic Aspects", The Bell Journal of Economics and Management Science, Vol. 4, No. 1, 1973, pp. 89-100.

L. Squire, "Some Aspects of Optimal Pricing for Telecommunications", Bell Journal of Economics and Management Science, Vol. 4, No. 2, 1973, pp. 515-525.

Jeffrey Rohlfs, "A Theory of Interdependent Demand for a Communications Service", The Bell Journal of Economics and Management Science, Vol. 6, No. 1, 1975, pp. 16-37.

the financial implications on the Company from such expansions must also be looked at. If the system is required to be self-financing as is the case at present, then the rate of return required by the Company to undertake expansion will impose a constraint on how much expansion is initiated.

Whether the system is self-financing or not, the determination of the Company's allowed rate of return is important both because the protection of the Company's financial integrity is crucial to ensuring a continuing provision of service and because the rate of return may be a powerful instrument for ensuring efficiency of operation by the Company. Achieving a proper allocation of resources to the telephone system involves not only a determination of the aggregate resource commitment but also an assurance that those resources which are committed are being used in the best manner possible.

If the Board were prepared to use the allowed rate of return to penalize inefficient management and operation as well as reward efficient management and operation, the incentive to the Company to use resources in the most efficient way possible would become greater.

None of the above analysis on meeting the "adequate provision of service" goals is intended to imply that the telephone system is at present commanding too few or too many resources or that the Company is operating inefficiently. The point is, rather, to stress the importance of more explicitly rationalizing the size and quality of service goals on the cost-benefit basis outlined and having some means of obtaining improved efficiency, if it can be improved. Bigger and better is not necessarily desirable. The Company's goal of maximum develop-

ment of the system implies that expansion is desirable as long as the financial position of the Company is protected. The analysis has suggested that the benefits of expansion are only one-half of the picture; more consideration must be given to cost.

### The Tariff Structure

The tariff structure and the absolute level of individual rates within the tariff have implications for the size of the individual components of the system, which in turn has implications for the aggregate size of the system, the quality of service in the various parts of the system and internal subsidization between parts of the system. The level of specific rates and the specific rate structure adopted are central because the price system is the principal vehicle for achieving the optimum size and the quality of service goals. But just as importantly, the rate structure is central to the issue of internal subsidization.

In Chapter 2, there was a discussion of the internal subsidization of rural exchange areas by other parts of the system. It is useful to use this example to illustrate the point just made above.

The Company's principles of system wide service and system wide pricing have already been discussed. Given these principles, the current price structure for rural versus urban exchange areas may be logical. However, because some of the rural exchanges are not self-financing, then even if the concept of system service is accepted the removal of such

exchanges from the system would result in eventual profit increases to the Company.<sup>4</sup> Quality of service might fall over the entire system, and it would certainly fall to zero in the eliminated exchanges, but if rates in all other parts of the system are kept at the existing level, the increase in profits must follow from the fact that these smaller exchanges are not self-supporting. What this means is that to justify the present rate structure, the benefit received by the system would have to be commensurate with the support being given by the system. If it is not, then there is no justification for the internal subsidization that is occurring between different classes of users of telephone service. From an analysis of Board decisions, hearing transcripts, and Company statements, it is not clear that this question of benefits commensurate with costs has ever been explicitly asked; rather, it appears that a positive answer has been implicitly assumed.

At the time that the telephone industry in Nova Scotia, and indeed all of North America, was in its infancy, and perhaps for many years following, a goal of achieving universal accessibility to the system may not have been misplaced. And as a corollary to such a goal, a tariff designed to induce more rapid expansion of the rural network and to emphasize the total system concept of the network may have been more desirable than a tariff which assigned the full incremental cost of an expansion to the direct recipient of that expansion. Even then, however,

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<sup>4</sup> This statement would have to be qualified by noting that not only local service or toll free revenues must be looked at but also toll revenues created because of the existence of service in these exchanges. For any new additions that were not self-financing, not undertaking them would obviously leave profits higher. But for removals of present parts of the system, where certain fixed costs will be involved, as long as the losses involved are less than the fixed costs it will temporarily remain profitable to maintain the losing services.

in deciding how to recover the costs, it would have been useful to have compared them with individual subscriber benefits as well as the total network's benefits. But at a time when universal access has largely been achieved, as is the case at present, and where expansion is in large part an improvement of the quality of basic service and the addition of a variety of fringe items, it is not clear that the social benefit, or total system benefit, does differ significantly from the benefit of the private subscriber who is the immediate recipient of the service. And irrespective of whether the answer to this is positive or negative, a knowledge of the relative benefits and costs is necessary to determine from whom the costs are to be recovered.

In a recent paper,<sup>5</sup> Richard Posner has made the following comment:

Taxation in common parlance refers to the use of the powers of the state to extract money from its subjects in order (1) to defray the cost of services that the politically dominant elements of the state wish to provide and that the market would not provide in the desired quantity and at the desired price, or (2) to transfer money income from one group to another, or (3) often, to do both. By this test regulation is in part a system of taxation or public finance. The basic mechanism is the internal subsidy. A firm provides a service below its real cost and the deficit is made up by (usually) other customers of the firm who pay higher prices than they would otherwise. Were it not for the power of the state, acting through the regulatory agency, to control entry, the system would not be viable. A firm would not institute a losing service. If by mistake it did, it would terminate the service rather than subsidize the losses from profits in other markets. If it foolishly persisted, firms not burdened with the costs of losing services would enter the high profit markets and their competition would drive down the

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<sup>5</sup> R. A. Posner, "Taxation by Regulation", Bell Journal of Economics and Management Science, Spring 1971, Vol. 2, No. 1, pp. 22-50.

price; deprived of the necessary supranormal profits, the firm would finally be compelled to terminate the unprofitable service.

Internal subsidization may thus be viewed as an exertion of state power whose purpose, like that of other taxes, is to compel members of the public to support a service that the market would provide at a reduced level, or not at all. It is in fact a form of excise tax, with the burden falling on purchasers of certain goods or services, and the proceeds earmarked for specific uses.<sup>6</sup>

This view, although expressed in different terms, reiterates the previous points. If internal subsidies are present in the telephone industry in Nova Scotia, and the analysis in Chapter 2 has shown they are, then the question arises as to the basis for this "taxation".

One approach is that such "taxation", on principle, can not be justified, and therefore cost of service pricing must be used. But if the position is taken that it may be justified, then there are a number of considerations that must be looked at:

- a) Voters typically demand some accountability from governments as to the benefits received for tax dollars spent. The degree of accountability may at times seem remote but, at least in theory, it is there. Similarly for telephone service, it is necessary to explicitly identify the extent of "taxation" and, as much as possible, the benefits being received; otherwise, there can be no accountability.
- b) Benefits to subscribers other than those who are the direct beneficiaries of a service must be accounted for.
- c) Benefits must be compared to the cost of the service and with the benefits from other alternatives competing for the same resources.

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<sup>6</sup> Ibid., pp. 28-29.



- d) Taxation implies the necessity for a variety of interests to have input into the specifications of the goals of the telephone system.
- e) There should be an evaluation of this form of taxation as compared to other alternatives. Clearly, whether acceptable or not, a system of direct government subsidization out of general tax revenues is an alternative. So too would be the introduction of an explicit charge levied on all subscribers with the proceeds earmarked for the subsidized services. Both the equity and efficiency effects of the present system and of alternatives must be considered.
- f) Both the absolute and relative amounts and levels of this kind of taxation are relevant to the decision making process. The whole question of the optimal size of the telephone system and its various parts and of the optimal quality of service are intimately related to the question of rates and rate structure. The entire goal specification system under discussion is a necessary component in solving the specific issue of internal taxation and subsidies.

One of the results of assessing the role of internal subsidies in the system might be to lead to a greater use of usage sensitive pricing in the rate structure. Usage sensitive pricing is a system of charging based on actual use of the telephone, where usage may be measured by any one, or any combination, of length of call, time of call, distance of call, incoming as well as outgoing calls, or type of message (voice versus data). Usage sensitive pricing is presently used for all toll calls, both intraprovincial and interprovincial. It is, however, not used at the present time for local service offerings.<sup>7</sup>

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<sup>7</sup> See the discussion in Chapter 2 on non-optional measured rate service versus flat rate service for business subscribers in larger exchanges.

A move towards more pricing on a usage sensitive basis suggests itself in the present context for a number of reasons. First, such a pricing scheme would allow prices to be more directly related to costs. Second, by charging in relation to the use actually made of the telephone, usage sensitive pricing would provide one possible measure of the value of service actually derived from the system.<sup>8</sup> Third, and most important, usage sensitive pricing would be one way of using prices to limit the size of demands made on the system and thus meet the service provision goals that had been specified for the total system and/or its various parts. Prices could be set at levels designed to encourage the desired volume of calling. If social goals dictated the desirability of promoting the use of service in a particular area, prices could be set below costs. If size goals dictated restraining demand, this might require prices for some services to some subscribers to be set above cost.

Creating an incentive to curtail or expand the volume of use of the system is crucial to controlling the total resource commitment made to the telephone network. A schedule of flat rate charges can be manipulated to affect the total number of subscribers but may be quite ineffective in curtailing any given subscriber's use of the system, since a flat rate price gives a subscriber unrestricted toll free calling within the base rate area.

Usage sensitive pricing might not be appropriate for all service offerings and all subscribers. It might also be necessary to accompany

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<sup>8</sup> At present, the value of service principle, by charging more the greater is the number of subscribers who can be called toll free, is charging on the basis of potential value of service rather than actual value of service. Company data suggests, however, a possible correlation between potential calling capability and actual calling.

the usage sensitive price with some fixed or flat rate charge that would cover certain fixed costs of the Company which are not specifically related to usage. It would also be necessary to investigate the costs of measuring usage and of billing on the basis of usage. These are all concerns which would need to be examined. The potential benefits of such a pricing structure, however, suggest that studies should be made of the feasibility of introducing more usage sensitive pricing on a planned basis over time.<sup>9</sup>

Finally, with respect to rate structure, some comments need to be made on the role of the Company's allowed rate of return. One concern in the present context is with the potential role of the rate of return as a means of promoting efficiency in Company operations. To obtain the maximum use from the resource allocation made to the telephone system requires not only concern with prices but also concern with costs. Costs must be identified as part of assessing the net social benefit of expansion of the telephone system as a whole or in part, but beyond this, emphasis must also be placed on ensuring that costs are being minimized. This latter point requires a means of promoting maximum efficiency in the Company, and, as was discussed in Chapter 2 and earlier in this Chapter, the determination of the rate of return may be one way of doing this.

Two further points need to be made with respect to rate of return and rate structure. First, subject to whether or not the Company is

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<sup>9</sup> In 1975, the Company proposed the introduction of a directory assistance charge. It was estimated at the 1975 hearings that the Company would realize substantial savings from such a charge, in large part because of the expected reduction in the use of the system. A directory assistance charge is in fact a usage sensitive price for information, or directory, assistance, for listings already in the telephone directory.

required to self-financing, any given rate of return determination may create changes in rate levels. The Company's rate of return is in fact a cost which must be recovered from subscribers if the system is self-financing. Thus it is important to formulate precise approaches to determining the Company's rate of return.<sup>10</sup> Second, the achievement of the optimal system size might require a level of rates which produces a rate of return in excess of that allowed. In such a case the Board would have to consider whether the excess funds would accrue to the Company, be reinvested in the system, or be returned to subscribers. If the tariff is to be the principle instrument for achieving the provision of service goal, however, such a situation should not result in a lowering of rates to bring the actual rate of return back down to its minimum.

#### The Monitoring Function

In this section, it is necessary to examine the implications of the analysis to this point in terms of the process that will be necessary to carry out the type of monitoring function the analysis would prescribe for the Board. It has already been suggested that costs and benefits must be determined for each investment which the Company proposes. It has also been suggested that the difference between the price of a service and the cost of a service should be determined, and that there be a recognition and measurement of the redistribution of income as a result of subsidization and taxation which results from the current

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<sup>10</sup> Alternative approaches to determining "fair rate of return" are discussed in Appendix C.

tariff. Most importantly, the need for explicit goal specification for the system has made clear the need for a mechanism to be developed for evaluating the results that the system achieves.

Goal formulation is a necessity for there to be objective standards by which to evaluate the telephone system and the performance of the Company. Formulation of goals should result from a combination of inputs from government, industry, and consumers. The Board would then be in a position to arbitrate conflicts between the various interests as they arise; the Board would also be able to determine what various segments of society considered were the priorities for the system.

As one part of the process of goal formulation, fairly detailed models of the telephone system will need to be developed to enable the Board and the Company to assess the implications of alternative goals. Such models will also be useful to the Board in the monitoring of goal achievement and of Company performance. The development of such models, although important, would however not be a prerequisite to proceeding with the process for goal formulation set out in the final section of this Chapter.

A number of components would be necessary in the building of a model. A profile of the demand characteristics of each service offered, a profile of the Company's cost for individual services, a profile of the Company's technology and a profile of the Company's accounting operations including both those which are dictated by the Board and

those which are left with the Company would be required.<sup>11</sup> These components would then become part of a simulation model that could be used to analyze the resource allocation implications of an increase in service offerings of different places, an increase in service offerings of different types, the various prices that could be charged for services, the net benefit to the Company of providing those services, an assessment of the benefit of new technology as well as an evaluation of a number of other factors. Each of the components above will be analyzed in order to see why they are necessary.

The profile of the demand characteristics of each service offering is necessary in order to determine the prices that will lead to the desirable overall size of the system and the size of individual components. The demand profile would make it possible to estimate the various elasticities of demand with respect to price and income in each of the separate service offerings of the Company. Based on that information, it would be possible to determine the effect of different prices on demand which in turn would assist in achieving the size objective. Also, if one of the goals is that the Company be self-financing, when parts of the system are improved even though costs are not fully recoverable from the immediate beneficiaries, the demand profile and the relevant elasticities would determine where prices can be changed so as to not

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<sup>11</sup> By profile is meant a detailed specification of the area under consideration. The demand profile would thus involve an estimation of the demand schedule for each service offering, broken down by class of user in some cases. The cost profile would involve an estimation of the cost functions of each service offering, broken down in some cases by class of user. Similarly, the technical profile and the accounting profile would do the same in those areas.



affect total size objectives; at the same time, it would be possible to meet the revenue requirements of the Company.

The cost profile is similarly a necessary component to enable evaluation of the net benefit of each service and hence the realism of goals. The cost profile in conjunction with the demand profile would make it possible for the Board to immediately assess the private benefit of any particular expansion of the system or modification to the system. It would also be possible to make comparisons with alternative priorities of the Province, if those have been enunciated, and would provide a basis for evaluating the cost to society of implementing various social goals which are not in themselves self-financing. For example, rural expansion might not be self-financing because rural subscribers might not be prepared to pay a price for telephone service which was fully commensurate with the cost of providing the service. It may, nonetheless, still be desirable that the rural expansion take place. With a model as described here it would be possible to determine the specific cost of such an expansion. The cost profile would, in addition, provide considerably more detailed information on the Company's costs and thus give the Board greater capability in monitoring costs and evaluating the efficiency of the Company.

The technical profile would be a profile of the Company's technical capacity and structure. It would provide the means of evaluating new technology as it becomes available and it would also be of assistance in cost separations studies. Further, it would provide the means of assessing alternative technical means of achieving the same goals with the resulting capability of comparing the cost and revenue implications of the alternative technology.

The accounting profile, based on the other three profiles, would make it possible to assess the overall financial position of the Company. It would also, by introducing explicit rules with respect to such items as allowed depreciation rates and allowed rate of return, give the Board the means to monitor the Company's operations independently of the Company's own financial statements. Most importantly, it would show the direct implications of the goals for the Company's financial position.

The virtue of all of these components in the overall model would be to give the Board, at the goal formulation stage, the capability of assessing the implications of various demands made on the system. This would then allow for assessment of what those demands would cost, how they would be paid for and what they would mean with respect to the Company's financial integrity. It would assist the Board in its role of goal specification and interpretation.

Once the goals had been specified, a model of this type would also be valuable as a monitoring device in terms of assessing how well the goal achievement was proceeding. It also would show, as more information became available, whether the goals were still realistic.

Finally, the model would provide the Board with the means of monitoring the achievement of objectives by the Company and the efficiency of the Company. In addition, the adequacy of depreciation and the adequacy of the rate of return could also be monitored.

#### The Role of the Government, the Board, the Company and Consumers.

If the decision making process that has been set out in this chapter is to be implemented, there must be a clear definition of the respective roles of each of the parties in the process. Four parties have been identified: government, Board, Company and consumers. Each of these will be looked at in turn.

The government may specify goals for the Board by means of legislative direction to the Board. It is not necessary for government to be a direct participant in any Board hearings. This is the process at the moment, where the government has included in the Public Utilities Act, those goals it has chosen to specify. Where the government chooses to specify goals in this manner, it then becomes the responsibility of the Board to see to their implementation.

The role of the Board in the future would involve a number of functions. Primarily, the Board's task would be to insure achievement of whatever goals had been set by government and to otherwise, within its legislative mandate establish the system's goals and priorities. This would then involve monitoring of goal achievement, monitoring of Company performance, hearing consumers' complaints, deciding on Company rate applications, assessing major Company expenditures, and undertaking whatever other actions might be necessary to insure goal achievement.

In addition to rate hearings, it would also be desirable to have the Board institute a new type of hearing to assist in the determination of goals. Such policy hearings would be of use in order for the Board to seek evidence from the Company and the public on desirable goals, their realism, and their implications.

Unlike normal rate hearings, the special policy hearings would be non-adversarial and more informal. The hearings would thus be of particular significance as a means of providing the consuming public with an access to the regulatory system outside of the context of the potentially time consuming, costly, and adversarial framework of formal rate hearings.

There have been a number of interesting experiments in Canada, and elsewhere, in recent years, designed to increase effective public participation in regulatory proceedings. For a number of years, there has been discussion in the U. S. on establishment of an Office of the Consumer Advocate, which is finally very close to approval by Congress. The U. K. in 1974 also proposed the establishment of a National Consumer's Agency, although it is not known if any concrete action has yet been taken. In Canada, the Department of Consumer and Corporate Affairs has, since 1973, provided funding to the Consumers' Association of Canada to conduct advocacy activities on behalf of consumers before regulatory tribunals.<sup>12</sup> In the 1975 rate hearing of New Brunswick Telephone Company in New Brunswick, the provincial government provided funding for a lawyer

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<sup>12</sup> More detail on these initiatives is to be found in M.J. Trebilcock, "Winners and Losers in the Modern Regulatory State" (mimeograph, 1975), pp. 17-29.

to be hired to represent the consumer interest. The Province of Alberta's Public Utilities Board has accepted the principle of awarding costs to intervenors, who participate in rate hearings under its jurisdiction.

With respect to policy-type hearings such as were discussed above, the CRTC in Canada has, for a number of years, held informal hearings of this type, to which the public is invited to comment on policy goals such as the Canadian content rulings of the Commission or local programming offered by cable television companies. In January of 1976, the federal government announced a new rail passenger service policy which outlined some basic guidelines which the government felt had to be met by the passenger rail system and then instructed the CTC Rail Committee to undertake a series of special policy hearings on the question and draw up a specific list of recommendations that would achieve the broad guidelines outlined by the government.

None of the above examples are mutually exclusive alternatives. In conjunction with special policy hearings, there might also be a strong case for funding consumer representations either through government or by the Board awarding costs. And neither of these possibilities is an argument against appointment of a public or consumer advocate to participate in policy and/or rate hearings. The merits of, and trade-offs between, the various options that have been tried elsewhere should be looked at. The special emphasis that is placed on the policy hearings comes about because of the emphasis on goal specification and the opinion that definition of goals should be made distinct from rate hearings. Such a distinction might greatly facilitate rate hearings, which now spend a great deal of time addressing questions of goals and objectives because there is no other vehicle for this purpose.

The role of the Company would be to carry out the planning necessary to achieve the goals that had been set. This would be done in consultation with the Board. At an earlier stage, the Company might also propose goals for the Board's consideration. The Company would, as at present, be responsible for formulating the tariff and submitting it to the Board for approval. It would also be responsible for gaining Board approval for any other actions which the Board might require. Most importantly the Company would be responsible for the efficient running of the telephone system. Nothing in the proposed process would interfere with present management prerogatives as long as the goals of the system were being met.

The entire process would be closed ended with the monitoring stage leading directly back into the goal formulation stage as feedback on goal achievement and realism of goals was obtained.



## Chapter 4

### Recommendations for Nova Scotia

Throughout this study, there have been a number of major conclusions advanced. These are:

- a) that there is a need to develop a specific list of tariff goals which represent the results with respect to availability and quality of telephone service which are being aimed for
- b) that the tariff itself is the primary instrument for achieving goals
- c) that tariff principles, although useful, are of importance only insofar as they facilitate goal achievement by setting up rules of construction for the tariff which aid in translating goals into a specific tariff structure
- d) that the present list of Company enunciated tariff objectives are in theory and/or in practice principles of rate making, not goals
- e) that in specifying a goal relating to adequate provision of service, both cost of service and value of service information is necessary for a rationalization of the goals and resulting tariff agreed upon
- f) that internal subsidization, to the extent that it is present in the system at the moment, should be rationalized in terms

of this same net benefit analysis and permitted only where the total system benefits or total economy benefits exceed the benefit to the private subscribers who are the immediate recipients of the improved service. This requires a greater understanding of the externalities of telephone service and how they operate than is found at present.

- g) that the allowed rate of return of the Company should be seen not only as a goal from the Company's point of view but also as an instrument for ensuring continuing provision of service and efficiency of operation, in a cost minimization sense, by the Company.
- h) that monitoring of goal achievement and of Company performance is an important function of the Board
- i) that there should be more explicit input from other segments of society on priorities within the telephone system and between the telephone system and other parts of the economy
- j) that standing above all of these conclusions is the overall need for promoting the efficient allocation of scarce resources. It is this consideration which leads to the two overall questions asked in Chapter 3:
  - a) Is the commitment of resources to the telephone system being used within the telephone system to achieve the greatest net social benefit?
  - and

- b) Is the commitment of resources to the telephone system realizing a greater net benefit than if those resources were committed to another part of the economy?

These conclusions lead to a series of recommendations.

#### Recommendations

- a) With respect to goal formulation, goals should follow from an explicit consideration of the net benefit, including social benefits, of expanding one part of the telephone system over another. Ideally there should also be an ordering of overall social and economic priorities so that expansions of the telephone system can be compared with expansions in other parts of the economy, with full recognition of any trade-offs involved. Goal formulation should involve increased consultation by the Nova Scotia authorities with regulatory and government authorities in other jurisdictions. The telephone system in Nova Scotia is not a self-contained entity; policy decisions made in other jurisdictions may have a potentially major impact on Nova Scotia, just as decisions taken in Nova Scotia will have an impact outside the Province.
- b) As part of the goal specification process, the Board should conduct special policy hearings of the type described in Chapter 3 in order to
  - a) define goals for those areas left to its discretion, within its legislative mandate
  - b) interpret any goals that may have been defined by government,

- c) allow for Company and public input on the desirability and implications of possible goals and
  - d) assess the implications of the goals proposed. The Board might also wish to consider other means of assisting effective consumer input such as funding of consumer representation and/or establishment of a public advocate's office.
- c) More consideration should be given to the cost-of-service principle than is the case at present. This does not mean that all prices should be set in terms of cost-of-service. What it does mean is that if evaluation of expansion decisions is to be rationalized, both cost of service and value of service considerations must be taken into account. This implies the need to commission a study which will explore the nature of the externalities of telephone service and assess the possibility of measuring such externalities. It also implies the need to have the Company produce cost separation statistics. There may be a need for a study to be undertaken to determine the theoretical, technical, and financial problems the Company would face in providing cost separation data. The CTC Cost Inquiry Study has resolved many of the cost separation issues and provides a good working model as a starting point. Such cost and benefit data would also identify the internal subsidization presently occurring and allow for its rationalization in terms of the system's goals.

- d) There are a number of potential benefits that could result from introducing more usage sensitive pricing into the system, on a planned basis, over time. Usage sensitive pricing combines both value of service and cost-of-service considerations and could enhance the use of the tariff as a demand-restricting instrument. A type of usage sensitive pricing is already in use for toll service, but there is little detailed information available at this time on usage sensitive pricing for local service. The Board may wish to commission a study of the costs and benefits to the Company and to subscribers of introducing more usage sensitive pricing in those parts of the system where it is not currently in use.
- e) The setting of a fair rate of return to the Company should be viewed not only as a goal for the Company but as an instrument for achievement of the system goals. It should thus be concerned with the role of rate of return in ensuring a continuing provision of service at an adequate level, and as a device for promoting efficiency of resource use by the Company. Specific rules should be drawn up to govern rate of return determination.<sup>1</sup>

The Board may wish to commission a study of the implications for the Company of the various possible approaches to rate of

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<sup>1</sup> For recommendations on such rules see Appendix C

return determination. Such a study might also consider the implications, with respect to goal achievement, of there being certain services of the Company whose prices are unregulated.<sup>2</sup>

- f) The process of monitoring goal achievement and Company operations is integral to both the good formulation process and the tariff determination process. In this regard, the previous recommendations relating to the externalities of the telephone system and cost separation studies would be important not only to goal specification but also to the monitoring of goal achievement.

The Board should also explore the implications that would follow from the development of a detailed working simulation model of the telephone system, as described in Chapter 3. The development of such a model should involve direct Board participation, to ensure maximum usefulness from the model in the Board's decision-making role.

- g) The tariff, which would be the primary instrument for goal achievement, should be formulated by the Company in line with the plan for goal achievement agreed upon by the

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<sup>2</sup> It may be acceptable to segregate the Company's operations into regulated and unregulated categories and not regulate specific prices in the latter group. Regulating the prices of the former group and the overall rate of return of the Company would then implicitly serve to regulate the unregulated services taken as a group.



Company and the Board. The tariff should be scrutinized by the Board, as at present, in the context of rate hearings. These hearings should continue to be open to participation by the public.

- h) To the extent that the Public Utilities Act as has been shown in Appendix A, contains certain ambiguities with respect to the powers of the Board and the limits of the Board's jurisdiction, the Act should be reviewed and any ambiguities present should be eliminated or reduced as much as possible.

The overall effect of these recommendations would be to provide a decision-making framework for regulation of telephone service which would explicitly consider the issue of optional resource allocation and provide a rationalization of the conduct of the telephone system in these terms. It is recognized that some of the recommendations might involve major changes in the present tariff. It is also recognized that the Board cannot ignore its legislative mandate to insure that prices are not "unjust, unreasonable, or unjustly discriminatory". Although it is not felt that the recommendations which have been made above violate this mandate, it is obvious that any dramatic and sudden departures from present practice would create at least temporary inequities.

It is possible, however, to treat most of the recommendations as separate items, i.e., it is quite possible to act on some of the recommendations, or parts of them, without acting on all of them. More consideration of cost of service, for example, could be started by concentrating on the many special services and equipment offerings for which costs

are already available while further study is done on the viability of doing cost separations for basic service. Indeed, many of the recommendations are couched in terms of more study before any action is taken and when action is taken, it should be done so as to cause a minimum of disruption.

All of the recommendations have, as their intent, to more explicitly rationalize the decision making process. Any move in this direction will serve to enhance telecommunications regulation in Nova Scotia.

## APPENDIX A

Relationship between Board of Commissioners of Public Utilities and Maritime Telegraph and Telephone Company Limited as constituted by the Public Utilities Act, Revised Status of Nova Scotia, 1967, as amended.\*

The purpose of this appendix is to discuss certain matters which are of interest when one examines the relationship between the Board of Commissioners of Public Utilities, hereinafter referred to as "the Board", and Maritime Telegraph and Telephone Company Limited, hereinafter referred to as "the Company", as constituted by the Public Utilities Act, Revised Status of Nova Scotia, 1967, as amended, hereinafter referred to as "the Act". Those matters relate primarily to issues of interpretation and construction of the Act and parts thereof and in that context it should be stated at the beginning that, while every attempt is made here to be as exhaustive as possible, regular reference to the relevant sources of information is advisable.

It would be beyond the scope of this opinion and quite presumptuous as well to attempt accurate predictions as to the way in which a court in Nova Scotia would interpret or give meaning to the Act or a part thereof. The courts here tend to limit their explanations of statutes in ways which accord with the particular problems, facts and situations coming before them rather than make overly general pronouncements. This means that an opinion such as the present one is best off by simply recounting in a general way some of the applicable rules of interpretation and construction and then making some hopefully educated guesses as to what would be done with various contents of the Act.

Maxwell on Interpretation of Statutes (12th edition, 1969) contains a number of statements worth quoting to establish a basis for this discussion. Case references are for the moment omitted.

"The first and most elementary rule of construction is that it is to be assumed that the words and phrases of technical legislation are used in their technical meaning if they have acquired one, and otherwise in their ordinary meaning, and the second is that the phrases and sentences are to be construed according to the rules of grammar." (at p. 28).

"The rule of construction is 'to intend the Legislature to have meant what they have actually expressed.'" (at p. 28).

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\* This Appendix was prepared by Mr. Simon Dubinsky, B.A., L.L.B., L.L.M. It was reviewed and commented on by Professor Don Clark of the Faculty of Law, Dalhousie University. The final opinions expressed are entirely those of Mr. Dubinsky.

"The desirability or undesirability of one conclusion as compared with another cannot furnish a guide in reaching a decision. Where, by the use of clear and unequivocal language capable of only one meaning, anything is enacted by the legislature, it must be enforced however harsh or absurd or contrary to common sense the result may be." (at p. 29).

"Just as the literal rule prevents the undue restriction of wide language, so also it precludes the undue extension of narrow language." (at p. 30).

"It is a corollary to the general rule of literal construction that nothing is to be added to or taken from a statute unless there are adequate grounds to justify the inference that the legislature intended something which it omitted to express." (at p. 33).

"A construction which would leave without effect any part of the language of a statute will normally be rejected." (at p. 36).

"... the main part of a section must not be construed in such a way as to render a provision to the section redundant." (at p. 38).

"It goes without saying that the solution of a particular problem of interpretation will often be determined by which principle or principles the court chooses to apply. But since there is not in English law any settled hierarchy governing the order in which the various canons and presumptions of construction are employed, the existence of these principles does not make it possible to predict with certainty the result which will be reached in a given case."

"Moreover, where the question is whether the words of an Act do or do not apply to particular facts, the court or tribunal may be assisted by legal principles or by so-called rules of construction, but these cannot solve the question!" (at p. 39).

"In order properly to interpret any statute [it is necessary] ... to consider how the law stood when the statute to be construed was passed, what the mischief was for which the old law did not provide, and the remedy provided by the statute to cure that mischief." (at p. 40).

"The so-called 'golden rule' is really a modification of the literal rule ... 'It is a very useful rule, in the construction of a statute, to adhere to the ordinary meaning of the words used, and to the grammatical construction, unless that is at variance with the intention of the legislature, to be collected from the statute itself, or leads to any manifest absurdity or repugnance, in which case the language may be varied or modified, so as to avoid such inconvenience, but no further.' (at p. 43).

" 'If the choice is between two interpretations, the narrower of which would fail to achieve the manifest purpose of the legislation, we should avoid a construction which would reduce the legislation to futility, and should rather accept the bolder construction based on the view that Parliament would legislate only for the purpose of bringing about an effective result.' " (at p. 45)

"Every clause of a statute is to 'be construed with reference to the context and other clauses of the Act, so as, as far as possible, to make a consistent enactment of the whole statute'" (at p. 47)

"Statutory language is not read in insolation, but in its context." (at p. 47).

"In the interpretation of statutes, the interpreter may call to his aid all those external or historical facts which are necessary for comprehension of the subject matter, and may also consider whether a statute was intended to alter the law or to leave it exactly where it stood before" (at p. 48).

"... the modern rule is clear: the Parliamentary history of legislation is not a permissible aid in construing a statute." (at p. 50).

" 'I am quite aware', said Lord Coleridge, 'that dictionaries are not to be taken as authoritative exponents of the meanings of words used in Acts of Parliament, but it is a well-known rule of courts of law that words should be taken to be used in their ordinary sense, and we are therefore sent for instruction to these books...' " (at p. 55).

"Care must, however, be exercised in the use of such works ... And dictionaries are for consultation 'in the absence of any judicial guidance or authority' ... 'it is often fallacious in considering the meaning of a phrase consisting of two words ('unfair competition') to find a meaning which each has separately and then infer that the two together cover the combination so arrived at. The two together may ... have acquired a special meaning of their own." (at pp. 55-56).

"The practice which has been followed in a matter in the past may influence the interpretation to be placed on legislation." (at p. 56).

A first issue to be tackled is that of the rights, powers, and duties of the board. For this purpose a division may be made, loosely speaking, between the discretionary elements of the board's jurisdiction and non-discretionary elements thereof. The former incorporates the rights and powers of the board, that is, what the board may do; the latter its duties, i.e., what the board must do.

Firstly, the discretionary elements. The board may:

- (1) be sections 2(4) and 2(5), have commissioners up to the age of 70 years during their good behaviour;
- (2) by section 2(6), receive advice from an electrical expert if one has been appointed by the Governor in Council;
- (3) by section 2(7), employ the persons it may require or deem advisable;
- (4) by section 5(1) have the wide use of a member of the staff of the Department of the Attorney General, and require that person to represent the board in and intervene in all actions and proceedings related to the Act of any act, order or proceeding of the board, to commence and prosecute all actions and proceedings directed by the board, to expedite the conclusion of all such actions and proceedings and to do such other things as may be reasonably required by the board;
- (5) by section 8, be the user of a telephone;
- (6) by section 10, operate with a quorum of two usually or with a quorum of one in certain circumstances;
- (7) by section 11, authorize one of its commissioners to investigate and report to the board on any matter in the board's jurisdiction;
- (8) by section 12, act regardless of a vacancy in its numbers;
- (9) by section 13, make assessments against public utilities to cover the expenses of the board;
- (10) by section 15(1), sue a public utility for the proportion of the board's expenses assessed to such public utility;
- (11) by section 17, "... make all necessary examinations and enquiries and keep itself informed as to the compliance by (the said) public utilities (over all of which it has general supervision) with the provisions of law and ... obtain from any public utility all information necessary to enable the board to fulfil its duties.";
- (12) by section 18, whenever it shall believe that any rate or charge is unreasonable or unjustly discriminatory, or that any reasonable service is not supplied, or that an investigation of any matter relating to any public utility should for any reason be made" ... on its own motion summarily investigate the same with or without notice."



- (13) by section 19, exclude a public utility which is in the telephone or telecommunications business from the scope of the Act.
- (14) by section 20, consider potential legislative changes in respect of the property of operations of any public utility, hold hearings in respect thereof and transmit bills concerned therewith to the Attorney General;
- (15) by section 21, publish annual reports;
- (16) by section 22, publish the value of property "... actually used and useful for the convenience of the public ..." including that of a public utility;
- (17) by section 24, subject to approval thereof by the Governor in Council, make amend and revoke its rules and regulations;
- (18) by section 25, regulate "... all poles and pole lines ..." and compel conformity therewith by a public utility;
- (19) by section 26, prescribe records for and their method of keeping by a public utility;
- (20) by section 27, prepare blank forms for use in carrying out the purposes of the act;
- (21) by section 28(1), examine and audit all records;
- (22) by section 28(2), through its agents, etc., inspect "... any books, accounts, papers, or records and memoranda ..." of a public utility;
- (23) by section 29(1), "... inquire into and determine the extent, condition and value of the whole or any portion of the property and assets of any public utility used and useful in furnishing, rendering or supplying a particular service to or for the public ..."
- (24) by section 29(3), prescribe methods for calculating depreciation;
- (25) by section 30, throw onto a public utility the expense of a valuation of such public utility;
- (26) by section 31, make a revaluation of the property of a public utility;
- (27) by section 31(1), compel the furnishing of certain items and cooperation in a valuation by a public utility;
- (28) by section 33, require the presentation of a wide variety of information;
- (29) by section 34, approve new construction of a value over \$5000;

- (30) by section 35, determine a public utility's method of depreciation and its rate of depreciation;
- (31) by section 36, restrict uses of a public utility's depreciation fund and approve securities to be purchased by a public utility;
- (32) by section 37, regulate the depreciation accounts of a public utility;
- (33) by section 39(3), direct amortization of certain sums allowed in a rate base;
- (34) by section 39(4), revise a rate base;
- (35) by section 41, "... make from time to time such orders as it deems just in respect to the tolls, rates and charges to be paid to any public utility for services rendered or facilities provided, and amend or rescind such orders, or make new orders in substitution therefor.";
- (36) by section 42, determine the return of a public utility as the board deems "... just and reasonable ...";
- (37) by section 43, compel every public utility to comply with the Act, municipal ordinances or regulations relating thereto, and its charter duties;
- (38) by section 44, inquire into any neglect or violation of the laws or regulations in force in the province by any public utility doing business therein;
- (39) by section 47(1), ask specific questions to a public utility and require specific answers thereto;
- (40) by sections 47(2) and 47(3), require completion of certain forms and provision of certain items;
- (41) by section 49, permit and prohibit the abandonment by a public utility of "... any part of its line or lines, or works, ...";
- (42) by section 50, permit or prohibit overlapping service;
- (43) by section 51, hold a hearing regarding interference by one public utility with another public utility, and grant or withhold approval where utilities disagree;
- (44) by section 41(6), "... order a public utility to serve any particular territory not then served; provided, however, that no such order shall be made if, in the opinion of the board, it would place an unreasonable financial burden on the public utility.";

- (45) by section 52(2), permit variations of pressure and frequency;
- (46) by section 56, appoint an inspector where a customer is dissatisfied;
- (47) by section 58, control sale, assignment or transfer of the whole or part of the undertaking of a public utility;
- (48) by section 59, approve the assignment, transfer or lease of a franchise.
- (49) by section 60, approve the compensation obtained by a public utility for a service performed by it;
- (50) by section 61, approve the rules and regulations of a public utility;
- (51) by section 62, compel publication of the rates of a public utility in the office of such public utility;
- (52) by section 63, determine whether conditions of various persons are substantially similar for the purpose of rate equality;
- (53) by section 64, prescribe changes in schedule forms;
- (54) by section 65(1), in certain stated circumstances, approve an interim rate schedule;
- (55) by section 66 (1), approve equipment changes;
- (56) by section 68, upon giving notice and holding a hearing, rescind, alter or amend any order fixing any rate or rates, tolls, charges or schedules, or other ;
- (57) by section 69, approve and control certain security issues;
- (58) by section 69(9), determine price and terms of new share offerings;
- (59) by section 70, determine whether an arrangement between a public utility and its employees for the division or distribution of its surplus profits is reasonable and just;
- (60) by section 71, require keeping in the office of a public utility of the books, etc., of such public utility;
- (61) by section 72(2), require a public utility to permit use of certain of its equipment by another public utility;
- (62) by section 73, direct erection of poles in cities and towns;
- (63) by section 75 (1), inspect the books, etc., of a public utility;

- (64) by section 76, at any hearing or enquiry, hear evidence upon oath, compel attendance by witnesses, compel production of papers, books, or documents, and levy penalties for disobeying a subpoena;
- (65) by section 77, make an order appointing a person to make at any time any examinations, investigations or tests for the purpose of ascertaining whether service reasonably safe and adequate and in all respects just and reasonable is being supplied by a public utility and order the public utility to pay the remuneration and expenses thereof;
- (66) by section 78(1), upon finding in an investigation resulting from a complaint of certain numbers of persons that any rates, tolls, charges or schedules are in any respect unreasonable or unjustly discriminatory or that any regulations, measurements, practice or act whatsoever affecting or relating to the operation of any public utility is in any respect unreasonable, insufficient or unjustly discriminatory, or that the service is inadequate or unobtainable, order such rates, tolls, charges, schedules, regulations, measurements, practices or acts changed and order the furnishing of reasonably adequate services and facilities;
- (67) by section 79, set a time and place for the hearing of a complaint;
- (68) by section 81, vary the requirements of a notice of hearing;
- (69) by section 82(1), cancel rates, tolls, charges or schedules and contracts in relation thereto, where the same are found to be unjust, unreasonable, insufficient, unjustly discriminatory, preferential or in violation of the act;
- (70) by section 82(2), determine and substitute for any regulation, time schedule, act or service that is unjust, unreasonable, insufficient, unjustly discriminatory, preferential or in violation of the act;
- (71) by section 82(3), make provisions in respect of reasonable extensions of lines of services;
- (72) by section 85, consider itself not bound by the finding or judgment in respect of a question of fact of any court in any suit, prosecution or proceeding, "... but such finding or judgment shall in proceedings before the Board be prima facie evidence only."
- (73) by section 86, determine questions of fact which are involved in suits, prosecutions or proceedings then pending in any court;
- (74) by section 87, control the costs of its proceedings;
- (75) by section 88(1), make one of its decisions "a rule or order of the Supreme Court of Nova Scotia";

- (76) by section 92, cause the obtaining of evidence by depositions;
- (77) by section 93, act like a commissioner under the Public Inquiries Act;
- (78) by section 99, on its own motion or at the request of the Governor in Council state a case in writing for the opinion of the Appeal Division of the Supreme Court where the question is one of law;
- (79) by section 111(2), use such additional, implied and incidental powers which may be proper or necessary to carry out, effect, perform and execute all the powers given it specifically in the Act.

Next, the non-discretionary elements. The Board must:

- (1) by section 2(2), have a clerk who keeps records of proceedings of the Board;
- (2) by section 2(3), have its members sworn to faithful performance of duty;
- (3) by section 2(7), pay the wages, salaries and compensation of its employees;
- (4) by section 3(2), deduct from the salary of every member and employee of the Board amounts for superannuation;
- (5) by section 3(3), defray superannuation allowance;
- (6) by section 5(3), pay to the Minister of Finance the sum of \$3000 for the use of a lawyer from the Attorney General's department;
- (7) by section 6, be free of interests in any public utility;
- (8) by section 14(1), annually estimate its expenses and apportion responsibility therefor among public utilities;
- (9) by section 29(2), in making a valuation, determine the value of the property and assets being valued on the basis of the prudent original cost thereof, determining therefrom the amount of the accrued depreciation of such property and assets;
- (10) by section 32(2), after a valuation, "... keep itself informed of all extensions and improvements or other changes in the condition of the property ..." of a public utility;
- (11) by section 38, in fixing rates, tolls and charges to be paid to a public utility for any service, include proper allowances for depreciation;



- (12) by section 39(1), fix and determine a separate rate base for each type or kind of service furnished rendered or supplied to the public by a public utility;
- (13) by section 29(2), in establishing a rate base, determine the value of the physical assets of the public utility in accordance with the provisions of the Act;
- (14) by section 40, segregate into distinct classes or categories the types and kinds of services of a public utility where it furnishes, renders or supplies more than one type or kind;
- (15) by section 44, enforce the provisions of the Act and all other laws relating to public utilities;
- (16) by section 51(6), refrain from ordering a public utility to serve a particular territory if such order, in the opinion of the Board, would place an unreasonable financial burden on the public utility;
- (17) by section 69(4), after hearing and upon being satisfied that a proposed issue by a public utility of its shares, stocks, bonds, debentures or other evidence of indebtedness is to be made in accordance with law and for a purpose approved by the Board, approve the proposed issue to such amount as it deems proper and prescribe the purpose to which the same or the proceeds thereof shall be applied;
- (18) by section 70(3), supervise and regulate any arrangement by which a public utility divides or distributes its surplus profits with or among its employees;
- (19) by section 78(1), hold a public hearing or enquiry before making an order in respect of a complaint;
- (20) by section 79, notify a public hearing of a complaint having been made in respect of such public utility;
- (21) by section 80(1), give a public utility and a complainant ten days notice of the time and place of a hearing;
- (22) by section 83(1), give a public utility notice of matters under investigation in a hearing;
- (23) by section 94, keep a full and complete record of all proceedings had on any formal investigation;
- (24) by section 96, furnish upon request certified copies of its orders.



In light of what was said at the commencement of this opinion and keeping in mind both the stated rules and principles of interpretation and construction and section 111(1) of the Act, it would be foolhardy to say what in fact are the bounds and effects of these discretionary and non-discretionary elements. One must be extremely aware of one's biases and perceptions in viewing these elements. An enthusiastic approach would be that the Board has tremendous reserves of ability to act to control most aspects of the operation of a public utility and to do so upon behalf of the consumer; a restricted approach would be that the Board is intended to discipline only unusual, irregular or excessive activities of a public utility and otherwise to facilitate the maintenance of the status quo. Either or variations thereof might be possible depending on how one sees the function of the Board. Nevertheless and notwithstanding the hesitancy of the remarks above, I would give the opinion that the legislature appears to have created a board capable of very wide-ranging activities and actions. Presumably, its statute reflects its intention but I would be cautious of expecting a court - or even the legislature itself - to echo that opinion.

In the context of this discussion, it is useful to have the above-described discretionary and non-discretionary elements grouped in a fashion which, rather than merely enunciating and enumerating same, discriminates amongst them on the basis of certain common characteristics. This is a step which in the vacuum may be valuable because it might promote a more sensible and unified approach by those attempting to understand the workings of the Act. It is one which, however, in the real world is to be undertaken with extreme care for two very cogent reasons; firstly, the Act does not engage in such an exercise and therefore it lacks legislative sanction; secondly, the courts have not to any significant degree engaged in such a lumping process and therefore it lacks judicial approval. Accordingly, it is to be recognized that the immediately following arrangement is given merely as a loose and admittedly imperfect example of the many possible variations.

1) Administrative Action Which the Board is Empowered to Take.

- (i) ss. 29, 31 - valuation and revaluation of the company's property and assets;
- (ii) s. 41 - determination of tolls, rates and charges;
- (iii) s. 42 - determination of the "just and reasonable" return on its rate base to which the company is entitled;
- (iv) s. 51(6) - ordering the company to provide service to a particular area where this would not impose upon the company an "unreasonable financial burden";

2) Matters for Which the Approval of the Board is Required

- (i) s. 34 - new construction, improvements, etc., costing more than \$5,000.00;

- (ii) s. 49 - abandonment of service;
- (iii) s. 50 - overlapping services;
- (iv) ss. 58,59 - sale or assignment of any part of undertaking;
- (v) ss. 60,65 - schedules of rates, tolls, and charges to customers;
- (vi) s. 61 - rules and regulations made by the company concerning compensation for its services;
- (vii) s. 66 - changes in type of equipment used in exchanges;
- (viii) s. 69 - share and other security issues;
- (ix) s. 70 - distribution or division of surplus profits among employees;

3) Adjudicatory Powers of Board

- (i) s. 51(5) - resolution of disputes between public utilities as to which should provide service to a particular territory;
- (ii) s. 72(2) - disagreement between public utilities as to whether one should allow another to use its poles, wires or other equipment;
- (iii) ss. 78(2)  
- 84 - resolution of complaints by customers;

4) Legislative Powers of Board

- (i) s. 20 - making recommendations to the Attorney General for legislation;
- (ii) s. 23 - making recommendations to the legislature in certain circumstances;
- (iii) s. 24 - generally;
- (iv) s. 25 - erection, maintenance and repair of equipment;
- (v) s. 29(4) - valuation;
- (vi) s. 37 - depreciation;
- (vii) s. 82(2) - substitution of new regulations for any found after investigation to be in any way in violation of any provisions of the Act;

5) Responsibility of the Board to 'police' the Act

- (i) ss. 18,43  
44,47 - of its own motion;
- (ii) s. 78 - upon complaint by customers;

6) Powers of Board to Call for Information, Plans, Accounts, etc.

(i) ss. 17,28(2),32,33,45,47,75,76;

7) Matters Involved With the Internal Working of the Board.

(i) ss. 2-16.

At this point it might be useful to examine the issue of the rights, powers and duties of the Company. The most important fact to be remembered at this point is that the Company has relationships facing in different directions with differing bodies. One is with the general public, the consumers of its product, and is set forth at length in its creating statute - An Act to Incorporate the Maritime Telegraph and Telephone Company, Limited, Stats. N.S. 1910, c. 156, as amended. Because it does not deal with the involvement of a direct nature between the Company and the Board as does a second relationship, it is, however interesting to devotees of telecommunications regulation, outside the scope of this memorandum. That second relationship is the one created or contemplated by the Act.

There is no question but that an enumeration in the style above of the discretionary and non-discretionary elements of the Company's relationship to the Board would be a useful exercise. It might also be a somewhat tedious one in the sense that to a large if hardly total sense, there is an overlapping which occurs. Many of the things which the Board may or must do involve its compelling the Company to do something which by inference thus creates a duty for the Company. A few create rights for the Company. Thus, in the interests of brevity, it is here merely suggested that the interested reader might be well served by examining the sections of the Act noted above.

The next point to be dealt with is the interpretation of certain words and phrases which occur in the Act and in which particular interest has been expressed during this study. These will be dealt with and handled individually so far as possible. No particular opinions are expressed as to what interpretations would be put on the subject expressions by the courts of Nova Scotia; the reason for this is, hopefully, obvious.

Perhaps one of the most crucial expressions for consideration is "telephone message". There does not appear to have been in Canada a case in which this expression has been subjected to legal scrutiny. Accordingly, one is thrown back on attempts to determine its meaning based upon other resources. The problem with this is that of the sum of the parts not necessarily being equal to the sum of the whole. A definition of each of the component words may not give one a definition of the composite phrase. Nevertheless, consideration of the parts is hopeful.

There appears to be no Canadian authoritative statement on the meaning of "message". In the context of wireless telegraphy, an Australian case says,

"It is difficult to enumerate all the forms of message which may be used by mankind. A message may be communicated by spoken or written words, by notches cut in a stick, by audible or visible symbols which are not ordinary words or not words at all, but to which a meaning can be attached by those who understand the relevant code. Direct conversation is not usually regarded as a message, though a more or less formal oral deliverance to a number of persons is often, with a well-established extension of the more ordinary meaning of the word, called a message. [In the context and language of the particular Wireless Telegraphy Act there under consideration] a message is something which is transmitted and which may be received. There is a distance between the transmitter and the receiver, and the function of the appliance referred to in the Act is to assist in bridging that distance... Thus the essential characteristic of a message appears to be found in communication from a distance, as distinguished from direct conversation between persons who are face to face. As a general rule such communications are made for the purpose of conveying 'information, news or intelligence...'"

These remarks in R. v. Brislan, Exp. Williams (1936), 54 C.L.R. 262, at pp. 269, 271, 272, while interesting, are not binding or conclusive for a court in Nova Scotia.

The English case of A.G. v. Edison Telephone Co. (1880), 6 Q.B.D. 244, may be authority for the proposition that "message" might include a conversation through a telephone.

For two potentially differing viewpoints on the definition of various words, one can turn to either The Oxford English Dictionary, an English publication, or Webster's New International Dictionary of the English Language, an American publication. If nothing else, this turning in two directions reflects an ever-present philosophical dilemma for Canadian law. The Oxford defines a message as "a communication transmitted through a messenger or other agency; an oral or written communication sent from one person to another ... often applied to a communication sent by telegraph" while Webster's is somewhat similar: "any notice, word, or communication, written or oral, sent from one person to another".

Unlike "message" the word "telephone" does appear to have been defined in a Canadian court. In R. v. Gignac, "telephone" was found, in its original meaning, to refer to an instrument, apparatus or device for conveying sound to a distance, and, in its present-day meaning, to connote an apparatus for reproducing sound, especially that of the voice, at a great distance. It would also seem that there is very persuasive authority that a telephone is, in fact, a form of telegraph. The following excerpt is from A.G. v. Edison Telephone Co., which, while decided under the English Telegraph Acts of 1863 and 1868 and the English Post Office Protection Act of 1884, does deal with the issue in a useful general fashion.



"The result of the definition seems to be that, any apparatus for transmitting messages by electric signals is a telegraph, whether a wire is used or not, and that any apparatus of which a wire used for telegraphic communication is an essential part, is a telegraph, whether the communication is made by electricity or not. It would include on the one hand, electric signals made, if such a thing were possible, from place to place, through the earth or the air; and, on the other hand, a set of common bells worked by wires pulled by hand, if they were so arranged as to constitute a code of signals ... The various affidavits filed give a complete history of the word 'telegraph' and show that, from the first invention of semaphores till within the last few years, no contrivance of the sort did literally write at a distance, but that the word was applied to a variety of contrivances which, by signals perceptible sometimes by the sense of sight and sometimes by the sense of hearing, conveyed intelligence to great distances in a much shorter time than a letter could be carried."

This, of course, leads one directly into the "rather adventurous statutory construction" of the Judicial Committee of the Privy Council in the case In re Regulation and Control of Radio Communications in Canada (1932) A.C. 304, at pp. 315-6, where, after sustaining federal jurisdiction over broadcasting for a more conventional reason, the Privy Council said,

"But: further, as already said, they think broadcasting falls within the description of 'telegraphs' [a previously determined federal preserve]."

Needless to say, the possibility that the telephone is an item falling somewhere within the federal as opposed to the provincial jurisdiction has tremendous ramifications for, among others, the Company, the Board and the consumer. It should, however, be recognized that when this matter eventually comes before the courts of Nova Scotia and Canada, the federalists and the provincialists will do battle on the fields of sections 91 and 92 of the British North America Act. A not insignificant skirmish will nevertheless be fought over whether, despite the then current state of the industry, a telephone is a form of telegraph.

The Oxford describes a telephone as being "an apparatus for reproducing sound, especially that of the voice, at a great distance, by means of electricity; consisting, like the electric telegraph, of transmitting and receiving instruments connected by a line or wire which conveys the electric current." Webster's definition is to this effect: "an instrument for reproducing sounds, especially articulate speech, at a distance. The mechanical, or string, telephone is a device in which the voice or sound causes vibrations in a thin diaphragm, which are directly transmitted along a wire or string connecting it to a similar diaphragm, thus reproducing the sound."

Because of the potential connection in conceptual and legal terms between 'telephone' and 'telegraph' it is useful to canvas the meaning of that latter word. The landmark case is the Reference Re Regulation and Control of Radio Communication which dealt with the issue whether radio broadcasting fell within federal or provincial jurisdiction as a result of there being granted to the provinces by the British North America Act exclusive legislative jurisdiction in respect to certain specified matters, among which are ...

"... local works and undertakings other than such as are of the following classes, -(a) lines of steam or other ships, railways, canals, telegraphs and other works and undertakings connecting the Province with any other or others of the Provinces, or extending beyond the limits of the Province..."

The federal jurisdiction prevailed as reflected in the words of Viscount Dunedin.

"Their Lordships have therefore no doubt that the undertaking of broadcasting is an undertaking "connecting the Province with other Provinces and extending beyond the limits of the Province." But further, as already said, they think broadcasting falls within the description of 'telegraphs'. No doubt in everyday speech telegraph is almost exclusively used to denote the electrical instrument which by means of a wire connecting that instrument with another instrument makes it possible to communicate signals or words of any kind. But the original meaning of the word 'telegraph', as given in the Oxford Dictionary, is: "An apparatus for transmitting messages to a distance usually by signs of some kind." Now a message to be transmitted must have a recipient as well as a transmitter. The message may fall on deaf ears, but at least it falls on ears. Further the strict reading of the word 'telegraph', making it identical with the ordinary use of it, has already been given up in Toronto Corporation v. Bell Telephone Co. of Canada."

Webster's defines "telegraph" thusly: "An apparatus for communication at a distance by means of preconcerted signals; in the broadest sense, any apparatus, system, or process for communication at a distance other than the ordinary ones of speech, letter writing, etc. - now commonly restricted to those employing electric transmission." It can thus be seen that the determination of the meaning of "telephone message" will not be a simple exercise. The range of possible conclusions is wide and will undoubtedly trigger legislative attempts at definition of many facets of the wondrous world of telecommunications.

The word "line" appears not to have received the scrutiny of the eye of the law in Canada. It has, however, a host of meanings in the dictionaries - and ones that are both wide and applicable to the present discussion.



The Oxford defines "line" as follows: "a telegraph or telephone wire or cable ... a telegraph route, a telegraphic system ... a regular succession of public conveyances plying between certain places ... a direction or course of movement ... a course of action, procedure, life, thought, or conduct ... a department of activity; a kind or branch of business occupation ... an order received by a traveller or agents for goods; the goods so ordered ..."

Webster's sees it this way: "... figuratively, a plan or method of making or doing something ... course of conduct, thought or policy; method ... the course or direction followed by anything in motion or regarded as in motion ... a department of industry or trade ... one's individual field of intellectual or artistic activity or interest ... a number of public conveyances, as carriages or vessels, plying regularly under one management over a certain route ... sequence in manufacturing or assembling operations ... a supply or stock of various qualities and values of the same general class of articles ..."

This brief examination shows that inclusion of words in a random fashion in legislation leaves open the possibility of argument of a sort which is more time-consuming than helpful. The legislature took the trouble in the Act to define "telephone line"; a little further effort would have settled the meaning of "line".

The word "work", in its context as a noun, has been judicially examined in Canada. In McDougall v. Penticton (1914), 20 D.L.R. 247, it meant, in the light of a particular contract, "undertaking". In Patterson v. Rourke, (1923) 2 D.L.R. 328, it had, in relation to a clause in the Saskatchewan Workmen's Compensation Act, a connotation of being something having geographical boundaries. In Society of Sisters of Zion v. Saskatoon (1931) 2 W.W.R. 553, it was held to mean the goal or objective or motive of a particular association and not the activities in which it was engaged. In Ruthenian Sisters of the Immaculate Conception v. City of Saskatoon, (1937) 2 W.W.R. 625, it was said that it may mean the action or exertion put forth to accomplish some end or it may mean the product of or the result of some action or exertion.

The Oxford defines "work" thusly: "something that is or was done; what a person does or did; an act, deed, proceeding, business ... something to be done, or something to do; what a person (or thing) has or had to do; occupation, employment business, task, function ... action of a person in general; doings, deeds, conduct ... action of (a person or thing) a particular kind; doing, performance, working, operation ... the result of the action or operation of some person or thing; 'effect, consequence of agency' ..."

Webster's has "work" this way: "exertion of strength or faculties for the accomplishment of something; physical or intellectual effort directed to an end; ... that which requires or has required such exertion or effort; employment; occupation; ... the matter on which one is working; that on which one spends labour; the thing

occupying one; task, duty ... the material, or piece of material, which is or is to be operated upon at any stage in the process of manufacture ... that which is produced or anything accomplished by exertion or toil ... manner of working; workmanship; management; treatment ..."

It is obvious that "work" has as far-ranging and therefore changeable a character as "line". Again the need is for a precise understanding by the draftors of what is involved in the area being regulated.

The word "undertaking" has received several judicial examinations in Canada and appears to a fairly settled meaning. In the Radio Reference case, Viscount Dunedin opined,

" 'Undertaking' is not a physical thing, but is an arrangement under which of course physical things are used."

This was followed in Beauport v. Quebec R.L. and P. Company, (1945) 1 D.L.R. 145, where it was held to refer to the whole of the works of a railway company including its steam railway, tramway system and autobus system.

The Oxford defines "undertaking" as: "an action, work, etc., undertaken or attempted; an enterprise ... the action of taking in hand ..."

Webster's describes "undertaking" this way: "act of one who undertakes, or engages in, any project or business ... anything undertaken; any business, work, or project, which one engages in, or attempts, an enterprise ... a promise or pledge; a guarantee; specifically, any promise or security required by law ..."

Once again, broad meanings.

The expression "public utility" is in a somewhat different category than those previously surveyed. It has a definition for the purposes of the Act incorporated within the Act. The terms of that definition would themselves likely require interpretation and construction. A demonstration of the difficulty of that exercise is the case of Northern Alberta Natural Gas Development Co. v. A.G. Alberta re Public Utilities Act (1921), 56 D.L.R. 388. In the Alberta Public Utilities Act of that time, the expression "public utility" meant and included every corporation other than municipal corporations ... "that now or hereafter own, operate, manage or control any system, works, plant or equipment for the conveyance of telegraph or telephone messages or for the conveyance of travellers or goods over a railway, or street railway, or tramway, or for the production, transmission, delivery or furnishing of a water, gas, heat or light power, either directly or indirectly, to or for the public ...". A company had not got beyond the stage of expending some money in the way of

exploitation in the area from which it expected its supply of gas. One judge said that, in those circumstances, the company had never operated and was not ready to operate a "public utility" within the meaning of the Act; a second judge in the same case, said the company was a "public utility" because it owned or controlled works, plant or equipment for the production or furnishing of gas to or for the public.

It will, hopefully, be seen from the expressions above that there is a major problem with the Act in that it fails to specify its intentions and assumptions and thereby causes anyone interested therein, from a citizen to a judge, the agony and waste of ascertaining a meaning before one can determine effect. An exercise of the sort seen above is likely required for numerous other expressions in the Act, two such being "rate base" and "substantially similar conditions". It is undeniable that this is the stuff of which large legal fees and public confusion are born.

It is thus with a hopefully heightened appreciation of the difficulties involved in understanding the Act and in obtaining universal acceptance of its terminology, that one can proceed to examine certain sections of the Act about which interest has been expressed.

Section 23 is interesting for several reasons. Firstly, it is difficult on its face to understand in a plain and reasonable fashion, looking as it does more spontaneous than considered. Secondly, it has the potential for interpretation of saying much and saying little, giving and taking in the same breath. A bit of poetic license may explain these comments. The portions in quotations are a re-arranged version of all of the phrases in the section; the portions in parantheses are a possible though not necessarily exclusive translation of the quoted portions.

"The powers, rights, privileges and obligations secured to or imposed upon any public utility by any statute, or by any contract or agreement made under the authority of any statute, shall not be subject to the provisions of this Act ..."

[This Act does not apply to certain attributes of a public utility ...]

"Subject to this Act ..."

[unless this Act says that this Act applies to those certain attributes of a public utility ...]

"and nothing in this Act contained shall authorize the Board to alter, enlarge or diminish such rights, powers, privileges or obligations or to impair the obligations of any contract ..."

[the Board cannot change those certain attributes ...]

"except any contract or agreement relating to rates, tolls, charges or schedules which the Board is authorized by this Act to regulate and control ..."

[the Board may change some of those certain attributes provided that such attributes relate to rates, tolls, charges or schedules and provided that this Act permits such changing ...]

"But the Board may at any time inquire into any such rights, powers, privileges or obligations ..."

[the Board may ask questions about those certain attributes ...]

"in so far as the exercise or observance thereof affects the public interest ..."

[as long as the use by the public utility of those certain attributes touches the public]

"and may make such recommendations to the Legislature in connection therewith as may be deemed just and proper."

[the Board may communicate its conclusions to the Legislature]

It may be evident that, assuming the "translations" to be reasonably accurate in their parts and sum, a modicum of vagueness attends section 23. Its precise meaning and its application to the Company are matters of conjecture as well as considerable work.

Section 33 is more logical and succinct than section 23 although it also suffers from a length and grammatical looseness not to be recommended. So far as its meaning and effect are concerned, one should remember the earlier references to an enthusiastic approach and restricted approach. Still, on its face value, it would appear to give the Board virtually total power to obtain any data it desires from a public utility.

Section 49 is, of course, dependent for its role upon the meanings ultimately given to "line" and "work" in the context of the Act. Nevertheless, it would appear that whatever those things are, they cannot, once they have been operated by a public utility, be abandoned until a certain procedure has been followed. That procedure, which is not set forth chronologically in the section, requires that the public utility give notice of the abandonment (or, presumably, the intention to abandon) to the Board and to the city, town or municipality involved, that the Board hold an inquiry in respect thereto, and that the Board give its consent in writing therefor.

Section 63(1) is fraught with problems of interpretation and application and, even if the Board were inclined to make regulations of the sort contemplated, is unlikely to be of more than limited value once new fact situations are encountered.



Sections 88, 89 and 97 raise a difficult question for consideration and that is what manner of recourse to the courts of Nova Scotia lies from an action (or lack thereof) by the Board. It would take a treatise in itself to answer this question either fully or in a form such as would be required if this issue ever found its way to the courts for determination. Nevertheless the area is not barren of jurisprudence. I shall attempt here to raise some of the questions and suggest some tentative answers.

Sections 88 and 89 provide that the Board has discretion to make any of its decisions a rule or order of the Supreme Court. The question which ought to be considered is that of the purpose of such a step. It is arguable that it has two possible purposes: enforceability or permitting of an appeal. It may very well have been the intention of the legislature to use section 88 as the section for ensuring enforceability. If, however, that was its sole intention in respect to section 88, it is also arguable that it has, by its words, created a pathway for appeal. While it has to be recognized that as a general rule, a right of appeal is not inherent, the legislature has provided through the Judicature Act and its child, the Civil Procedure Rules, for appeals from rules and orders. The right of appeal may therefore have been given by inference or reference. The reply to this suggestion is, of course, that section 97 alone creates the opportunity for appeal. In an enactment which makes a virtue of redundancy, such a reply is not fatal to the possibility of an appeal from a decision of the Board which has been made into a rule or order of the Supreme Court.

But, assuming for the moment a definitive resolution of the intention of the legislature in respect of section 88, what is to happen in the event that the Board chooses (as it may) not to turn one of its emanations into a rule or order of the Supreme Court? Section 97(1) says that an appeal shall lie to the Appeal Division of the Supreme Court from any order of the Board upon any question as to its jurisdiction or upon any question of law. Note the very narrow usage of the word "order". Missing are very important possible additional words such as "judgment", "finding of fact", "opinion", "decision" and "ruling". This is not an academic distinction for the word "order" is a legal term of art with specific meanings approximating "authoritative direction with penalties for failure to comply." It is limited in its scope, yet it must be found to permit an appeal.

The "kicker", however, comes when one realizes that success in having some aspect of the Board's activities raised for consideration by a court may be barren of fruit. The court will likely be disinclined to substitute its opinion for that of the Board. There are many judicial pronouncements on the subject but perhaps in closing it would be useful to quote one:

"That a Court should leave matters of policy and of administration to the Board appears to make good sense. This is more than a matter of modest self-denial. It springs from a recognition that the Court is not a rate-making body; that a public utilities board of trained personnel and with expert assistance in technical areas has been specifically created for that purpose; and that in general it can perform such tasks much better than the Court. That does not mean that the Court should hesitate to assert all the powers that it lawfully possess [sic] on appeal. It means only that it should not seek to extend those powers into questions of administrative policy or discretion." Re City of Portage LaPrairie and Inter-City Gas Utilities Ltd. (1970), 12 D.L.R. (3d) 388 at p. 391-2.

The purpose of this appendix has been to discuss certain matters which are of interest in the relationship as constituted by the Act between the Board and the Company. They are many, varied and capable of raising intense discussion depending on one's approach to statutory interpretation. The pitfalls abound. Perhaps an examination such as this can best serve to emphasize that in a world in which citizens are becoming increasingly active in furthering their own interests and in which they are being allowed to do so in previously inconceivable ways, the precise use of language becomes more, not less, important.



APPENDIX B  
STATISTICAL SUPPLEMENT

The purpose of this appendix is to set out certain statistics relating to the telephone system in Nova Scotia. Specifically, there will be a presentation, and examination, of statistics relating to selected tariff items, the Company's rate base, rate of return, debt ratios, cost of embedded debt, and market value/book value ratio, the Company's operating revenues, and a commentary on the various studies which the Board ordered the Company to undertake, or have undertaken, in the 1975 decision.

There are a variety of other statistics relating to the telephone system in Nova Scotia which it would be possible to reproduce in this appendix; statistics relating to such items as construction expenditures, quality of service, indicators, growth in number of telephones and telephone calls, size of plant and equipment and operating expenses, to give just a partial listing. These statistics are not being reproduced, however, because to do so would serve no useful purpose. Figures on the construction programme, for example, would indicate the number of dollars the Company has been spending for new construction. But without a set of goals which indicate optimal levels for the size of the total system and its various parts and which specify the desirable quality of service, the figures would not indicate whether the

construction expenditures have been too large or too small.

Detailed information on the incremental cost and benefit of each investment project would be necessary in order to evaluate the new construction expenditures in terms of resource allocation.

In general, most of the statistics which are now readily available from the Company are difficult to evaluate without the framework of an explicit specification of the system's goals. Further, to properly evaluate and monitor goal performance it would be necessary to have statistics which are unavailable at the moment. These statistics, which would include such items as cost separation data and characteristics of demand, would be provided in the model that has been discussed in Chapter 3.

The purpose of providing statistics on selected tariff items since 1952 is to give some indication of the magnitudes of the prices involved and the range in variation in charges over time and between different classes of users at a specific point in time. Comparative figures for the other Atlantic Provinces are also shown. In general, the specific prices of different service offerings have not been quoted in the main text.

Statistics which show various indicators of the Company's financial position are provided so that the analysis on rate of

return can be placed in better perspective. Statistics are shown on:

- 1) the Company's composition of rate base for the years 1963-1974 and the rate of return on rate base for the years 1950-1974, along with a description of the rate base calculation process which is currently used.
- 2) the Company's rate of return on average common equity for the years 1965-1974, with Company projections to 1977. Comparative figures are shown for other Canadian telephone companies for the years 1968-1974 and for certain other Canadian utility industries for the years 1971-1974.
- 3) the Company's rate of return on total invested capital for the years 1965-1974, with Company projections to 1977. Comparative figures on rates of return on total invested capital for other Canadian telephone companies are shown for the years 1968-1974 along with figures for certain other Canadian utility industries for the years 1971-1974.
- 4) the Company's debt ratio for the years 1950-1974. Comparative statistics are shown for other major telephone companies in the Maritime Provinces for the same years.
- 5) the Company's market value/book value ratio for the years 1950-1975.

Statistics on the Company's total operating revenue for the years 1951-1975 are provided to indicate the magnitude of Company earnings and their growth over time. They are also broken down by source to show the relationship between local service, toll service, and other sources of Company revenue. Comparative figures for New Brunswick Telephone Company are provided for the same years. Toll service is priced on a usage-sensitive basis while local service is not. A comparison of the growth rates of revenues in these two categories is thus potentially relevant to any discussion on the implications of introducing usage-sensitive pricing into some or all local service offerings.

Finally, a commentary is provided on the various studies which the Board ordered the Company to undertake in the 1975 decision. This commentary is included because of the potential implications of some of these studies on telephone regulation in Nova Scotia and for some of the recommendations being made in this report.

TABLE 1

## SELECTED TARIFF ITEMS - M T &amp; T

ITEM	Monthly Rates					% Increase			
	1952	1965	1969	1974	1975	52-75	65-75	69-75	74-75
	\$	\$	\$	\$	\$	%	%	%	%
One Party Residential Rate Group 5	4.10	5.10	5.60	6.55	8.05	96	58	44	23
One Party Business Rate Group 5	7.00	10.00	11.25	13.35	16.70	139	67	48	25
Two Party Residential Rate Group 3	3.10	4.10	4.60	5.55	7.05	127	72	53	27
Two Party Business Rate Group 3	5.00	7.00	7.95	9.65	12.15	143	74	53	26
E-17 Type B SS6 Button	6.00	5.00	5.00	5.50	6.60	10	32	32	20
E-17 Type E-1 Line Term	.75	3.00	3.50	4.35	5.20	593	73	49	20
E-8 Service Request- Business Main Phone (one time charge)	4.00	6.00	10.00	15.00	22.50	463	275	125	50
E-8 Service Request - Business Assume Equipment in Place (one time charge)	1.00	6.00	10.00	15.00	22.50	2150	275	125	50
E-8 Service Request - Residence Main Phone (one time charge)	3.00	5.00	7.00	10.00	15.00	400	200	114	50
E-8 Service Request - Residence Assume Equipment in Place (one time charge)	1.00	5.00	7.00	8.00	10.00	900	100	43	25
Misc. Eqpt - Outside Phone	3.00	3.00	3.25	3.75	4.25	42	42	31	13
Misc. Eqpt. - 1 Lamp visual signal	.30	.30	.35	.45	.50	67	67	43	11
Misc. Eqpt. - 3 Lamp visual signal	.60	.60	.65	.80	.85	42	42	31	6

Cont'd ...

TABLE 1 Cont'd

ITEM	M T & T Rate					% Increase			
	1952 \$	1965 \$	1969 \$	1974 \$	1975 \$	52-75 %	65-75 %	69-75 %	74-75 %
Toll-Station to Station-Day Initial 3 Minutes									
10 miles	.15	.15	.15	.21*	.27*	80	80	80	29
71 miles	.60	.65	.75	.84*	.99*	65	52	32	18
171 miles	1.10	1.15	1.20	1.32*	1.59*	45	38	33	20
360 miles	1.65	1.55	1.50	1.50*	1.80*	9	16	20	20
Toll-Station to Station-Evening Initial 3 Minutes									
10 miles	.15	.15	.15**	.11**	.14**	-7	-7	-7	27
71 miles	.45	.50	.35**	.42**	.50**	11	-	43	19
171 miles	.80	.85	.65**	.66**	.80**	-	-6	23	21
360 miles	1.25	1.20	.75**	.75**	.90**	-28	-25	20	20
Toll-Person to Person-Day- Initial 3 Minutes									
10 miles	.25	.35	.40	.56***	.77***	208	120	93	38
71 miles	.90	1.00	1.25	1.49***	1.99***	121	99	59	34
171 miles	1.45	1.75	2.15	2.42***	3.19***	120	82	48	32
360 miles	2.20	2.55	3.05	3.25***	3.60***	64	41	18	11
Toll-Person to Person-Evening Initial 3 Minutes									
10 miles	.25	.35	.40	.46***	.64***	156	83	60	39
71 miles	.75	.85	1.00	1.07***	1.50***	100	76	50	40
171 miles	1.15	1.45	1.75	1.76***	2.40***	109	66	37	36
360 miles	1.85	2.15	2.55	2.50***	2.50***	35	16	-2	-

\* Customer Dialed

\*\* Lowest Possible Rate, Customer Dialed

\*\*\* Lowest Possible Rate

Source: M T &amp; T General Tariff, 1952, 1966, 1970, 1974, 1975



TABLE 2

COMPARISON OF SELECTED TARIFF ITEMS - ATLANTIC CANADA  
1952 - 1975

<u>ITEM</u>	<u>M T &amp; T</u>	<u>NB TEL</u>	<u>ISLAND TEL</u>	<u>NEWFOUNDLAND TEL</u>
	\$	\$	\$	\$
<u>3 Minute Long Distance Call, Days, 71 Miles</u>				
1952	.60	.60	.60	.60
1965	.65	.65	.65	.70
1970	.75	.65	.75	.80
1974	.84	.85	.90	.84
1975				
<u>3 Minute Long Distance Call, Lowest Rate, 10 Miles</u>				
1952	.15	.10	.15	.15
1966	.15	.15	.15	.15
1970	.15	.15	.20	.25
1974	.11	.18	.23	.25
1975	.14	.23	.23	.36
<u>Monthly Charge, One Party Residence, Rate Group with 5001 Telephones</u>				
1952	4.10	4.00	4.25	NA
1966	5.10	5.10	5.35	NA
1970	5.60	5.50	5.85	NA
1974	6.55	5.50	6.65	NA
1975	8.05	6.20	6.65	NA
<u>Monthly Charge, Two Party Business, Rate Group with 2000 Telephones (1000 in 1952).</u>				
1952	5.00	4.50	3.85	NA
1966	7.00	7.30	7.00	NA
1970	7.95	7.75	7.85	NA
1974	9.65	7.75	9.85	NA
1975	12.15	10.05	9.85	NA

Cont'd .....

TABLE 2 Cont'd

<u>ITEM</u>	<u>M T &amp; T</u>	<u>NB TEL</u>	<u>ISLAND TEL</u>	<u>NEWFOUNDLAN</u> <u>TEL</u>
	\$	\$	\$	\$
<u>One Time Charge, Business</u> <u>Main Phone Service Request</u>				
1952	6.00	4.00	4.00	7.50
1966	6.00	6.50	6.00	5.00
1970	10.00	10.00	8.00	6.00
1974	15.00	10.00	12.00	6.00
1975	22.50	10.00	12.00	15.00
<u>One Time Charge, Residence</u> <u>Main Phone Service Request</u>				
1952	5.00	3.00	3.00	7.50
1966	5.00	5.00	5.00	5.00
1970	7.00	7.00	6.00	6.00
1974	10.00	7.00	9.00	6.00
1975	15.00	10.00	9.00	15.00
<u>One Time Charge Assumption</u> <u>of Residence Equipment in</u> <u>Position</u>				
1952	-	1.00	1.00	NA
1966	5.00	3.00	3.00	NA
1970	7.00	7.00	6.00	NA
1974	8.00	7.00	9.00	NA
1975	10.00	9.00	9.00	NA
<u>Monthly Rate, One Lamp</u> <u>Visual Signal</u>				
1952	.30	.30	.30	NA
1966	.30	.40	.30	NA
1970	.35	.45	.35	NA
1974	.45	.45	.45	NA
1975	.50	.55	.45	NA
<u>Monthly Rate, 6 Button</u> <u>Telephone</u>				
1952	NA	3.50	NA	1.75
1966	4.00	5.70	4.00	2.00
1970	4.00	7.30	4.00	2.50
1974	4.50	7.30	4.50	2.50
1975	5.40	5.15	4.50	4.05

Source: M T &amp; T Internal Data

## SELECTED TARIFF ITEMS

### Comments Tables 1 and 2

#### M T & T.

The items shown were selected in part because they have been included in all tariffs since 1952. It is interesting to note that the increases from one hearing to the next vary substantially from item to item. This may be because of differential rates of technological advance. It may also be due to application by the Company of intuitive or explicit understanding of the price elasticity of the various items. Certainly the use of discounts on long distance rates must be responsible for some of the growth in long distance revenues.

#### Atlantic Canada Companies

Making comparisons among telephone companies may be misleading because at any point in time, the different companies may be at different points in the regulatory cycle. Thus two identical rates today may diverge tomorrow. For example, 1975 rates of M T & T are apparently firm until late 1976, while NB Tel 1975 rates were increased effective March 1976. Similarly, the M T & T rates shown for 1952 remained substantially in effect until 1965. In New Brunswick, rate increases were sought in 1953, 1958 and 1962.

A further point of difficulty lies in the different rate group limits used. The 1975 M T & T monthly charge for a residence phone in a rate group having 5001 subscribers is \$8.05, NB Tel charges \$6.60 for a group with 5001 subscribers and Island Telephone \$6.65. But the upper limits at those prices are as shown below.

	<u>M T &amp; T</u>	<u>NB Tel</u>	<u>Island Tel</u>
Monthly Charge, Residential, with 5001 subscribers.	\$8.05	\$6.60	\$6.65
Upper Limit of this rate group	15,000	9,500	8,000

Subject to the above caveats it appears that the four major telephone companies in Atlantic Canada charge roughly similar rates. Such differences as exist are explainable in terms of the regulatory cycle or, in terms of the upper and lower limits of rate groups.

TABLE 3

M T & T RATE BASE 1963-1974

	<u>Telephone Plant in Service</u>	<u>Accumulated Depreciation</u>	<u>Allowance for Working Capital And Materials And Supplies</u>	<u>Rate Base</u>
	(\$'000)	(\$'000)	(\$'000)	(\$'000)
1963	\$94,386	\$ (24,489)	\$ 625	\$70,522
1964	103,719	(26,835)	625	77,509
1965	111,758	(29,616)	625	82,767
1966	124,487	(32,314)	625	92,798
1967	140,084	(35,511)	625	105,198
1968	155,784	(37,696)	625	118,713
1969	166,772	(41,902)	625	125,495
1970	178,849	(45,938)	625	133,536
1971	198,825	(50,789)	625	148,661
1972	220,544	(58,785)	625	162,384
1973	246,402	(65,483)	625	181,544
1974	298,420	(72,774)	625	226,271

Source: Peat, Marwick, Mitchell & Co., Report on Composition of Rate Base, Halifax, 1975.

TABLE 4

RATE OF RETURN ON RATE BASE - M T & T

	Rate of Return On Rate Base*
	%
1950	5.5
1951	3.9
1952	4.9**
1953	5.8
1954	5.8
1955	6.4
1956	6.1
1957	5.6
1958	5.8
1959	5.7
1960	5.7
1961	6.2
1962	6.1
1963	5.4
1964	5.6
1965	5.7**
1966	6.3
1967	6.6
1968	6.3
1969	- **
1970	7.3
1971	7.4
1972	7.6
1973	7.4
1974	6.7**

\* The figures shown exclude mobile exchange service.

\*\* Indicates year in which major rate hearings were held.

Sources: M T & T Internal Data

E.J. Hicks, Memorandum on Financing and Earnings Requirements,  
Halifax, 1975.



COMMENTS - TABLES 3 and 4

The rate base approach to regulation, as currently used by the Board, defines the rate base as depreciated value of telephone plant in service plus allowances for working capital and for materials and supplies.

Telephone plant in service is valued at original installed cost as defined in Circular 2A issued by the Board. Outside plant materials and supplies are priced at average cost and are allocated among classes of depreciable assets based upon actual usages determined in 1963/1964. Direct and supervisory labour is charged at full recovery rates based on reported hours worked. Direct, indirect and corporate overheads are comprehensively capitalized. An allowance of funds used during construction is charged to plant. This allowance is based on a weighted average cost of capital.

Plant retirements are handled by removing from both plant and depreciation accounts an amount equal to the original cost of the item. This is in accordance with Circular 2A.

Capital contributions by customers are treated as reductions to capital cost and hence to plant in service.

The allowances for working capital and for material and supplies shown in Table 3 were set many years ago. There is no necessary or likely relationship between these allowances and actual working capital and material and supplies needs. As of the 1975 hearing, the allowances were changed. The allowance for working capital is

now determined as one and a half times the average monthly expenditure. The allowance for materials and supplies is now determined as the average monthly level of materials and supplies in the previous year. The combined effect of these changes has been to raise these items in the rate base from the \$625,000 figure shown in the table to \$12,730,527 for 1975.

The "group plan" method is used to account for depreciation with three statistical methods being used to estimate service life: life span studies, equal life group studies and judgement.

More detailed information on composition of rate base may be found in a 1975 study by Peat, Marwick, Mitchell & Co. The Board, in an order dated September 30, 1974, directed the Company to retain independent accounting experts to examine the rate base. Table 3 shows the composition of the rate base at year ends from 1963 to 1974.

Table 4 shows the rate of return on rate base excluding mobile exchange service for the years 1950-1974. The rate of return has fluctuated considerably year to year. There is typically a significant move upward in the period immediately following a major rate hearing.

TABLE 5

RATE OF RETURN ON COMMON EQUITY

	<u>M T &amp; T</u> %	<u>NB TEL</u> %	<u>ISLAND TEL</u> %	<u>BELL CANADA</u> %	<u>NATURAL GAS UTILITIES</u> %	<u>PIPELINES</u> %
1966	9.0	NA	NA	NA	NA	NA
1967	9.1	NA	NA	NA	NA	NA
1968	8.4	7.9	7.0	8.2	NA	NA
1969	8.1	8.1	7.7	7.9	NA	NA
1970	9.9	9.9	6.7	8.5	NA	NA
1971	10.2	10.5	12.0	8.8	13.1	17.7
1972	10.4	11.0	12.3	9.5	14.4	18.1
1973	10.1	10.8	12.3	9.7	14.9	18.0
1974	8.9	9.5	7.3	9.7	19.0	14.1
1975	9.5	NA	NA	NA	NA	NA
1976 (EST)	12.7	NA	NA	NA	NA	NA
1977 (EST)	7.9	NA	NA	NA	NA	NA
Simple Average 1968 to 1974 <sup>1</sup>	9.4	9.7	9.2	9.1	NA	NA

Sources: E.J. Hicks, op.cit.

M T & T Annual Reports.

C.W. Hayward, Required Range for Return on Common Equity, Maritime Telegraph and Telephone Company Limited, Halifax, 1975

TABLE 6

RATE OF RETURN ON TOTAL INVESTED CAPITAL

	<u>M T &amp; T</u>	<u>NB TEL</u>	<u>ISLAND</u> <u>TEL</u>	<u>BELL</u> <u>CANADA</u>	<u>NATURAL</u> <u>GAS</u> <u>UTILITIES</u>	<u>PIPELINE</u>
	%	%	%	%	%	%
1966	7.2	NA	NA	NA	NA	NA
1967	7.3	NA	NA	NA	NA	NA
1968	7.0	6.8	6.3	7.0	NA	NA
1969	6.9	7.0	6.7	6.9	NA	NA
1970	8.0	8.3	6.7	7.2	NA	NA
1971	8.4	8.6	8.3	7.4	8.8	8.7
1972	8.7	9.1	8.4	7.7	8.6	8.9
1973	8.6	9.2	8.7	8.0	8.8	9.5
1974	8.4	8.6	7.7	8.0	9.5	9.0
1975	8.9	NA	NA	NA	NA	NA
1976 (EST)	10.2					
1977 (EST)	8.8					
Simple Average 1968 to 1974	8.0	8.2	7.5	8.0	NA	NA

Sources: E.J. Hicks, op.cit  
M T & T Annual Reports  
C.W. Hayward, op.cit.

COMMENTS - TABLES 5 and 6

Common Equity

Table 5 compares the returns on equity obtained by a variety of different telephone companies and by other utilities. Time series shown vary because a number of different sources have been used.

It is clear that the returns earned by telephone utilities are substantially lower than those obtained by the natural gas and pipeline utilities generally. Within the telephone industry, M T & T ranks, on average, somewhere below NB Tel and somewhere above Island Tel and Bell. The number presented and indeed the whole concept of examining returns on common equity, are subject to grave theoretical problems.

In the first place, both the equity figures and the returns include amounts attributable to non-regulated activities. Thus the mix of regulated/non-regulated activities may play a larger part in determining the returns shown than do any true variations in regulated return on regulated equity.

In the second place, equity holders purchase stock at market value, not at book value. Book value expresses the historical cost of purchasing treasury shares plus the amount of earnings retained by the company. It is not an accurate measurement of the value currently placed on shares of a company. Accordingly, a rate of return on book value of common equity is meaningless as a measurement of the return currently required by shareholders.

### Assets Employed

Table 6 compares the returns on total invested capital obtained by a variety of different telephone companies and by other utilities. The data presented are subject to the same two difficulties noted for Table 5: they include amounts related to non-regulated activities and they serve as no indication of current investor expectations.

The M T & T return lies, on average, below that of NB Tel. and above that of Island Tel.



TABLE 7

## DEBT RATIOS OF MAJOR TELEPHONE COMPANIES IN THE MARITIME PROVINCES

(Long term debt as % of Long Term debt plus shareholders equity)

	Maritime Tel & Tel %	Island Tel %	NB Tel %
1950	32	30	29
1951	46	30	27
1952	45	37	38
1953	41	51	36
1954	41	51	35
1955	45	50	34
1956	41	45	43
1957	40	44	38
1958	40	50	41
1959	40	50	40
1960	44	48	39
1961	43	49	36
1962	39	53	42
1963	43	48	38
1964	40	45	42
1965	44	48	39
1966	40	35	43
1967	42	39	43
1968	44	42	46
1969	45	45	44
1970	49	47	48
1971	50	54	47
1972	47	45	41
1973	52	53	45
1974	55	53	52

Source: Hudson H. Janisch & Paul B. Huber, A Critique of Provincial Regulation of Telecommunications in the Atlantic Provinces, Dalhousie University, 1974. p.3.14

M T & T Annual Reports

C.W. Hayward, op.cit., Table 8

COMMENTS - TABLE 7

Table 7 shows the ratio of long term debt to long term debt plus equity for three major telephone companies in the Maritimes.

The trend in all three companies shown is to use an increasing proportion of debt. This perhaps reflects a continuing inability to generate sufficient internal funds to support rapid expansion combined with an equity investment usage which appears to preclude continuing large inputs of new equity. In addition, of course, the arguments for a higher debt ratio usually made by intervenors at each rate hearing may have had an effect on the financial policies of the companies. The figures take on further meaning only if there is some optimal long term debt/long term debt plus equity ratio to which the figures can be compared.

TABLE 8

A COMPARISON OF YEAR-END MARKET AND BOOK VALUES - M T & T COMMON SHARES - 1950-1975.

	<u>Market Value</u> \$	<u>Book Value</u> \$	<u>Ratio of</u> <u>Market to Book</u>
1950	17 3/4	13.33	1.33
1951	16 1/2	13.07	1.26
1952*	15 3/4	13.06	1.21
1953	15 1/2	13.62	1.14
1954	18 1/2	13.27	1.39
1955	20	13.52	1.51
1956	16 3/4	13.87	1.21
1957	17	14.04	1.21
1958	17 3/4	14.29	1.24
1959	17	14.32	1.19
1960	17 1/2	14.50	1.21
1961	21 7/8	14.74	1.48
1962	20 3/8	15.08	1.35
1963	21	15.23	1.38
1964	21 1/2	15.52	1.39
1965*	22	15.76	1.40
1966	22	16.37	1.34
1967	19 1/2	16.66	1.17
1968	18	16.88	1.07
1969*	16 1/2	17.10	.96
1970	18 3/4	17.64	1.06
1971	22	18.19	1.21
1972	22 1/2	18.84	1.19
1973	18	19.43	.93
1974*	15	19.66	.76
1975*	15 1/2	19.98	.78

\* Indicates years in which major rate hearings were held.

Source: M T & T Internal Data.

COMMENTS - TABLE 8

Table 8 shows year and market and book values of M T & T common shares for the period 1950 to 1975. Note that the market to book ratio has varied from 1.51 (at 1955 year end) to .76 (at 1974 year end). The ratio was above 1.0 in 22 of the 26 years shown, and was above 1.1 in 20 of the 26 years.

The analysis of Appendix C suggests that a ratio of less than 1.0 indicates the need for a higher rate level while a ratio significantly in excess of 1.0 indicates the need for a reduction in the level of rates. On this basis, the rate level probably should have been increased in four of the last 26 years, and probably should have been decreased in 20 to 22 of those years.

This analysis is supported by the testimony at the 1975 Hearing of Mr. Hayward who stated that the then ratio of less than 1.0 threatened dilution of equity if shares had to be issued at that ratio. It follows that any issue at a ratio above 1.0 would result in the opposite of dilution: a windfall profit to shareholders.

It is interesting to note that the market to book ratio approach may be used as a test of the efficacy of the regulatory process. That is, if windfall profits to shareholders and unanticipated dilution of equity are to be avoided, the regulatory process should as a result of each major rate hearing, pull the ratio towards 1.0. It can be seen that the ratio moved closer to 1.0 after the 1952, 1969 and 1975 hearings (in 1975 the move was marginal), but moved away from 1.0 after 1965 and 1974.

TABLE 9

OPERATING REVENUES - M T & T AND N.B. TEL.

	<u>Total Gross Operating Revenues (\$'000)</u>		<u>% of Total Gross Operating Revenues*</u>			
			<u>Local Service</u>		<u>Long Distance</u>	
	<u>M T &amp; T</u>	<u>N.B. Tel</u>	<u>M T &amp; T</u>	<u>N.B. Tel</u>	<u>M T &amp; T</u>	<u>N.B. Tel</u>
	\$	\$	%	%	%	%
1951	6,388	5,794	63	53	36	45
1952	8,076	6,335	65	53	33	45
1953	9,317	7,588	66	56	32	42
1954	10,017	8,230	65	56	33	43
1955	10,862	9,042	63	55	35	44
1956	11,741	9,849	62	54	36	45
1957	12,607	10,630	62	53	37	45
1958	13,615	12,128	61	53	38	45
1959	14,859	13,861	59	53	39	46
1960	16,238	14,869	58	52	40	46
1961	17,537	16,182	58	52	39	45
1962	18,829	17,232	57	51	39	46
1963	20,066	19,067	56	49	40	48
1964	22,234	21,701	54	46	42	51
1965	24,395	24,454	53	44	44	53
1966	28,700	26,914	53	43	44	54
1967	32,462	29,441	52	43	45	54
1968	35,350	32,112	52	43	46	54
1969	38,613	35,522	51	41	46	55
1970	44,174	40,956	52	41	45	55
1971	48,507	44,751	51	41	46	54
1972	55,085	49,764	49	40	48	55
1973	62,507	55,624	47	40	50	56
1974	73,797	63,926	45	39	51	56
1975	91,270	77,035	44	39	52	56

\* Does not add to 100%. Balance is "Other Revenue"

Source: M T & T Internal Data.

COMMENTS - TABLE 9

Table 9 compares the operating revenues of M T & T and N.B. Tel. Total Gross Operating Revenues do not include a reduction for uncollectable accounts. The percentage split of total between local and long distance revenues does not add to 100%. The difference between 100% and the total of local and long distance is "Other Revenue."

The two companies have grown at similar rates over the past twenty-five years with M T & T having slightly greater revenues than N.B. Tel in all but 1965. The patterns of revenue source are quite different however.

In New Brunswick, long distance revenues have historically been a higher proportion of total revenues than in Nova Scotia. Long distance revenues of N.B. Tel first exceeded local service revenues in 1964; this did not happen with M T & T until 1973. The greater proportion of long distance revenue in New Brunswick is due in part to higher collections from the Trans-Canada Telephone System (calls from Nova Scotia to central Canada generate some revenue for N.B. Tel, calls from New Brunswick to central Canada generate no revenue for M T & T). Differing configurations of local calling areas may also have an impact on the proportions. The trends for the two companies are, however, similar over time. Long distance has been gaining an increasing



share of total revenues for both companies over almost all of the entire period shown. Given that long distance calling is priced on a usage-sensitive basis while local service typically is not, these trends are significant. They indicate that revenue growth has been most rapid in the area using usage-sensitive pricing.

TABLE 10

NOTE ON STUDIES REQUESTED - 1975 DECISION

In a decision issued November 19, 1975, the Board directed the Company as follows:

1. To review the question of interest on overdue accounts and submit a report on the subject before July 1, 1976.
2. To review and study the tariff items relating to advance payments, deposits and disconnection of service with a view to proposing revisions so as to ensure uniformity and cross referencing. An application for revision is to be made to the Board before July 1, 1976.
3. To apply to the Board for revision of tariff rules, regulations, definitions and descriptions so as to eliminate duplications and interpretation problems and to "regularize the conditions, directions and procedures contained in the Tariff"\* The application is to be made before July 1, 1976.
4. To file with the Board before July 1, 1976
  - A detailed outline of the objectives of the construction program proposed for the years 1977 to 1981.
  - A detailed treatise on the distinction between "telephone message service" and non-regulated services.
  - An analysis of existing tariff objectives and possible alternatives.
  - A study reviewing the nature of and justification for capital contributions by subscribers.
  - Proposed guidelines for future EAS (including an indication of likely EAS exchanges, the concept of varying rates to reflect cost, optional EAS etc.).

\* 1975 Decision, p. 82.

COMMENTS - TABLE 10

The various studies listed in Table 10 were requested by the Board. In most cases, reasons were not given for requesting the studies. It can be assumed that the Board wishes further clarification and analysis of existing practices.

This report has discussed, among other things, the need to re-examine the tariff objectives, alternative methods of financing the system, EAS guidelines, the definition of "telephone message service", the relationship between regulated and unregulated service offerings, the extent of usage-sensitive pricing, and expansion of the system size. The studies ordered by the Board are all potentially related to these items.

## APPENDIX C

### Alternative Approaches to Rate of Return Determination

One of the tariff objectives proposed by the Company and accepted by the Board is the opportunity for the Company to earn a fair rate of return. This objective, in similar wording, forms part of the statement of purpose of virtually all telecommunication regulation processes in North America. It has a history in Nova Scotia to at least 1919.<sup>1</sup>

Like many of the other objectives, however, longevity and broad acceptance does not lead to specificity. The objective of a fair rate of return raises the question of what proportion of the revenues of the Company should accrue to the shareholders of the Company. An examination of various sources in Nova Scotia and other jurisdictions on fair rate of return to telecommunication utilities, suggests substantial disagreement on the meaning of the phrase.

As an example of one approach, Company witnesses have stated that the rate of return on common equity should relate to returns available on other investments of similar risk, should be sufficient to attract required investment and should maintain investor confidence in the financial integrity and credit worthiness of the Company.<sup>2</sup>

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<sup>1</sup> There is a formal statement of this objective by the Company at the 1919 rate hearing. There is some evidence of earlier antecedents elsewhere. For example, the A.T. & T. annual report of 1908 discusses the "proper return on capital". L.L.L. Golden, Only By Public Consent, (New York: Hawthorne Books, Inc., 1968), p. 32.

<sup>2</sup> C. William Hayward, Required Range for Return on Common Equity Maritime Telegraph & Telephone Company Limited (Text), Halifax, 1975 p. 2 et seq. (Presented as Exhibit H/14 to the 1975 Rate Hearing).

Using a different approach, the position has been in some other jurisdictions that a rate of return should be set so as to keep the market value of the common shares of the regulated telecommunications utility approximately equal to the book value of its common stock.<sup>3</sup>

Between these two positions are a number of other possible approaches to the estimation of a fair rate of return. The earnings/price approach, the capital asset pricing approach, the discounted cash flow approach and the interest rate plus risk premium approach are alternative methods that have been advocated elsewhere. Each of these will be briefly reviewed. Emphasis will be placed on the comparable investment approach, used currently by the Company and approved by the Board, and on the Market Value/Book Value approach which is recommended for adoption.

#### The Earnings/Price Approach

One approach to determining the fair rate of return to equity holders is the earnings/price approach, also known as the cost of money formula approach; it examines the relationship between historical earnings and historical market price. In theory, the relationship describes the return on equity which is required by investors in the stock. If expected earnings increase, then market price should increase to compensate and bring the return back down to required levels. Similarly, if expected earnings decrease, an automatic decline is expected in share price in order to maintain the required return on new shareholder investment.

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<sup>3</sup> Snavely, King & Tucker Inc., Canadian Transport Commission Telecommunications Cost Inquiry Report of the Consultants, Washington, D.C.; 1974, Vol. III p. 72. The equation of market to book value would be subject to certain adjustments related principally to cost of stock issue and the effect on the market of new stock issues.

This approach assumes a static relationship between experienced earnings and experienced market values.<sup>4</sup> For a time, it was widely accepted in many jurisdictions but it has become apparent that the necessary condition of a static level of actual and expected earnings, stock prices and dividend payout rates has not existed over long periods of time in Nova Scotia or elsewhere.

This point is highlighted by F. K. Welch:

The use of earnings to price ratio in determining a fair rate of return for regulated industries has had a spotty history.... It seemed for a while, in the mid-forties, that a universally fair and workable, if not exactly foolproof, tool for arriving at the troublesome rate of return allowance had been discovered.

But, alas, the emergence of the runaway bull market of the mid-fifties suddenly made the unadjusted earnings to price ratio untenable and eventually somewhat ridiculous.<sup>5</sup>

Although a situation might be hypothesized in which the relationship between earnings and market price remained more or less constant over long periods of time, it does not seem likely that such a situation will exist in the real world in the foreseeable future. Thus, the cost of money formula must be examined as an historically interesting, but currently untenable, approach to determining fair rate of return.

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<sup>4</sup> Snavelly, King & Tucker Inc., Canadian Transport Commission Telecommunications Cost Inquiry Report of the Consultants, Washington, D.C.; 1974, Vol. III, p. 63. The equation of market to book value would be subject to certain adjustments related principally to cost of stock issue and the effect on the market of new stock issues.

<sup>5</sup> F.K. Welch, "A New Approach to Earning-Price Ratio Formula" in Public Utilities Fortnightly, Vol. 81, #5, 29 February, 1968, p. 49.



### The Capital Asset Pricing Approach

The risk attached to the utility's equity stock relative to the risk of other equity issues in the market place is another approach. This capital asset pricing approach develops a scale of returns for alternative investments at various levels of risk. Once the utility's position on this scale has been determined, the fair rate of return is obvious. Theoretically this relative risk approach to determining fair rate of return is quite acceptable.

... it ... obviously essential to the public interest ... that the rate of return also create those conditions of public utility credit under which the risk will be appraised by the investor as a fair one in competition with other industries...<sup>6</sup>

However, there are practical difficulties attached to use of such a scale. Classically, two required points on the scale are the return expected on a risk free investment and the return expected on a diversified portfolio of all available common stocks. Since the existence of a risk free investment is doubtful, the determination of return on such an investment is at best hypothetical. Furthermore, determination of the expected portfolio return presents problems of both measurement and weighting. Since neither of the key reference points on the scale can be found with any great degree of confidence, the scale itself is inevitably suspect.

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<sup>6</sup> O.B. Wilcox, address to the American Gas Association of New York, 26 May 1920, quoted in Walter E. Lagerquist, Public Utility Finance, Chicago: A.W. Shaw Company, 1927, p. 244.

Also, the positioning of the utility's stock on the scale is doubtful. Not only does the measurement of historic risk of the stock vary depending on the period of time being considered,<sup>7</sup> but the projected risk, depending as it does on unknown investor perceptions, cannot be measured with any precision.

Hence, the capital asset pricing approach is not precise enough to permit its use as a determinant of a fair rate of return.

#### The Discounted Cash Flow Approach

The Discounted Cash Flow approach is also referred to in some of the literature as the Investor Demand approach. It involves determining the discount rate at which the present value of future dividends is equal to current market price of the equity stock. The obvious practical difficulty with this theoretically valid approach is that the stream of future dividends cannot be foreseen with precision. The stream of future dividends is a function of both earnings and dividend payout policy, either or both of which may be expected to change over time. While it is true that the impact of distant dividends may be safely ignored if the discount rate is large enough, the ability to predict dividends even over a very few years is limited.<sup>8</sup>

The discounted cash flow approach, while conceptually sound, is too

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<sup>7</sup> Snavelly, King & Tucker Inc., op.cit., p. 66.

<sup>8</sup> Recent market action in Bell Canada common and Bell Canada warrants suggests that a substantial number of investors had made bad predictions about the dividend rate, even though they were attempting to predict no further than three months out.

reliant on estimates of the future to be acceptable as a method of determining fair rate of return.<sup>9</sup>

#### Interest Rate/Risk Premium Approach

The Interest Rate/Risk Premium approach estimates the required return on equity by adding a risk factor to the interest rate paid on current debt by the utility. The concept is concisely stated by

N. Knowles Davis:

There are two compensations for the use of capital. One is pure interest. This is rent for the possession and use of funds where no risk is involved, either in the continuation of the interest or in repayment of the obligation. The other is compensation for risk, or the added compensation required to offset the risks involved.<sup>10</sup>

The risk factor is to be determined by comparing historical return on the utility's debt to historical return on the utility's equity. The risk factor thus derived is, of course, an indication of historical risk. The difficulty with this approach is that the current or future risk premium may not correspond to past risk premiums. To elaborate on this point, consider the risks involved which "added" compensation is required to offset.

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<sup>9</sup> In 1968, the U.S. Federal Power Commission rejected this approach as being too conjectural. For a discussion of this finding, see Edward Falck and Harry L. Albrecht, "FPC Ruling on Return Allowance for Gas Companies", in Public Utilities Fortnightly, Vol. 82 #7, 26 September 1968, p. 27

<sup>10</sup> N. Knowles Davis, "Rate of Return and the Federal Power Commission", in Public Utilities Fortnightly, Vol. 79, #4, 16 February 1967, p. 17 et seq. Of course, as pointed out above, the real world existence of a risk free investment is, at best, doubtful. However, the risk premium might be considered as a payment for the incremental risk of moving from a debt to an equity instrument.

The equity risks for which a premium should be paid would have to include the following:

- a) Risk of obsolescence (technological risk). This risk clearly varies from time to time and from type of utility to type of utility. The current fate of railroads and exclusively telegraph utilities indicates that technological risk does exist even in apparently secure utilities. Such examples also point out an interesting characteristic of technological risk: the nature and degree of risk is often not apparent until the technological change is upon us. It is thus difficult to protect against obsolescence except by improvements to existing technology. Whether this is adequate protection is not known.<sup>11</sup> This uncertainty makes assignment of a technological risk premium highly arbitrary.
- b) Failure to adequately provide for replacements. This risk is substantially offset by the allowance of depreciation as an expense. It is possible, however, that the depreciation allowance may be inadequate due to overestimation of the life of certain equipment items or due to inflation (see below). It may also happen that user preferences reduce the life of equipment. Thus any massive trend to touch-tone handsets might result in retirement of dial handsets before they were fully depreciated.<sup>12</sup> Having identified

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<sup>11</sup> The development of a diesel locomotive did not adequately protect the railroads against technological change in the form of aircraft and an improved inter-urban highway system. Whether the broader research net cast by Bell Labs will result in a better protective catch is questionable.

<sup>12</sup> This possibility is advanced as a major reason for differential pricing policies on coloured phones, touch-tone, etc.

the nature of the risk does not allow a projection of its magnitude into the future. An appropriate risk premium in this regard cannot be determined.

- c) Risk of operating loss. This risk might also be termed the risk of incompetent management. Shareholders, managers, the public and regulators would all like to believe that utilities are well run. To a remarkable extent, this belief is well palced in Nova Scotia and elsewhere. But there is no prima facie reason to believe that all utilities must always be well run. Thus, risk exists. Any quantification of the risk of operating loss would, however, be highly arbitrary.
- d) Cyclical fluctuations in economic conditions. Clearly the existence of such fluctuations is certain. What makes measurement of the appropriate risk premium difficult is that the timing, magnitude and duration of the fluctions are unknown.
- e) Risk of inflation. This risk may be particularly important when combined with regulatory lag. As with other risks, however, determining the magnitude of the premium to be paid for assumption of this risk is difficult and it is not obvious why regulated companies should be any better protected from inflation than any other part of the economy.

It should be apparent from an enumeration of the risks for which a premium is to be paid that the magnitude of the risks cannot be determined with any substantial degree of precision. But even if it was possible to place a precise value on assumption of these risks, difficulties would remain.

All of the risks ultimately relate to the ability of the utility to generate operating income over the short and long run. Clearly the major beneficiary of such income is the provider of equity capital. Conversely, the equity investor bears most of the risk. But the debt investor is also at some risk for the ability of the utility to pay interest on debt, and eventually to repay the debt itself, may be impaired should operating income fall sufficiently.

Thus, the current interest rate which the utility must pay on debt issues reflects some "risk premium" over what would be required to be paid for a hypothetical risk-free debt issue. This can be designated risk premium  $R_1$ . The overall risk might be designated  $R_T$ , with the incremental risk associated with holding equity rather than debt being  $R_2$ . Knowing the value of  $R_T$  and knowing that  $R_T = R_1 + R_2$  does not define the value of either  $R_1$  or  $R_2$ . Thus, the appropriate risk premium for equity is not known even if all of the risks can be quantified.

#### Comparable Investments Approach

The Comparable Investments approach now in use by the Company<sup>13</sup> is considered by it to be the most appropriate way of determining a fair rate of return. This approach has been used in many jurisdictions, as well as in Nova Scotia, over a long period of time.

The essence of the approach was put very succinctly to the Board

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<sup>13</sup> Hayward, op.cit., p. 1. This approach has also been advanced by Bell Canada. See Bell Canada Application "B", Exhibit B-73-116, Evidence of J. Rhoads Foster, cited in Snavely, King & Tucker Inc.



in the 1975 rate hearings by a witness called by the Company.

... the common shares of M T & T must compete with other forms of investments including five year notes, debentures, mortgages, long term bonds, and debentures as well as other utility shares.<sup>14</sup>

This approach was referred to in Chapter 2 in the discussion of the emphasis placed on the Company's capital attractiveness at rate hearings.

Notwithstanding its wide currency and historical acceptability, this approach presents a number of difficulties.<sup>15</sup> The "fairness" of a fair rate of return using the comparable investments approach is doubtful. Because the regulatory process uses a return on rate base approach, the utility ends up being allowed to earn its fair return on embedded as well as new capital. Allowing a return comparable to that earned by nonregulated companies provides existing shareholders with an unwarranted earnings appreciation not available to shareholders of unregulated companies.

To compare return on equity to that earned by other regulated companies is not valid because this would make the regulatory process circular: the return allowed to A would depend on the return allowed to B, C, D, and E; the return allowed to B would depend on the return allowed to A, C, D, E; etc. Thus, the return could only be compared to that of non-regulated companies.

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<sup>14</sup> Board of Commissioners of Public Utilities, 1975 M T & T Rate Hearing evidence presented by J. W. Ritchie, p. 29 (mimeograph)

<sup>15</sup> These are discussed in some detail in Snavely, King & Tucker Inc. op. cit., p. 66 et seq.

The use of book value as a basis for comparing returns, as advocated by Company experts,<sup>16</sup> is not appropriate since investors are primarily concerned with market rather than book value. The market value reflects not only the historical price paid for equity and the historical earnings retained by the Company, but the investor's expectations of future earnings.

The use of market value rather than book value for comparative purposes is also subject to problems. There is no reason to believe prima facie that the return to shareholders of a regulated telecommunications company should be similar to the return available to shareholders in any portfolio of non-regulated companies or any non-regulated industry or any individual non-regulated firm. Whether a similar return is justified will depend on the risks involved.

As is pointed out in the discussion of the interest rate/risk premium approach, the precise assessment of risk is difficult if not impossible; hence the identification of non-regulated firms having risks comparable to those of a given regulated utility will present problems. Even if a firm with a similar overall level of risk could be found, the nature of the risks and hence their likely future impacts would be different. It is concluded that the comparable investment approach is not an acceptable way of determining a fair return to shareholders.

#### Market Value/Book Value Approach

This approach uses the ratio of the market value of common stock

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<sup>16</sup> Board of Commissioners of Public Utilities, 1975 Rate Hearings, op.cit., pp. 23-30.

to its book value to determine whether or not the allowed rate of return is adequate. The principle behind it is as follows: if the market to book ratio was greater than one (i.e., if the internal rate of return exceeded the external rate of return), for a firm in an unregulated industry, then the firm would raise money through stock issue and invest it in projects. It would continue to do this until either the cost of raising money increased and/or the internal rate of return available on new projects decreased and the returns were equal (i.e., the market to book ratio became 1).

Note that the incentive to continue investing arises from the difference between internal and external rates of return. The incentive to eventually stop investing arises from the fact that the return on incremental new projects in due course will fall below the average internal rate of return and thus approximate the external rate of return.

But in a regulated firm, the regulatory process fails to distinguish between incremental and embedded investments and thus makes it possible to earn the same return on new as on old projects. Thus, the self-regulating mechanism which operates in the unregulated environment does not limit investment in a regulated firm. As long as equity can be sold at above book value, each new stock issue confers a windfall gain on existing shareholders in the form of an increase in book value which carries with it an increase in earnings.<sup>17</sup>

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<sup>17</sup> To prevent or discourage overinvestment, many regulators examine proposed investment projects, the cost of which exceeds some pre-determined amount. In Nova Scotia, this amount is currently \$5000. A more direct approach to the problem would be desirable; that is, the incentive to overinvest should be removed by using some form of market to book ratio test and by an analysis of the costs and benefits of the proposed investment project.

The fairness of a return on equity by reference to the market to book ratio of stock is an acceptable principle. However, it is difficult to determine what ratio would be appropriate and how a mechanism to use the ratio might be structured.<sup>18</sup>

Clearly, the interest of shareholders is impaired if the ratio falls below one. Hence, one guideline for regulators would be that the allowed return on rate base would have to be high enough to ensure a market to book ratio no less than one.

Two of the issues that remain however, are, (1) should the ratio be allowed to exceed one, and, if so, why and by how much, and (2) over what time period should regulators attempt to maintain the ratio at an acceptable level.

As was pointed out above, any ratio greater than one tends to encourage overinvestment and results in a windfall benefit to existing shareholders. Since such a windfall cannot accrue to shareholders in non-regulated firms, it constitutes a unique benefit to owners of a regulated natural monopoly. As such it should be considered unacceptable.

Notwithstanding the windfall nature of the gain to existing shareholders, it may be desirable to allow a ratio somewhat in excess of one. In the first place, the cost of issuing stock will funnel some of the gain out of the hands of shareholders. In the second place, as was suggested in Chapter 2, the Board could use the rate of return to penalize bad management. Conversely, some incentive could be offered for competent management. Just as it should not be the role of regulation to ensure a return sufficient to shelter incompetent management from

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<sup>18</sup> Snavely, King & Tucker Inc., op.cit., p. 72

the displeasure of shareholders, so the regulation process should allow shareholders some of the fruits of competent management. Accordingly, the appropriate ratio might be somewhat in excess of one.<sup>19</sup>

The ratio should be the primary determinant for judging the overall financial integrity of the Company.

If  $P/e > 1$ , then rate levels are too high.

If  $P/e < 1$ , then rate levels are too low.

If  $P/e = 1$ , then rate levels are about right.<sup>20</sup>

To avoid any possible problems of circularity (that is, of installing a process which would directly influence the market and in turn be directly influenced by the market), the ratio would be used as an indicator of the direction in which rates should move and as a retrospective indicator of the efficacy of the regulatory process. Each time the Company appeared for a rate revision, the Board would examine the history of the ratio since the last revision and would attempt to adjust so as to bring the ratio to an acceptable level.

There is, however, a further problem. At the moment the Company is involved in the provision of both regulated and unregulated services. Thus, the rate of return on the rate base for regulated services must be determined independently of unregulated services. If such a determination

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<sup>19</sup> The problem of assessing managerial competence and determining its adequate reward has been ignored. This is an area of difficulty in the market to book ratio approach which requires investigation.

<sup>20</sup> The CTC Cost Inquiry Study rejected the use of the ratio as the primary determinant of the allowed rate of return. Their alternative proposal, however, ultimately reduces to using it precisely in that fashion.

creates a level of rates for regulated services which causes P/e to fall below the acceptable level, then this indicates the possibility that the unregulated services are not profitable and that there is subsidization taking place of the unregulated services by the regulated service.

It is concluded that the best available method for assessing whether or not the rate of return to equity is fair is to see whether the ratio of market to book value is above or below a previously determined acceptable level. This method should be used when the Company applies for a rate revision; it should not be used to make continuous or automatic adjustments to rates.





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