Exhibit No. ___ (EHF-1)

PUBLIC VERSION

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Maritimes & Northeast Pipeline, L.L.C.	§ § §	Docket No. RP04-___-000

PREPARED DIRECT TESTIMONY OF
EDWARD H. FEINSTEIN
ON BEHALF OF
MARITIMES & NORTHEAST PIPELINE, L.L.C.

Q. 1 Please state your full name, title, and current place of employment.

A. My name is Edward H. Feinstein, and I am a consulting petroleum engineer with the firm of Brown, Williams, Moorhead & Quinn, Inc. My business offices are located at 1155 15th Street, N.W., Suite 400, Washington, D.C. 20005.

Q. 2 What is your educational background?

A. I received my Bachelor of Petroleum Engineering degree from the University of Tulsa in Tulsa, Oklahoma, in May 1963.

Q. 3 Please describe the course of your professional career and the scope of your current professional responsibilities.

A. For the past 41 years, I have used my petroleum engineering education to evaluate the economics of oil and gas pipelines in the context of the federal regulation of those industries. From July 1963 to February 1998, I worked at the Federal Energy Regulatory Commission ("FERC" or "Commission") and its predecessor, the Federal Power Commission ("FPC"). From the time of my employment at the FPC until approximately 1970, I was engaged in work involving economic feasibility studies in certificate proceedings under the Natural Gas Act ("NGA").

This work was concerned primarily with market, engineering, and financial analyses for the purpose of determining the economic feasibility of pipeline projects proposed in certificate applications. From 1970 to February 1998, my responsibilities at FERC were concentrated on determining the appropriate depreciation rates for oil and gas pipeline facilities, including the determination of potential supplies of oil and natural gas, and with other rate issues such as storage utilization, operations and cost allocation and gathering rates. During my nearly 35 years with the Commission, I earned positions of increasing responsibility, including Chief of the Depreciation Branch. In March 1998, I joined the firm of Brown, Williams, Scarbrough and Quinn, Inc., precursor to Brown, Williams, Moorhead & Quinn, Inc., in my current position as a consulting petroleum engineer. I have provided a list of the proceedings in which I have testified before FERC in Exhibit No. ___ (EHF-2).

Q. 4 Are you a member of any professional societies?

A. Yes, I am a member of the Society of Depreciation Professionals and the Society of Petroleum Engineers.

Q. 5 On whose behalf are you testifying in this proceeding?

A. I am testifying on behalf of Maritimes & Northeast Pipeline, L.L.C. ("Maritimes").

Q. 6 Have you previously testified before the Commission?

A. Yes. I have presented testimony in many different areas, including gas supply and deliverability, depreciation, gathering issues and storage operations and cost allocation while employed by FERC, and since leaving FERC.

Q. 7 What is the purpose of your testimony in this proceeding?

A. The purpose of my testimony is to explain and support the determination of just and reasonable depreciation rates to be used in Maritimes' cost of service calculations in support of the instant rate filing.

Q. 8 What statements, schedules, or exhibits are you sponsoring in conjunction with your direct testimony?

A. In addition to Exhibit No. ___ (LWG-2), which I referred to earlier, I am sponsoring Exhibit Nos. ___ (EHF-3) through (EHF-7), which are a series of exhibits supporting my depreciation recommendation.

Q. 9 Were these exhibits prepared by you or under your direction or supervision?

A. Yes, these exhibits were either prepared by me or under my direction and supervision.

Q. 10 Would you please summarize the results of your analyses of the just and reasonable depreciation rates for Maritimes?

A. Based on my analysis of the relevant facts, as discussed in further detail below, I conclude that Maritimes' proposed mainline depreciation rate of 4.00 percent is appropriate for the Maritimes mainline system. Further, I am proposing various rates for the individual laterals. Depreciation rates for the various incremental laterals are as follows:

Westbrook Lateral	4.00%
Veazie Lateral	5.00%
Bucksport Lateral	6.67%
Newington Lateral	5.00%

Finally, I am proposing depreciation rates for general plant as follows:

Account 390 Structures & Improv	10.00%
Account 394 Tools	6.67%
Account 398 Miscellaneous Equip.	33.33%

Q. 11 Please summarize the process you used to determine the mainline transportation depreciation rate.

A. Consistent with Commission precedent, I analyzed Maritimes' system operations, along with its markets and source of supply. I determined an average remaining life based on the physical lives of Maritimes' facilities and an economic life based upon projected offshore Nova Scotia basin gas supplies. I also considered how competition in the natural gas industry affects the economic life of Maritimes' facilities. I applied the average remaining life to each of Maritimes' plant accounts to determine the composite depreciation rate for the transmission plant function.

A comparison of Maritimes' existing depreciation rate with the proposed depreciation rate is shown in Exhibit No. ___ (EHF-3). The difference in the proposed depreciation rate as compared to Maritimes' existing rate is due to new information concerning gas supplies in the offshore Nova Scotia basin and the effect of this new information on the useful life of Maritimes' existing pipeline facilities.

Q. 12 What studies did you perform or analyze as part of this process for determining the appropriate range of depreciation rates for Maritimes?

A. I performed an average service life study, economic life study, and a supply and market study of Maritimes' system. In addition, I analyzed Mr. Leon W. Giese's study of the long-term production profiles for the Sable Offshore Energy Project

("SOEP"), and production profiles for the overall offshore Nova Scotia basin, which includes an analysis of the likelihood of gas supplies from non-SOEP sources.

Q. 13 As a means of background to your testimony, please describe why pipelines are allowed to include a depreciation rate in their cost of service calculations.

A. Depreciation is the allocation of the original cost of tangible facilities in service over their useful lives. Stated another way, depreciation is the mechanism by which a plant investment is recouped in an orderly fashion over the useful life of the investment. For rate purposes, depreciation is treated as an operating expense. A depreciation rate therefore allows a pipeline to systematically recover its invested capital over the useful life of its system.

The concept of depreciation can be reviewed in the light that the purchase of capital goods is in essence a purchase of future services. Consequently, depreciation is the expiration or consumption, in whole or in part, of the service life, capacity, or utility of property resulting from the action of one or more of the forces operating to bring about the retirement of such property from service. It therefore follows that the basic objective of depreciation under established regulatory practice is the recovery of the full capital investment in facilities in a reasonable and consistent manner over the time period related to such facilities' use in providing service. This means that customers who are served by a particular investment pay for that investment in timed installments over the life of the investment.

Plant costs are incurred to make the provision of services possible. Units of plant are no more than stored up services, or stored up work units. The use of plant results in the provision of services and reduces the stored up future services. As service is performed, a corresponding part of the cost of plant (cost of stored up services) should be charged to the service. The stored up services are usually referred to as the service life. Accordingly, depreciation signifies the using up of service capacity or utility of plant.

Q. 14 What are some of the official definitions of depreciation?

A. Official definitions of depreciation by government agencies and associations are generally consistent, differing only by emphasizing either the description of depreciation or its purpose.

The Commission in its Uniform System of Accounts prescribed for natural gas companies defines depreciation as follows:

> "Depreciation" as applied to depreciable gas plant, means the loss in service value not restored by current maintenance, incurred in connection with the consumption or prospective retirement of gas plant in the course of service from causes which are known to be in current operation and against which the utility is not protected by insurance. Among the causes to be given consideration are wear and tear, decay, action of the elements, inadequacy, obsolescence, changes in the art, changes in demand and requirements of public authorities, and, in the case of natural gas companies, the exhaustion of natural resources.

This definition bears a striking resemblance to that stated in a landmark Supreme Court decision in *Lindheimer v. Illinois Bell Telephone*. The key to the Court's definition of depreciation in that case is its concept of depreciation as a loss. In spite of the concept of depreciation as a loss or decrease in value, its application in accounting, financial, engineering, tax, and rate cases is always based on cost, not value.

The National Association of Railroad and Utilities Commissioners Committee on Depreciation stated:

> Depreciation is the expiration or consumption in whole or in part, of service life, or utility of property resulting from the action of one or more of the forces operating to bring about the retirement of such property from service; the forces so operating include wear and tear, decay, action of the elements, inadequacy, obsolescence, and public requirements; depreciation results in a cost of service.

The American Institute of Accountants defines depreciation by stressing its purpose:

> Depreciation accounting is a system of accounting which aims to distribute the cost or other basic value of tangible capital assets, less salvage (if any), over the estimated useful life of the unit (which may be a group of assets) in a systematic and rational manner. It is a process of allocation, not valuation. Depreciation for the year is the true portion of the total charge under such a system that is allocated to the year. Although the allocation may properly take into account occurrences during the year, it is not intended to be a measurement of the effect of all such occurrences.

Q. 15 What methodology did you use in your study of the appropriate life for Maritimes' facilities?

A. I used the Average Service Life Methodology and recommend that Maritimes' depreciation rate in this case be based on this methodology. This methodology is the most widely used of all the methods to determine depreciation rates for major onshore transmission pipeline systems.

Depreciation rates depend on estimates of service life of plant investment. Because natural gas pipeline systems are made up of a host of different complex property units, it would be impractical to calculate and apply separate depreciation rates for each unit of facility. This calculation would place an undue burden on the accounting system, requiring the maintenance of records for each unit of property. Consequently, the normal approach for developing depreciation rates is to calculate the rates for groups of plant based upon average service lives for those groups which are determined through studies of the forces affecting the lives of the pipeline's facilities. Under this method, individual facilities booked to each relevant FERC account are treated as a single group by those accounts.

<u>Determination of Depreciation – The Remaining Life Factors</u>

Q. 16 Would you please discuss the relationship between useful life and depreciation?

A. The measurement of depreciation recognizes that all plant will ultimately reach the end of its useful life. The end of the useful life and retirement from service may be caused by the following factors:

wear and tear
action of the elements
deterioration
inadequacy
obsolescence
requirements of public authorities and
adequacy of supply or market.

The physical causes, such as wear and tear and deterioration, are the most readily observed reasons for retirements. Normal use of facilities involves fatigue of materials, stress and friction, which results in wear and tear. An example of wear and tear is the wearing out of major components of compressor stations. Deterioration, on the other hand, may be caused by rusting, chemical processes, or temperature variations. An example of deterioration is the corrosion of metal pipeline segments that require costly repairs or retirement.

Functional causes, such as inadequacy, obsolescence, requirements of public authorities and inadequacy of supplies or markets are probably the more prevalent cause of retirements in the pipeline industry.

Inadequacy refers to the lack of capacity which is required for supply and demand. Thus, a pipeline main may be retired and replaced by one of a larger size in order to achieve an adequate delivery level.

Obsolescence may result in retirements due to improvements that render certain facilities uneconomical and inefficient. A common example of obsolescence is the communication equipment used by the pipeline industry. New communication equipment is being developed continually that renders older models obsolete.

Public authorities may from time to time require pipelines to be replaced with thicker walled pipe because of population encroachment toward such facilities, or relocated because of infrastructure improvements, such as highway widening.

For a pipeline system such as Maritimes, all of the above causes of retirement, whether physical or functional, have one thing in common: they are ever-occurring and affect individual facilities. On the other hand, the adequacy of supply or market is unrelated to the physical characteristics of the property or the action of public authorities. Adequacy of supply or market is probably the single most important factor resulting in premature retirements because this factor may affect a large portion of the pipeline system. Therefore, I will treat this subject in more detail.

In a depreciation study, the adequacy of supply and markets is referred to as the economic life.

The Depreciation Model

Q. 17 Would you please describe the depreciation model that you employed in your study?

A. I employed the straight-line average remaining life method as traditionally adopted by the Commission. It is derived and described as follows:

$$\textbf{Depreciation Expense} = \frac{\textbf{Investment}}{\textbf{Life}}$$

The remaining life approach:

$$\textbf{Depreciation Expense} = \frac{\textbf{Undepreciated Investment}}{\textbf{Average Remaining Life}}$$

The Depreciation Model:

$$\textbf{DE} = \frac{\textbf{DB – (S – COR) – DR}}{\textbf{ARL}}$$

Where,

DE	=	the annual depreciation expense
DB	=	the depreciation base or original cost
S	=	the gross salvage
COR	=	the cost of removal
DR	=	the accumulated depreciation reserve
ARL	=	the average remaining life

Net salvage represents the disposal of the facilities, which is the basis of the original cost.

$$\textbf{Depreciation Rate} = \frac{\textbf{DE}}{\textbf{DB}}$$

The determination of depreciation using the above equations serves three purposes:

<u>capital recovery</u> - ratably allocates a known fixed cost,

<u>cost of removal</u> - ratably allocates a future obligation, and

<u>salvage</u> - ratably reflects recognition of future value.

Q. 18 Would you describe the average remaining life approach?

A. The concept of an average service life or remaining service life for a property group implies that the various units in the group have different lives. The average life of any group of plant items is a matter of estimates until all the items in that group have been finally retired. The issue then is to determine the average life before complete retirement of all units occurs. The average remaining service life method determines the average period of time the facilities will be in service. This is normally done by first determining the historical life of the plant group and then estimating the life expectancy for the items remaining in service. The life experienced plus the expected life comprises the average life for the group. This analysis can be done by determining the separate lives for each of the property units or by constructing a survivor curve for the entire group. In this testimony, I employ the group method and use a survivor curve for each group of facilities.

Q. 19 What is a survivor curve?

A. A survivor curve, fitted to a particular type of plant, predicts the average remaining service life and normal retirement pattern of that plant. A survivor curve graphically reflects the percent of capital investment existing at each age throughout the entire physical life of an original group of property. From the survivor curve, the average service life or average remaining life can be calculated. The average service life is obtained by calculating the area under the survivor curve from age zero to the maximum age and dividing the area by 100 percent. The average remaining life at any age is obtained by calculating the area under the survivor curve from the observation age to the maximum age, and dividing this area by the percent of plant surviving at the observation age.

The average remaining life is the average length of time that all units of a group are expected to last. The retirement pattern estimates how much of the group will be retired each year as the group ages. The average remaining life, which is of particular importance in the calculation of the depreciation rate, is derived from the useful life of the facility and from each plant's survivor curve.

Analyses of historical data are employed in estimating average service lives due strictly to physical or commonly occurring retirement forces. The analyses consist of compiling the past history of the plant groups, reducing the history to mortality trends by the use of actuarial techniques, and forecasting the trend of survivors for each depreciable group on the basis of past trends and future company plans. The combination of the historical trend and the future trend yields a complete survival pattern from which the physical portion of the average service life is derived. The historical experience data upon which indications of past service life are based reflect not only the capital investment of property items retired during each year of age but also the capital investment of property items that remain in service at the beginning of each year of age out of the total capital investment originally placed in service in any year. These properties that remain in service are said to be exposed to the risk of retirement.

The survivor curves are referred to as Iowa type survivor curves (*see* Schedule Nos. 1-3 of Exhibit No. ___ (EHF-4)). They were originally developed at the Iowa State College Engineering Experiment Station and refined through an extensive process of observation and classification of the ages at which industrial property had been retired. Iowa survivor curves are used to account for the normal retirements that occur over the life of a specific type of plant.

The determination and use of a survivor curve to determine the physical life of facilities requires a great deal of experience and knowledge in the interpretation of the results of such a study. The use of judgment must include investigation into whether future normal retirements can be predicted based on the past performance of those facilities.

Q. 20 Please describe your analysis of the Maritimes system as it relates to the useful life of its facilities.

A. The purpose of my depreciation study is to determine the useful life of Maritimes' mainline transmission facilities. To achieve this goal, I analyzed and determined the forces bringing about the retirement of Maritimes' facilities. A nexus must be developed between the forces bringing about the retirement and the facility subject to retirement. I developed this nexus through various studies and determined factors relating the declining gas supply to facilities dependent upon such supply.

Q. 21 Please describe Maritimes' mainline transmission system.

A. Maritimes, along with its Canadian pipeline affiliate, Maritimes & Northeast Pipeline Limited Partnership ("Maritimes-Canada"), operates a high pressure natural gas delivery system that transports natural gas in international commerce from the tailgate of a processing plant near Goldboro, Nova Scotia, to the Canadian-United States border, and through the northeastern states of Maine, New Hampshire, and Massachusetts, with a terminus in Dracut, Massachusetts, and another terminus in Beverly, Massachusetts. Maritimes and Portland Natural Gas Transmission System ("PNGTS") share an undivided, joint ownership interest in approximately 101.3 miles of pipeline extending from Westbrook, Maine, to Dracut ("Joint Facilities"). Various Maritimes-owned laterals or jointly-owned laterals exist along the entire Maritimes mainline system, including both its individually-owned mainline and the Joint Facilities mainline.

ECONOMIC LIFE

Q. 22 Did you perform a study on how Maritimes' facilities are impacted by declining gas supply?

A. Yes.

Q. 23 What factors did you consider and rely upon in your economic life study?

A. I analyzed and considered the following factors:

- The configuration of Maritimes' system related to gas supply sources.

- The present and estimated future productive capability of the offshore Nova Scotia basin, which is essentially the only source of supply for the Maritimes pipeline system.
- The characteristics of the offshore gas supply sources.
- The extent to which the Maritimes pipeline system must compete for supply with the domestic natural gas market in the Canadian provinces of Nova Scotia and New Brunswick.
- The vibrancy of the gas market in the northeast United States.

Q. 24 What is economic life?

A. Economic life, as used in the determination of depreciation for Maritimes, is a life-span concept. Recognize that it is not possible today to pin-point the exact date of retirement of the Maritimes system. However, a reasonable estimate of an approximate time span in which Maritimes will be effectively in operation can be made. This can be achieved by considering all the factors that affect the operation and the productive life of the pipeline facilities.

Q. 25 Would you please describe your studies, analysis and determination of the economic life of the Maritimes pipeline properties.

A. The economic life of Maritimes' existing gas pipeline facilities is dependent primarily upon the productive capability of the supply areas to which it is connected and from which it receives gas for transmission. The economic life is also dependent upon the effect of competition on the company's existing facilities, as any potential loss of supply or markets may affect the useful life of a particular facility.

Q. 26 Would you please discuss the relationship between the economic life of Maritimes' facilities and the estimated productive capability of offshore Nova Scotia?

A. The productive capability of the offshore Nova Scotia basin is one of the chief factors that bear on the economic life of Maritimes' facilities. The configuration of the Maritimes pipeline system and its geographical location are such that the anchor for useful life is directly related to the productive capability of the offshore Nova Scotia basin. There are no other supply areas that could materially supplement the volumes which are produced from the offshore Nova Scotia basin and connected to the Maritimes system. The offshore Nova Scotia basin is essentially Maritimes' sole supply source. Maritimes' pipeline system is a single pipeline that connects to the pipeline of Maritimes-Canada at the U.S. – Canada border, which, in turn, connects to a processing plant and an offshore pipeline that presently connects to all of the producing offshore Nova Scotia basin gas fields. Thus, Maritimes is reliant essentially upon the single offshore Nova Scotia basin supply system. If the offshore Nova Scotia basin supply increases, Maritimes will accommodate such increased supply on its existing system or by expanding its system. On the other hand, if the offshore Nova Scotia basin supply decreases, Maritimes is fully at risk. The risk is the potential for a severely underutilized system which may not recover its original investment.

In short, the economic life of the Maritimes system is presently, and will be in the future, essentially reliant upon offshore Nova Scotia gas supplies, and no other supply alternative is evident from my analysis of the location of the Maritimes system relative to the location of eastern Canadian gas resources.

Q. 27 Would you please discuss the configuration of Maritimes' pipeline system and how it affects the useful life?

A. While the Maritimes pipeline system transports gas to a robust market area, its function is more similar to a gas supply lateral since it transports gas from an isolated gas supply area. This is in contrast to most interstate transmission systems which can transport gas from many different sources. Due to its reliance on essentially a single gas supply area, the useful life of the Maritimes pipeline system is unlike that of other interstate transmission pipeline systems. Thus, because of its configuration, the risk of not adequately recouping its investment through depreciation accruals is greater for Maritimes than for other interstate pipeline systems.

Q. 28 Briefly describe how you used Mr. Giese's reserve life analysis to conduct your study.

A. Mr. Giese performed a gas supply analysis, which forecasted the availability of natural gas from the offshore Nova Scotia basin. His analysis provided me with the proper quantitative ingredients to determine the effect of gas supply on the useful life of the Maritimes pipeline system. His gas availability forecast includes, in addition to proven commercial supply sources, supplies from discoveries that are not yet commercial and from future undiscovered resources.

As a result of Mr. Giese's analysis and forecasted gas supply availability, I employed an economic life of 23 years for the depreciation determination of Maritimes' pipeline system. Based upon my analysis of Mr. Giese's study, as well as my analysis of the gas field characteristics and recent information concerning the viability of the recoverable gas reserves, I determined a range of 15 to 23 years for the economic life.

The high end of the range, 23 years, reflects the number of years that revenues related to the volumes flowing in Maritimes' system will cover the cost of operation of the pipeline system. The profile of Mr. Giese's forecasted gas availability is shown on Schedule Nos. 1-2 of Exhibit No. ___ (EHF-5). My determination of the economic limit of the Maritimes pipeline system, based upon Mr. Giese's forecasted gas availability, is shown in Exhibit No. ___ (EHF-6). This schedule reflects the effect of the forecasted decline in gas supply upon the cost to operate the pipeline system.

I arrived at the low range of 15 years to reflect the uncertainty of available supply due to the recent downgrading of proven reserves from commercial gas fields, recent setbacks in exploration offshore and the fact that undiscovered resource estimates are based upon theoretical plays from seismic runs and attribution of existing fields already subject to reserve downgrading.

Q. 29 Offshore Eastern Canada has other sedimentary basins where gas could be discovered. Could Maritimes receive gas volumes from these other areas?

A. While offshore eastern Canada seemingly has an abundance of speculative potential gas resources, analysis of the viability of such resources indicates an overwhelming uncertainty that any such gas will become marketable to produce, and thus flow through the Maritimes pipeline system.

In addition to the offshore Nova Scotia basin (Scotian Shelf and Slope), there is the Labrador Shelf, Jeanne d'Arc Basin (Grand Banks), East Newfoundland Basin, Southern Grand Banks, Laurentian Sub-Basin and George's Bank.

Volumes of gas from such frontier areas may, at some point in time, be marketable, but may not flow through a take-away pipeline. Such volumes may become marketable through the use of developing new technologies in the future, but such technologies have yet to be economically proven.

Furthermore, the remoteness of these frontier areas make it even more uncertain that any volumes of gas from such potential discoveries will ever flow through Maritimes' system.

Q. 30 Did you include the above frontier areas in your economic life determination?

A. No, I did not. These sources are highly speculative and, by nature, so speculative and uncertain that it would be unreasonable to include them in any form to determine the basis upon which the original investment in a pipeline may be recovered.

First, current estimates of such resources are based upon theoretical simulations performed nearly 20 years ago. The estimates are based on generalized seismic surveys with minimal actual exploratory drilling, none of which resulted in a "commercial" discovery.

Second, it is highly uncertain if any potential future commercial discovery would be connectable to the Maritimes system.

Q. 31 Please discuss the results of your study in the context of how you will apply it to the determination of depreciation.

A. While the results of my study indicate an economic life of Maritimes' facilities of between 15 and 23 years, in order to make my depreciation determination as conservative as possible, I am using 23 years as the remaining economic life. It is this economic life of 23 years that is used to determine the average remaining life for the calculation of depreciation in this proceeding.

Q. 32 Did you conduct your own gas supply studies to forecast the availability of gas for transportation through Maritimes' pipeline system?

A. No. I relied on the gas supply studies of Mr. Giese. I analyzed Mr. Giese's study along with the public information available concerning gas supply in eastern Canada in order to apply that information in my determination of an economic life for the Maritimes facilities.

Q. 33 Based on your analysis of Mr. Giese's gas supply study, what is the current status of Maritimes' gas supply and markets?

A. While the life of Maritimes' markets, in and by themselves, is relatively long-term, the Maritimes system is essentially limited to a single source of gas supply, the offshore Nova Scotia basin, of which all of the gas is currently produced from the SOEP fields, and this gas source will not be adequate to maintain existing levels of throughput on the Maritimes system. My analysis of Mr. Giese's study indicates that by the end of the year 2027, the Offshore Nova Scotia basin will produce insufficient quantities for Maritimes to avoid operating at a loss since by that point the average remaining gas supply in the basin will have decreased to 210,000 dekatherms per day ("Dth/d"). This projection is based on my assumption that the entire gas availability from that basin will be transported only through Maritimes' existing system, and that no other take-away pipeline will be built. Mr. Giese's study indicates that the throughput available to the Maritimes system will begin to decline during 2022 due to a declining supply source, and continue to decline over the remaining years.

Q. 34 What impact will such underutilization have on the Maritimes system?

A. After the initial decline in throughput beginning in 2022, Mr. Giese's study indicates a very rapid decline in the throughput available to Maritimes starting in 2024, which would render firm transportation service on Maritimes untenable at that point. It is at that point, I believe, that underutilization of certain facilities will take place**,** including underutilization of the Maritimes system which is completely dependent upon production from the offshore Nova Scotia basin.

Q. 35 How did you determine the point in time when Maritimes would operate at a loss due to depletion of its connected gas supply?

A. I assumed a revenue stream based upon the forecasted throughput of Maritimes' pipeline system. This revenue stream is based upon the availability of gas from the offshore Nova Scotia basin. The estimated amount of gas transported by Maritimes is derived by subtracting volumes marketed in Nova Scotia and Canada and fuel in Canada from the total offshore production.

I next assumed that the transportation rate, which drives the revenue stream, and the cost of operation will increase over time at the same rate. Thus, I determined the point at which the cost of operation exceeds the revenue stream by applying Maritimes' proposed average transportation rate of approximately $1.07 (US) per Dth to the forecasted throughput along side the cost of operation. I determined the cost of operation to be $56,000,000 (US) per year, not including financing costs. As a result of that annual relationship, I determined that the point at which the cost of operation exceeds the revenues is in the year 2027, when the average production rate from the offshore Nova Scotia basin supply source drops to approximately 210,000 Dth/d. The economic limit in the year 2027 represents a remaining economic life of 23 years. The detailed determination is shown in Exhibit No. ___ (EHF-6).

Q. 36 What is the basis for your conclusions regarding Maritimes' future gas supply?

A. My economic life determination is based on my analysis of Statements O(1) and O(3), which have been sponsored by Mr. Christopher T. Ditzel, Mr. Ditzel's assessment of Maritimes' current operational capabilities, as set for in his prepared direct testimony, Exhibit No. ___ (CTD-1), and Mr. Giese's production profiles for the SOEP and the overall offshore Nova Scotia basin, which includes an assessment of the likelihood of gas supply from non-SOEP sources.

Q. 37 What information did you review or consider for your analysis of the production profiles for the supply life of the SOEP fields and other offshore sources?

A. I reviewed and relied on Mr. Giese's analysis of the production profiles for the SOEP fields, as shown in Exhibit No. ___ (LWG-6), which is attached to the prepared direct testimony filed by Mr. Giese in this proceeding, Exhibit No. ___ (LWG-1).

Q. 38 How do the production profiles developed by Mr. Giese relate to the operations of the Maritimes pipeline system?

A. The production profiles of the SOEP fields developed by Mr. Giese, when compared to Mr. Ditzel's assessment of the current operational capabilities of the Maritimes system, indicate deficiencies in the ability of those SOEP fields to satisfy the need for Maritimes to maintain high levels of throughput on its system.

Q. 39 What do you conclude from your analysis of Mr. Giese's rationale for including only certain speculative gas fields in the offshore Nova Scotia basin?

A. Mr. Giese based his evaluation of the potential gas supply from the speculative fields on gas-in-place reserve information reported by the CNSOPB, with respect to the discovered fields that have been developed but not yet put into production, and on the Canadian Gas Potential Committee's state of the art evaluation of undiscovered gas-in-place reserves in the offshore Nova Scotia basin. The Canadian Gas Potential Committee's analysis and study employed the Arps-Roberts method of determining undiscovered resources. The Arps-Roberts Method is a discovery process methodology. In addition to being applied by the Canadian Gas Potential Committee, it has been applied elsewhere, notably by the U.S. Geological Survey. I believe this method to be a reasonable approach to evaluating the quality and quantity of undiscovered resources.

Furthermore, Mr. Giese's inclusion of undiscovered resources involved sound criteria. The farther away a producing area is from the existing gathering infrastructure in the offshore Nova Scotia basin and from the pipeline system owned by Maritimes-Canada, the more uncertain is the potential to connect such supplies. Distance from the Maritimes system, of course, is not the only gas supply risk factor. As Mr. Giese correctly determined, other factors such as the economics of offshore Nova Scotia basin gas resource exploitation must also be considered.

Based on my analysis of Mr. Giese's conclusions as to the speculative sources of gas supply potentially available to Maritimes, I agree with Mr. Giese that while the eliminated fields have some potential as possible future supply sources, there is currently too much uncertainty surrounding their potential yields for Maritimes to consider them as a viable long-term source for future available gas.

Q. 40 What are major retirements?

A. Major retirements are retirements of facilities due to economic forces, rather than physical forces, such as gas supply depletion causing underutilization and changes in system operations.

Q. 41 Do such major retirements actually take place in the gas pipeline industry?

A. Yes. It is my experience, in analyzing retirements of pipeline properties, that major retirements in varying degrees take place. In market areas, loss of customer base causes underutilization and eventual retirement from such economic forces. In supply areas, depletion of gas reserves and competition are typical causes of underutilization and eventual retirement. For example, on March 9, 2000, Trunkline Gas Company ("Trunkline"), after exhibiting underutilization on its south Louisiana to Tuscola, Illinois mainline system, retired an entire 700-mile loop line. The reason that the pipeline loop was retired is because of the severe underutilization on Trunkline's mainline system.

Further, other examples of major retirements exist. Trans-Northern Pipelines Inc. sought, and was granted, abandonment authority by the NEB for its entire Don Valley Lateral to Toronto Harbour. That decision was made as the facility was in a "serious deficit position" due to reduced throughput. In addition, Florida Gas Transmission Company ("FGT") has retired certain gas supply facilities in South Texas. FGT has exhibited major retirements of pipeline and compressor facilities in its South Texas Gulf Coast production area due to decreasing gas availability. Specifically, FGT has retired (1) pipeline facilities located south of FGT's Compressor Station No. 2, and (2) pipeline facilities and Compressor Station No. 2, both located south of Station No. 3, and the Matagorda Offshore Pipeline System interconnect.

Q. 42 Have you considered the impact of the remaining terms of Maritimes' contracts?

A. Yes, I have considered the impact of the remaining terms of Maritimes' contracts, but only as support for the reasonableness of the life based on supply depletion. I would note that the average remaining contract length for Maritimes' facilities is approximately 12 years. Therefore, a truncation based on Maritimes' average remaining contract length would be significantly less than the 23 years on which I have based my analysis of the availability of supplies.

<u>Determination of Depreciation for the Maritimes System</u>

Q. 43 How did you apply the 23-year economic life to the depreciation model?

A. The 23-year economic life plays a key role in the determination of the average remaining life (ARL). It represents the average year of the final recoupment of Maritimes' investment in its facilities as an overall group. The best way to describe the relationship of the economic life to the ARL is to overlay it with the normal retirement survivor curve.

Q. 44 Please describe how you determined the normal retirement survivor curve.

A. The survivor curve represents the pattern of annual normal retirements that will occur out to 50 years. I determined the normal retirement curve for each of Maritimes' transmission accounts. For example, I determined that Account 367 (Mains) has an average service life of 60 years, with an R1 survival pattern. This is shown on Schedule No. 1 of Exhibit No. ___ (EHF-4). Mains make up over 90 percent of Maritimes' mainline transmission system. In such cases, I also relied upon an analysis of the type of equipment, its usage and condition, as well as its age and survivor curve retirement patterns that are typical in the industry of such facilities. I determined the survivor curve and resulting average service life which best applies for each of the other accounts as follows:

Account No.	Description	Avg. Service Life	Survivor Pattern
365.1 & .2	Rights-of-way	60	R3
366.2	Structures	40	R4
368	Compressor Sta.- Other	30	R3
369	Meas. & Reg. Sta. Eq.	24	R2
370	Communication Equip.	10	R2

When the expected economic life for Maritimes of 23 years is applied to the survivor pattern, future normal retirements beyond the 23-year period are truncated. Integrating or calculating the area under the truncated survivor curve determines the average remaining life. For the transmission mains, the ARL was determined to be approximately 21 years. This calculation is shown in Exhibit No. ___ (EHF-7). Similar determinations were made for the rest of the accounts in the transmission function.

Q. 45 Please explain how you used the individual ARL figures to calculate the range of depreciation rates that you find reasonable for Maritimes.

A. After determining the individual ARL's for each account, I then divided each ARL into the difference between the depreciable plant and the accumulated reserve for depreciation, thus arriving at the indicated depreciation expense. The indicated depreciation expense for each account was totaled. This then is the indicated depreciation expense for the total onshore transmission plant. This calculation is shown in Exhibit No. ___ (EHF-7).

Q. 46 Where did you obtain the data for gross depreciable plant, plant additions, and depreciation reserve that you used in making this calculation?

A. The gross depreciable plant for Maritimes as of February 29, 2004, was provided to me by Ms. Sabra L. Harrington, the Vice President, Controller and Treasurer for M&N Management Company, the Managing Member of Maritimes, as Maritimes' end of year booked plant. With respect to actual and very near-term additions of plant, I estimated $1,000,000 (US) per year for the near-term. I also estimated near-term retirements to be zero. Exhibit No. ___ (EHF-7) shows the gross plant balances I used for my depreciation calculations.

The February 29, 2004 reserve for depreciation for Maritimes' transmission function was provided to me by Ms. Harrington, as well. Maritimes, like most interstate gas pipeline companies, books depreciation on a functional basis. Therefore, I determined a theoretical reserve for depreciation for each account for the purposes of my calculations, all the while maintaining the actual total booked reserve figure.

Q. 47 How did you determine the depreciation rate for the incremental transmission laterals constructed and operated by Maritimes?

A. I employed the whole life method to determine the depreciation rate applicable to each of the following incremental transmission laterals:

Veazie Lateral

Bucksport Lateral

Newington Lateral

The reason I employed the whole life method is that these laterals are single purpose facilities. They were constructed and are operated to serve a single customer. The service life of each of the above laterals is best determined at this time upon the term of the service agreements between Maritimes and the shipper. In this way, if the facility for which the lateral was built is moved, ceases to operate or finds another source of natural gas or fuel, Maritimes will be able to recoup its original investment. Unlike the mainline, with its multi-customers, the laterals have no backstop ratepayers.

The service life (contract term) and depreciation of each lateral then is as follows:

	Service Life (Years)	**Depreciation Rate (%)**
Veazie Lateral	20	5.00
Bucksport Lateral	15	6.67
Newington Lateral	20	5.00

Q. 48 How did you treat the incremental Westbrook Lateral for depreciation purposes?

A. The Westbrook Lateral, while it is an incremental facility, and referred to as a "lateral", operates similar to Maritimes' original mainlines. It does not serve a single customer. I have treated its service lives in the same manner as I have done for the non-incremental transmission facilities. The Westbrook Lateral facilities are included in the depreciation rate determination of the mainline non-incremental transmission plant. Therefore, the depreciation rate for the Westbrook Lateral is determined to be 4.00 percent

Q. 49 What is the existing depreciation rate for General Plant?

A. The existing depreciation rate for General Plant is 3.50 percent.

Q. 50 How did you determine the proposed rate?

A. The General Plant function contains properties classified in three accounts, as follows:

Account 390 - Structures & Improvements

Account 394 – Tools, Shop and Garage Equipment

Account 398 – Miscellaneous Equipment

Typical of General Plant facilities, which exhibit high turnover, I employed the whole life method or vintage method to determine the depreciation rate for the property in each account.

Account 390 contains the security system for Maritimes' two compressor stations. Based on discussions with company personnel, I employed a 10 year average service life for the property in that account. This results in a depreciation rate of 10 percent.

Account 394 contains general operation and maintenance tools. I assigned a service life of 15 years for the equipment in this account which is typical in the industry.

Account 398 contains computers and software. By the nature of this equipment, I assigned a 3-year service life. This is typical in the industry. This results in a 33.33 percentage depreciation rate.

Q. 51 Does this conclude your prepared direct testimony?

A. Yes, it does.

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Maritimes & Northeast Pipeline, L.L.C.	§ § §	Docket No. RP04-

AFFIDAVIT OF EDWARD H. FEINSTEIN

EDWARD H. FEINSTEIN, being first duly sworn, on oath states that he is the witness whose Prepared Direct Testimony is filed herein; that, if asked the questions which appear in the text of aforesaid Prepared Direct Testimony, affiant would give the answers that are herein set forth; and that affiant adopts the aforesaid Prepared Direct Testimony as his sworn, direct testimony in this proceeding.

Edward Feinstein
EDWARD H. FEINSTEIN

SUBSCRIBED AND SWORN TO before me, a Notary Public in and for the District of Columbia, this 22nd day of June, 2004.

Stephanie J. Wilkerson
Notary Public

STEPHANIE J. WILKERSON
Notary Public District of Columbia
My Commission Expires June 14, 2009

My commission expires: ______________________________

Prior Testimony of Edward H. Feinstein Before FERC

Since May 1, 2003

Company Name	Docket No.	Subject	Date
Devon Power LLC, et al.	ER03-563-000	D&NS	August 5, 2003
Chandeleur Pipe Line Company	RP03-625-000	D&NS	September 30, 2003
Florida Gas Transmission Company	RP04-12-000	D	October 2, 2003
Entergy Services, Inc.	ER03-753-000	D	November 24, 2003
Equitrans, Inc.	RP04-97-000	D&NS	December 1, 2003
Equitrans, Inc.	RP04-203-000	D&NS	March 1, 2004
Virginia Natural Gas, Inc.	PUE-2004-00012	D	April 13, 2004
City of Vernon	EL00-105-007	D&NS	April 27, 2004
Kern River Gas Transmission Company	RP04-274-000	D&NS	April 30, 2004

* Subject
D = Depreciation
NS = Negative Salvage Rate

Exhibit No. __ (EHF-3)
PUBLIC VERSION

Maritimes & Northeast Pipeline, L.L.C.
Docket No. RP04-___-000

COMPARISON OF MARITIMES' EXISTING DEPRECIATION RATES WITH RECOMMENDED RATES

Transmission Plant		Gross Depreciable Plant	Existing Rates Depreciation	Indicated Rates Depreciation
		$	%	%
Transmission				
Mainline Facilities				
Mainline - Other		847,986,927	3.5	4
Westbrook Lateral		3,665,835	4	4
Newington Lateral		2,045,004	4	5
Bucksport Lateral		1,225,035	6.67	6.67
Veazie Lateral		6,935,160	5	5
	Total	**861,857,961**		
General				
Acct. 390	Structures & Improv	99,554	3.5	10
Acct. 394	Tools, Shop & Garage Eq.	18,943	3.5	6.67
Acct. 398	Miscellaneous Equipment	64,456	3.5	33.3
	Total	**182,953**		
Intangible				
Acct. 303	Miscellaneous Intangibles	843,463	20.0	20.0

Exhibit No. __ (EHF-4)
Schedule No. 1
PUBLIC VERSION

Survivor Curve
Account 367 Mains

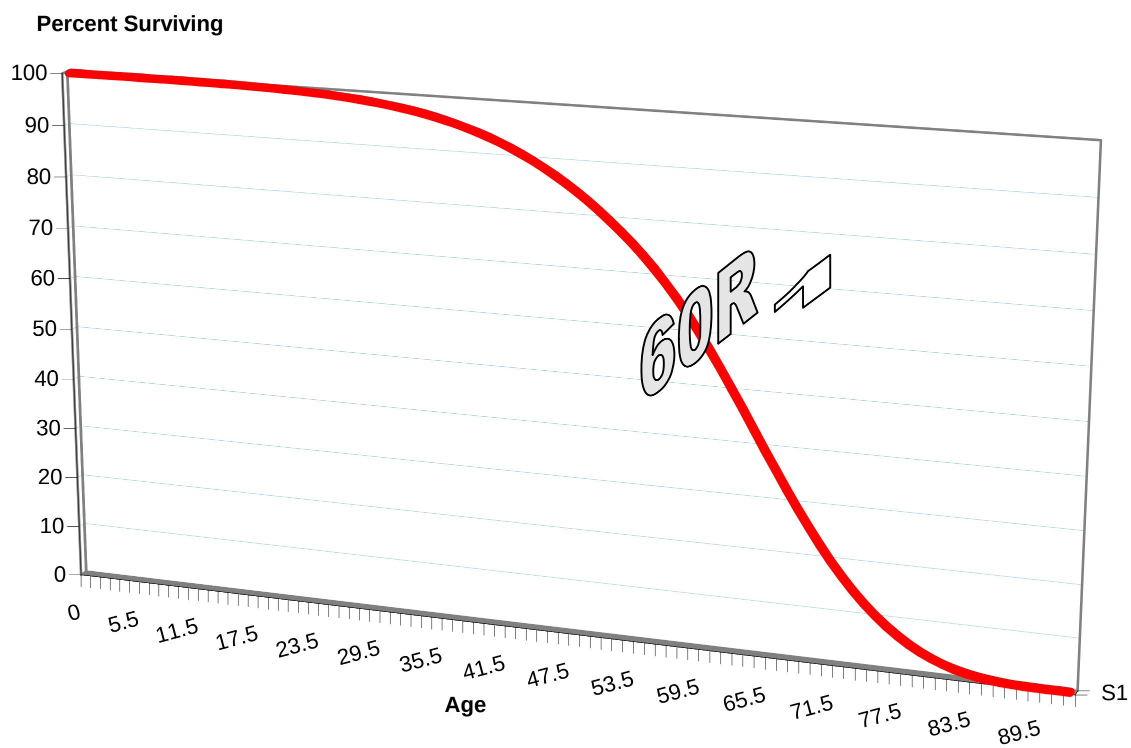

Exhibit No. __ (EHF-4)
Schedule No. 2
PUBLIC VERSION

Survivor Curve
Account 368 Compressor Station Equipment

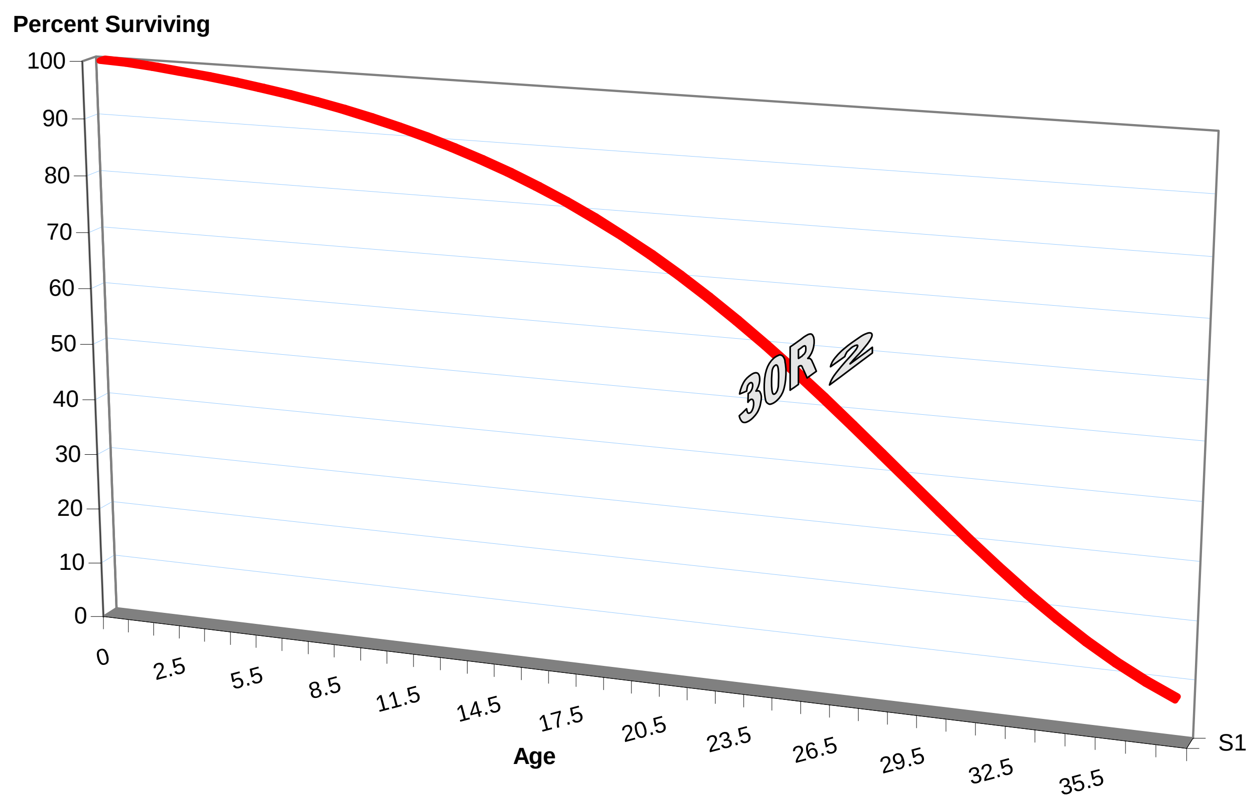

Exhibit No. __ (EHF-4)
Schedule No. 3
PUBLIC VERSION

Survivor Curve
Account 369 Measuring & Regulating Sta. Equip.

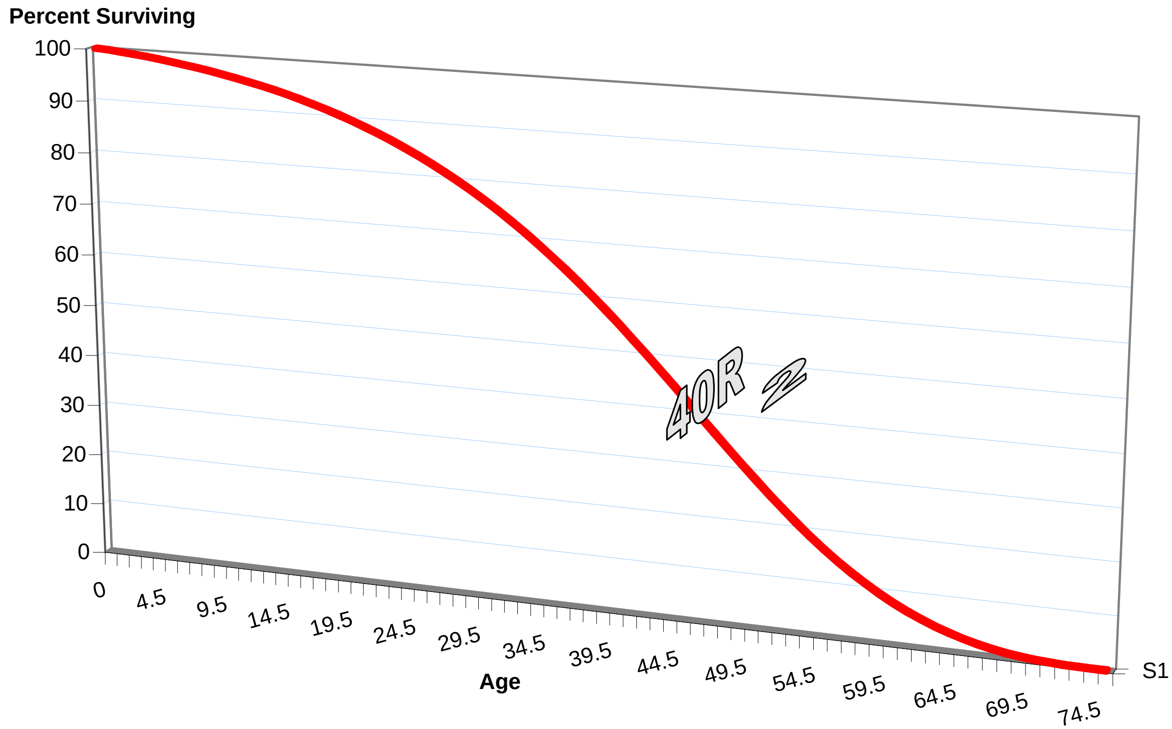

Exhibit No. __ (EHF-5)
Schedule No. 1
PUBLIC VERSION

Production Profile
Offshore Nova Scotia

PRIVILEGED INFORMATION REDACTED
PURSUANT TO SECTION 388.112
OF THE COMMISSION'S REGULATIONS

Exhibit No. __ (EHF-5)
Schedule No. 2
PUBLIC VERSION

Production Profile by Category
of Reserves and Resources
Offshore Nova Scotia

PRIVILEGED INFORMATION REDACTED
PURSUANT TO SECTION 388.112
OF THE COMMISSION'S REGULATIONS

DETERMINATION OF ECONOMIC LIFE SPAN ONSHORE U.S. MARITIMES' PIPELINE SYSTEM

I. **Approximate Proposed Transportation Rate ($ per Dth)** **1.07**

II. **Minimum Cost to Operate Pipeline System ($ Million per Year)**

Operation & Maintenance Costs	**9.5**
Depreciation Costs	**30 to 40**
Ad Valorem Taxes	**10.6**

Total (assume Depr = $36) **56**

III. **Minimum Marketable (Dry) Gas Production Offshore Nova Scotia Necessary to Support Maritimes Onshore U.S. Pipeline System**

$$Q_{min} = \frac{\text{Minimum Cost to Operate}}{(\text{Transp. Rate})(365\ \text{days/yr})} + \text{Domestic Demand} + \text{Fuel}$$

$$= \frac{\$56{,}000{,}000/\text{yr}}{(\$1.07/\text{Dth})(365\ \text{days/yr})} + 65\ \text{MMDth/day} + 2\text{MMDth/day}$$

= 210 MMDth/d

Where,

Domestic Demand = 65 Dth/day
(Nova Scotia and New Brunswick)

Fuel in Canada = 1%

Assume the ratio of present operating costs to transportation rates will remain the same in the future.

IV. **Year In Which Operating Costs Equal Revenues =** **2027**

V. **Life Span (years) =** **2027 less 2004 =** **23**

Exhibit No. __ (EHF-7)
Page 1 of 2
PUBLIC VERSION

Maritimes & Northeast Pipeline, L.L.C.

Docket No. RP04-___-000

DETERMINATION OF THE DEPRECIATION RATE

TRANSMISSION PLANT -- MAINLINES

Account No.	Description	Gross Plant Investment February 29, As Adjusted	Accumulated Reserve for Depreciation February 29, As Adjusted	Net Depreciable Plant February 29, As Adjusted	Average Remaining Life	Indicated Depreciation Expense	Depreciation Rate
		$	$	$	Years	$	%
	Transmission Plant - Mainlines						
2004							
365.2	Rights-of-way	34,142,587	5,535,423	28,607,164	23.0	1,243,790	
366	Structures	3,489,501	565,741	2,923,760	20.0	146,188	
367	Mains	746,333,018	121,000,474	625,332,544	21.1	29,636,613	
368	Compressor Station Equipment	63,805,862	10,344,631	53,461,231	19.6	2,727,614	
369	Meas. & Regulating Sta. Equip.	13,428,160	2,177,063	11,251,097	21.0	535,767	
370	Communication Equipment	304,168	49,314	254,854	10.0	25,485	
371	Other Equipment	354,665	57,501	297,164	15.0	19,811	
	Post 2003 Plant Additions Balance @ 12/31/04	1,000,000		1,000,000	22.5	44,444	
	Post 2003 Plant Retirements Balance @ 12/31/04	-	-				
	Subtotal	862,857,961	139,730,147	723,127,814		34,379,712	3.98%
2005							
365.2	Rights-of-way	34,142,587	6,779,213	27,363,374	22.2	1,232,584	
366	Structures	3,489,501	711,929	2,777,572	19.3	143,916	
367	Mains	746,333,018	150,637,087	595,695,931	20.3	29,344,627	
368	Compressor Station Equipment	63,805,862	13,072,245	50,733,617	18.8	2,698,597	
369	Meas. & Regulating Sta. Equip.	13,428,160	2,712,830	10,715,330	20.2	530,462	
370	Communication Equipment	304,168	74,799	229,369	9.2	24,931	
371	Other Equipment	354,665	77,312	277,353	14.2	19,532	
	Post 2003 Plant Additions Balance @ 12/31/05	2,000,000	44,444	1,955,556	21.5	90,956	
	Post 2003 Plant Retirements Balance @ 12/31/05		-	-			
	Subtotal	863,857,961	174,109,859	689,748,102		34,085,605	3.95%

2006

365.2	Rights-of-way	34,142,587	8,011,797	26,130,790	21.4	1,221,065	
366	Structures	3,489,501	855,845	2,633,656	18.5	142,360	
367	Mains	746,333,018	179,981,715	566,351,303	19.5	29,043,657	
368	Compressor Station Equipment	63,805,862	15,770,841	48,035,021	18	2,668,612	
369	Meas. & Regulating Sta. Equip.	13,428,160	3,243,291	10,184,869	19.4	524,993	
370	Communication Equipment	304,168	99,731	204,437	8.4	24,338	
371	Other Equipment	354,665	96,844	257,821	13.4	19,240	
	Post 2003 Plant Additions Balance @ 12/31/06	3,000,000	90,956	2,909,044	20.5	141,905	
	Post 2003 Plant Retirements Balance @ 12/31/06		-				
	Subtotal	864,857,961	208,151,020	656,706,941		33,786,170	3.91%

COMPOSITE DEPRECIATION RATE = 3.95%