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Natural Resource Stock Accounts: Physical and Monetary Accounts for Crude Oil and Natural Gas Reserves in Saskatchewan, British Columbia, Manitoba and Ontario

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Natural Resource Stock Accounts: Physical and Monetary Accounts for Crude Oil and Natural Gas Reserves in Saskatchewan, British Columbia, Manitoba and Ontario

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Natural Resource Stock Accounts:

Physical and Monetary Accounts for Crude Oil and Natural Gas Reserves in Saskatchewan, British Columbia, Manitoba and Ontario

March, 1994

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**The author worked as a summer student and completed the project in September, 1992. The paper has been edited by Alice Born.*

This paper presents preliminary results in the programme of the development of the Natural Resource Stock Accounts.

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1.0 INTRODUCTION

The development of physical and monetary accounts of crude oil and natural gas reserves is a pilot project at Statistics Canada. The objective of the accounts is to depict on an annual basis changes in the level of Canada's oil and natural gas reserves. The project is part of a plan to broaden the scope of economic indicators by integrating environmental and economic data. This integration will provide a wider context by which a country's economic development may be judged, so that information is available to help answer questions about sustainability and other environmental concerns. Other pilot projects include developing accounts for a renewable resource, forestry, and accounting for emissions of greenhouse gases. As pilot projects, these accounts are the first steps toward a more comprehensive national accounting system.

The following is a guide to the sources and methods used to derive the oil and natural gas accounts. This guide does not provide a complete survey of the background literature available on this subject. Furthermore, the reasoning behind the methods chosen for this project is only briefly discussed. Readers interested in a comprehensive account of the background literature and the logic in this project's methodology should be referred to Physical and Monetary Accounts for Crude Oil and Natural Gas Reserves in Alberta (Born, 1992). This project is based on the methods developed previously by Born and a discussion of these methods will not be repeated in detail. This guide will explain the methods, sources, and procedures used to determine actual values for the oil and natural gas accounts of Canada.

The oil and natural gas accounts developed for Alberta have now been extended to British Columbia, Saskatchewan, Manitoba, and Ontario. Data cover the years 1961 to 1989. Note that the accounts have been developed from the perspective of the year they represent. As such, they are based on knowledge that would have been available at the end of that year, not on facts that are available with hindsight. The accounts are developed in two phases. The first is the development of the "physical accounts". These accounts track changes in the quantities of remaining reserves on an annual basis in physical units such as cubic metres. These accounts also track, whenever possible, how these changes occurred (whether due to new discoveries, depletion due to extraction or revisions of previous estimates). The methodology behind the physical accounts, as described in Section 2, is fairly straightforward. Unfortunately, the same cannot be said about the second phase. The description of the reserves in physical units cannot be directly integrated into current economic accounts which are expressed in units of currency (i.e. dollars). Therefore, these reserves need to be expressed in monetary values in order to develop monetary accounts. The second phase, the development of monetary accounts, addresses this issue. The development of monetary accounts is a multi-step process, and is described in Section 3. The final result of the oil and natural gas accounts will be an annual valuation in monetary units of remaining petroleum reserves for the years 1961 to 1989. As these reserves represent a potential form of wealth to the citizens of Canada, the values will be published in the National Balance Sheet Accounts. Thus, any changes in the level of wealth will be tracked annually, and trends in natural resource wealth can be used for analysis.

2.0 PHYSICAL ACCOUNTS

The basis of the physical accounts is a series of estimates of the quantity of oil and natural gas remaining in the ground at different points in time. These estimates are derived from seismic, geological, and geophysical tests of underground bedrock formations where oil and natural gas are thought to occur. The estimates are then confirmed, or "proved" with exploratory and developmental drilling. However, extraction of oil or natural gas may often proceed before a petroleum pool or field is fully mapped out. Thus, reserve estimates are constantly being revised. In order to develop a meaningful set of physical accounts, a consistent convention must be maintained in defining reserve quantities. In this project, the definition **established reserves** is used. Established reserves are "those reserves recoverable under current technological and present and anticipated economic conditions, specifically proved by drilling, testing or production, plus that judgement portion of contiguous recoverable reserves that are interpreted to exist from geological, geophysical, or other similar information, with reasonable certainty" (Tanner,1986). This definition was also chosen by members of the Canadian oil industry as the standard definition in 1978. Data before 1978 had to be adjusted in order to be consistent with the definition of established reserves.

Physical accounts have been developed for four resources: crude oil, natural gas, natural gas liquids (ethane, butane, propane, and pentanes plus), and sulphur, in Tables 1a to 4b for each of the provinces which have these resources. Figures 1 and 2 show the remaining reserve stocks for crude oil and natural gas for each province. The physical units are reported in cubic metres except for sulphur which is recorded in metric tonnes. Oil and natural gas liquids are usually reported in thousands of cubic metres, natural gas in millions of cubic metres, and sulphur in thousands of tonnes. Before 1978, reserves were reported in imperial units. The following conversion factors have been used in this study:

1 cubic metre oil	=	6.2929 barrels of oil
1 cubic metre natural gas	=	35.49373 cubic feet natural gas
1 cubic metre natural gas liquids	=	6.297 barrels of natural gas liquids
1 metric tonne sulphur	=	0.9842 long tons sulphur
1 metric tonne sulphur	=	1.102 short tons sulphur

These conversion factors were taken from Alberta's Reserves of Crude Oil, Oil Sands, Gas, Natural Gas Liquids, and Sulphur (AERCB, 1989).

The physical accounts are derived on a annual basis. The quantity of remaining reserves at the beginning of the year is the starting point, referred to as the opening stock. Any changes which occur to the remaining level of reserves throughout the year are grouped into different categories. Discoveries are any new reserves located in wholly new and independent pools. Extensions refer to any new pools connected to existing pools. Revisions are revaluations of already known pools

due to new information. Finally, depletion represents any extraction of the resource by human activity. The sum of these categories is the net change over the course of the year. Adding/ subtracting the net change from the opening stock gives the closing stock, which will become the following year's opening stock:

Opening Stock
+
(Additions + Extensions + Net Revisions) = Gross Additions
-
Depletion (e.g. annual production)
=
Closing Stock

Net Change = Gross Additions - Depletion = Closing Stock - Opening Stock

There are two main sources of data available which publish reserves in this form. Each province keeps track of reserve levels for the purpose of regulating production and levying royalties and leases. These sources are generally available in provincial publications. The Canadian Petroleum Association (CPA) also publishes annual estimates of reserves developed from a survey of its members. For this study, the provincial sources were chosen as the primary source of data on reserve levels with the exception of all of Ontario's reserves, Manitoba's natural gas liquids reserves, and Saskatchewan's natural gas liquids and sulphur reserves, for which provincial data do not exist. The reason for this choice is that the provincial data are based on a comprehensive survey of all wells whereas the CPA data are based on a survey of its members only, with imputed values for other operations added on. Furthermore, the level of production recorded in the provincial data closely matches that recorded in Statistics Canada, The Crude Petroleum and Natural Gas Industry, Catalogue 26-213, which is the main source of financial data for the monetary accounts. Still, the CPA Statistical Yearbook provides an excellent source for comparison.

One drawback to using the provincial sources is that they do not all use the same conventions, especially before 1978. Therefore, some manipulation of the data was necessary in order to report reserve levels as established reserves and in cubic metres for the entire time period of this study. Any data manipulations that have occurred are documented in the Sources and Notes section below.

2.1 SOURCES AND NOTES

British Columbia

1961-1979 British Columbia: Ministry of Energy, Mines, and Resources, Annual Report.
1970-1989 British Columbia: Ministry of Energy, Mines, and Resources, Hydrocarbon and By-Product Reserves in British Columbia.

Notes - General:

1) Before 1968, detailed data on revisions and extensions are not published. Therefore, the "Gross additions" category is simply the residual of closing stock, depletion, and opening stock.
2) Reserve levels were not published in the 1967 provincial report. Data for these years were obtained through personal communications with personnel.

Notes - Oil:

1) Before 1976, B.C. reported oil reserves as proven and probable. Established reserves are determined to be proven reserves + 50% of probable reserves.
2) 1961 and 1967 reserve levels were calculated by multiplying proven reserves by the ratio of proven to established reserves in the following year (1.12 in 1963, 1.14 in 1968)
3) The 1969 other adjustments includes a 600 cubic metre adjustment since the 1968 closing stock did not equal the 1969 opening stock in the provincial publications.

Notes - Natural Gas:

1) Reserve levels for natural gas are based on the following definitions: 1961 to 1967: disposable natural gas, 1968 to 1977: residue natural gas, and 1978 to 1989: marketable natural gas. Although not exactly the same, the definitions are very similar. However, the second change in definition resulted in an adjustment of 9 821 million cubic metres appearing in "Other adjustments" in 1978.

Notes - Natural Gas Liquids:

1) Between 1973 and 1974, the Ministry re-evaluated its recovery rate of natural gas liquids from natural gas processing, resulting in a large decrease in reserve estimates. The difference between the 1973 closing stock and the 1974 opening stock, 9 182 million cubic metres, is accounted for in the 1974 "Other adjustments".
2) Between 1975 and 1976, the Ministry began reporting ethane, butane, and pentanes reserves individually. The sum of the opening stock in 1976 does not equal the aggregate of the closing stock of the three types of natural gas liquids in 1975. The difference of 49 000 cubic metres is accounted for in the 1976 "Other adjustments".

Notes - Sulphur:

1) The 1970 "Other adjustments" includes a 498.6 tonnes adjustment as the 1969 closing stock did not equal the 1970 opening stock in the provincial publications.
2) The 1974 "Other adjustments" includes a 351.4 tonnes adjustment as the 1973 closing stock did not equal the 1974 opening stock in the provincial publications.

Saskatchewan

1961-1963 Saskatchewan: Petroleum and Natural Gas Branch, Petroleum and Natural Gas Yearbook.

1964-1989 Saskatchewan: Dept. of Energy and Mines: Petroleum and Natural Gas Division, Reservoir Annual. (Reserve levels only; also entitled Petroleum and Natural Gas Reservoir Annual, 1964 to 1976.)

1964-1989 Saskatchewan: Dept. of Mines, Mineral Statistics Yearbook. (Production Data only).

Notes - General:

1) Saskatchewan only publishes reserve levels for crude oil and natural gas. CPA data were used for natural gas liquids and sulphur.

Notes - Oil:

1) The 1973 to 1978 revisions include an entry to account for the slight difference between opening and closing stocks in this time period.
2) Before 1972, detailed data on revisions and extensions are not published. Therefore, the "Gross additions" category is simply the residual of closing stock, depletion, and opening stock.

Notes - Natural Gas:

1) "Gross additions" are calculated as a residual for the entire time period. The provincial government does not publish detailed data on reserve revisions, extensions, and discoveries.

Notes - Natural Gas Liquids & Sulphur:

-See notes on CPA and Ontario data.

Manitoba

1961-1972 Manitoba: Energy and Mines: Petroleum Branch, Personal Communications.

1973-1989 Manitoba: Energy and Mines: Petroleum Branch, Oil Activity Review.

Notes - Crude Oil:

1) Gross additions are calculated as a residual for the years 1961 to 1972 since detailed data on revisions, extensions, and discoveries are not available.

Notes - Natural Gas Liquids:

-See Notes on CPA data

Ontario

-No provincial data on established reserves are available. Use CPA data.

1955-1975 CPA, Statistical Yearbook.
1976-1990 CPA, Statistical Handbook.

Notes - General:

1) For the years 1961 and 1962, only proven reserves were reported. Established reserves were calculated by multiplying the proven reserves by the ratio of proven to established in the year 1963 for the corresponding commodity type and province.
2) For the years 1961-1970, detailed data on discoveries, revisions and extensions are not available. Therefore, "Gross additions" are calculated as the residual of closing stock, depletion, and opening stock.
3) Before 1978, the CPA reported reserves in two separate categories, proven and probable. However, the probable category includes proven reserves so that it is in fact proven + probable, not only probable. Furthermore, those reserves considered to be probable have all ready been assessed a 50 per cent reduction to account for the uncertainty involved. This is in contrast to B.C. which reports probable without assessing a 50 per cent reduction and without including proven reserves. Consequently, the probable reserves reported by the CPA before 1978 is in fact the equivalent of established reserves which is borne out by CPA's historical accounts of established reserves.

3.0 MONETARY ACCOUNTS

The purpose of the monetary accounts is to place a monetary value on the physical accounts derived earlier. This requires the physical resource to be priced, where the price is the value of the resource in the ground. This price is often referred to as the rent on the resource (or marginal rent in the case of a per unit price). Ideally, in a market economy, a price is generated by the interaction of supply and demand through trading. Natural resources are usually owned by governments and trading in resource rights rarely occurs so that royalties and leases on resources do not necessarily capture the true rents. Thus, the rent of natural resources is usually not distinguished in the industry's financial accounts, and the price is the market price of the extracted and processed raw resource. However, the price at this stage is clearly inappropriate because it includes the value added by man-made capital. The object, then, of the monetary accounts, is to determine the "correct" price by which to value resource reserves. Given certain assumptions, we can determine the value of natural resources by manipulating the petroleum industry's financial data.

In a comprehensive overview of background literature on natural resource accounting, Born (1992) determined the value of the resource rent to be equal to revenues less costs in the industry. Here, costs include not only operating expenses and intermediate inputs, but the cost of capital as well, which in turn is comprised of a depreciation charge and a "return to capital", the opportunity cost of employing capital in production. Usually, the return to capital is calculated as a residual in business accounting procedures, and is often synonymous in an economic setting with business profits. However, in this study a value for the return to capital is imputed instead of calculating it as a residual. This is accomplished by applying an opportunity cost calculation to the net capital stock in the industry on a annual basis. Consequently, the resource rent is isolated as a residual instead of profits by taking revenues and subtracting operating costs, intermediate inputs, depreciation costs, and the return to capital. This is the basic structure of the monetary accounts as will be explained later in full detail.

Two main sources of data exist for financial data on the petroleum industry: The Canadian Petroleum Association Statistical Yearbook and Statistics Canada, The Crude Petroleum and Natural Gas Industry, Catalogue 26-213. Because the Statistics Canada (STC) publication provides more detailed data, it is used whenever possible. The Canadian Petroleum Association publication is used whenever the STC data are unavailable or insufficient, generally in the earlier years. For the most part, the two publications match up very well. However, one problem is shared by both data sources. Financial data are only published for the petroleum industry as a whole. This project requires separate financial data for the oil and natural gas sectors. Different conventions are used to separate expenditures into their respective oil and natural gas components. The conventions are documented under the appropriate sections below. Note that only two sectors have been chosen, oil and natural gas, when in fact eight commodities are produced in the petroleum industry: crude oil, condensate, natural gas, pentanes plus, propane, butane, ethane, and sulphur. It is impossible and perhaps not appropriate to separate out costs between all eight commodities except in an

arbitrary manner. Therefore, the crude oil sector includes oil and condensate, and the natural gas sector includes all other commodities since they generally occur as by-products of oil and natural gas production, respectively.

The development of the monetary accounts is a multi-step process. First of all, the value of production of oil, natural gas and their by-products must be determined. Next, the industry's operating costs are allocated between oil and natural gas. Thirdly, annual capital expenditures must be split between oil and natural gas and a net capital stock calculated for each using the Perpetual Inventory Model. Only then can the return to capital and depreciation charges be calculated. And finally, the actual calculation of the resource rent is completed. Below is a description of each step and the sources of data used.

3.1 VALUE OF PRODUCTION

The value of sales is calculated directly for both the oil sector and the natural gas sector. Crude oil and condensate are considered as products of oil production while natural gas, pentanes, propane, butane, ethane, and sulphur are considered products of natural gas production. The value of all the respective commodities are added together to determine the value of production of each sector.

Two sources are utilized for production data. STC 26-213 is used for the period 1973 to 1990. However, before 1973, STC 26-213 did not separate out pentanes and condensate. Furthermore, marketable production was not recorded, only the value of shipments was, although the difference is usually negligible. For these reasons, for the period 1955 to 1972, the CPA Statistical Yearbook is used.

3.2 OPERATING COSTS

The next step in calculating the rent of the natural resource is to determine the annual operating expenses for oil and natural gas. These will then be subtracted from revenues. The following expenses are considered to be operating costs:

-geological and geophysical operations
-field and well operations
-natural gas processing plant operating costs
-other operating expenses

In order to apportion these costs between the oil and natural gas sectors, the following conventions are used:

-geological and geophysical operations are split using the ratio of the number of successful metres drilled in exploratory drilling between oil and natural gas.

-field and well operations and other operating expenses are split using the ratio of operating wells at the end of each year.

-natural gas plant costs are assigned entirely to natural gas.

After splitting the individual categories between oil and natural gas, all expenditures of the oil sector must be summed and all the expenditures of the natural gas sector, resulting in annual total operating expenditures in each sector. The following presents the data sources used:

Expenditure Data:

1961-1989	Statistics Canada, The Crude Petroleum and Natural Gas Industry, Catalogue 26-213
1961-1969	other operating expenditures is the sum of salaries & wages, materials & supplies, and contractor & service payments which appear under the other category sub-heading.
1955-1960	CPA Statistical Yearbook

Operating Wells:

British Columbia

1955-1979	British Columbia: Ministry of Energy, Mines, and Resources, Annual Report.
1980-1989	Personal Communications

Saskatchewan

1955-1989	Saskatchewan: Department of Mines, Mineral Statistics Yearbook.

Manitoba

1955-1989	Manitoba: Energy and Mines: Petroleum Branch, Oil Activity Review.

Ontario

1961-1989	Ontario: Oil and Gas Exploration, Drilling, and Production Summary, 1989.

3.3 CAPITAL FORMATION SERIES

In order to calculate the return to capital and depreciation in each sector, the annual expenditures of capital formation must be determined. These annual "flow" values are then used to calculate the net capital stock in each sector using a Perpetual Inventory Method. In this project, annual capital expenditures are documented for each sector beginning in the year 1947 with the exception of Ontario for which data are available from 1961. The following expenditures are considered to be capital expenditures in the Canadian System of National Accounts:

-Exploratory drilling
-Development drilling
-Production facilities
-Non-production facilities
-Enhanced recovery facilities
-Natural gas plant facilities

In order to apportion expenditures between the oil and natural gas sectors, the following conventions are used:

-Exploratory drilling expenditures are split using the ratio between the number of metres drilled on successfully completed exploratory oil wells and natural gas wells. Exploratory wells includes new field wildcats, new pool wildcats, deeper pool tests, shallower pool tests, and outposts.
-Development drilling, production facilities, and non-production facilities are split using the ratio of metres drilled on successfully completed development wells.
-Enhanced recovery projects and natural gas plants are assigned in their entirety to the oil and natural gas sectors respectively.

After splitting the individual categories between oil and natural gas, all expenditures in each sector must be summed. The sums represent annual capital expenditures in each sector. Arranging these annual outlays in a historical fashion results in the construction of a capital formation time series necessary for the calculation of the net capital stock. The following presents the sources of data used to derive the capital formation series:

Expenditure Data:

1961-1990	Statistics Canada, The Crude Petroleum and Natural Gas Industry, Catalogue 26-213
1961-1967	production facilities is the sum of oil field facilities and natural gas field facilities.
1968-1982	production facilities is the sum of tangible well & lease equipment and pipe lines & related facilities.
1983	production facilities is the equivalent of the field equipment category.
1961-1983	non-production facilities is the equivalent of other buildings and machinery.
1947-1960	CPA Statistical Yearbook

-production facilities is the equivalent of the field equipment category.
-non-production facilities is the equivalent of the other development category.

Drilling Statistics:

1983-1990	Statistics Canada, The Crude Petroleum and Natural Gas Industry, Catalogue 26-213
1947-1982	CPA Statistical Yearbook
1952-1957	only the number of wells drilled is reported. The ratio of oil to natural gas is calculated using these figures instead of the number of metres or feet drilled.
1947-1951	no statistics on drilling are available. The ratio of oil to natural gas is based on a four year average of the following years.

-Drilling statistics for Ontario are not published until 1966. The split between oil and natural gas for the years 1961 to 1965 is carried out using the ratio between expenditures on exploratory drilling for oil and natural gas listed in STC 26-213 instead of metres drilled.

3.4 CALCULATION OF THE NET CAPITAL STOCK

Once both the oil and the natural gas sectors' capital formation series have been developed, the net capital stock is calculated. The Capital Stock Division of Statistics Canada has developed a model which calculates the net capital stock based on the Perpetual Inventory Method (PIM) (see Huang (1988) for further details). The PIM generates estimates of annual gross capital stock, discards, depreciation, and net capital stock. The model utilizes a straight-line depreciation approach using service lives which are allowed to vary around a mean service life according to a normal distribution. This model is more accurate than a standard straight-line depreciation model in which all assets bought in the same year are all discarded at the same time at the end of their discrete service lives.

The capital formation expenditures must be apportioned between construction expenditures and machinery and equipment expenditures due to the difference in service lives between these capital goods. This is accomplished using ratios supplied by the Capital Expenditures Section, Investment and Capital Stock Division. However, data are only available for the period 1958 to 1989 and ratios for the years 1947 to 1957 must be estimated using a regression analysis. Furthermore, the construction expenditures must be split further into building construction and engineering construction, again, due to the differences in service lives. These ratios are also supplied by the Capital Stock Division for all years.

Only the results of the process, depreciation and the net capital stock in each sector, have been shown in Tables 5a to 5d.

3.5 CALCULATION OF RENT

Calculating the rent, or the net revenue from the resource itself, is carried out by the calculation of rent given below:

Rent = Sales - Operating Expenses - Geological & Geophysical Expenditures - Depreciation - Return to Capital

Sales, operating costs and geological and geophysical expenditures are calculated for oil and natural gas. Depreciation is generated by the PIM capital stock model and is printed in Tables 5a to 5d. However, the return to capital must be calculated using the net capital stock figures generated in Tables 5a to 5d. As stated previously, the return to capital represents the opportunity cost of utilizing one's capital in a certain industry. Other "opportunities" available to an investor include investing in other industries or investing in financial markets (e.g. bonds). In a competitive economy which is in a state of equilibrium and where capital is able to move freely, the rate of return from investing in any of the previously mentioned options should be equivalent. Therefore, the opportunity cost of capital is the interest rate. Still, capital goods are usually maintained over a long period of time. Consequently, the price of capital will constantly be changing. Branson (1972) identifies two means by which the value will change. As capital is employed in the process of production, it will depreciate in value due to wear and tear. An investor must reclaim this depreciation as well as the opportunity cost. Otherwise, the value of the investment would decline and so too would the return on the investment. In addition to depreciation, the value may change due to price changes in the market, or inflation. However, inflation will actually work to the investors benefit as the value of the investment will rise over time (or vice versa for deflation). In order to maintain an equilibrium with bond markets, the effect of inflation must be netted out of the opportunity cost.[1]

Thus,

$$C = rP + \delta P - \frac{dP}{dt}$$

where:

C = user cost of capital
δ = depreciation rate
P = Price of Capital
dP/dt = increase in price over time

[1] The Appendix provides a further discussion of the user cost of capital and the problems it presents.

If

$$\dot{P} \equiv \frac{\frac{dP}{dt}}{P}$$

the proportional change in price or the expected rate of inflation, then:

$$C = P(r - \dot{P} + \delta)$$

where *(r - P)* is equal to the real rate of interest, *R*. Depreciation, δP, is already calculated by the PIM capital stock model and the return to capital is:

$$\textit{Return to capital} = P(r - \dot{P}) = R(P)$$

If *P*, the price of capital, is considered to be analogous to the net capital stock in the industry, then the return to capital may be calculated. The source of the real rate of interest is calculated from the long-term industrial bond rate from the Bank of Canada Review. A comparison of net price values using a real interest rate and a nominal interest rate is presented in Section 5.0, below.

The sum of operating expenses, geological and geophysical expenses, depreciation charges, and a return to capital represents **total** extraction costs.[2] The rent equation can be written as:

Sales - extraction costs = rent

Sales divided by the quantity of production gives the average price. A comparison of the average price calculated in this manner with historical records of the average wellhead price actually paid for oil and natural gas in the market proved to be similar. The rent divided by the quantity of production results in the "net price". The net price (of the resource) is analogous to the marginal rent. This is the price that is used to calculate the monetary value of the physical reserves.

4.0 RECONCILIATION TABLES

The reconciliation tables presented in Tables 6.1a to 6.4b reconcile the physical and monetary accounts. The monetary accounts are based on the "Net Price" method. It follows the same basic structure as the physical accounts with an opening stock, gross additions, depletion, net change and

[2] Extraction costs refer to all costs incurred in the process of mining oil and natural gas, including exploration costs, and the cost of capital. This differs from operating or production costs which refer only to those costs incurred in actually pumping the oil out of the ground.

closing stock. The opening stock is equal to the opening stock in physical units multiplied by the previous year's net price. The physical quantities of gross additions, depletion, net change, and closing stock are each multiplied by the current year's net price in order to derive their corresponding monetary valuation. The monetary accounts include one extra row entitled "Revaluations". It represents the capital gain or loss incurred as a result of changes in the net price over time and is required to ensure equality between the value of opening and closing stocks over the course of the year. Revaluation is calculated by multiplying the opening stock by the change in net price, or $(P_t - P_{(t-1)})$.

The monetary value of the closing stock is taken as the value of the resource in the net price method. This supposition is based on the Hotelling principle which states that under certainty, in the absence of extraction costs and under competitive market conditions, the price of a natural resource rises at the market rate of interest (Born, 1992). However, the Hotelling rule has not been substantiated in studies of historical trends in resource prices. Therefore, the monetary value of the closing stock is calculated using the present value method in addition to the net price approach for comparison. Four calculations: present value, four-year average present value, and two variations of the net price approach are presented in Tables 7a to 7d. The mathematical formulas are given below:

Present Value

$$PV_0 = \sum_{t=0}^{T} \frac{N_t Q_t}{(1+r)_t}$$

where $N_t Q_t$ is the expected future income flow generated by the asset (i.e. net operating surplus of the natural resource) which is discounted at discount rates, r_t for the life of the asset, T.

Net Price

$$V_0 = (p_0 - c_0) R_0$$

where V_o is the value of the reserve stock, R_o is the volume of the remaining stock of reserves and $(p_o - c_o)$ is the net price (see Born (1992) for a more detailed discussion of the net price approach and other valuation methods).

One of the estimated monetary values in Tables 7a to 7d will be presented in the National Balance Sheet as the value of these sub-soil assets. These data will provide a new means by which trends in resources may be analysed.

5.0 ALTERNATIVE METHODOLOGIES

This section conducts sensitivity analysis on a number of assumptions that were made in calculating the resource rent. The results of this analysis are important due to the highly theoretical nature of this project. In particular, the calculation of the net capital stock was carried out by using the Perpetual Inventory Method and the return to capital using an opportunity cost calculation. Three alternative means of calculating the resource rent are performed here. The economic value of the resource is then determined using the net price method for each alternative method. The results are compared in Table 8 and Figure 3 for the Province of Saskatchewan only.

5.1 NOMINAL AND REAL RATE OF INTEREST

In the standard calculation of the resource rent, it is assumed that the nominal rate of interest represents the opportunity cost of capital. However, due to the different price indices used (the GDP deflator and the capital goods price index), this rate may not truly reflect the opportunity cost. The resource rent was calculated using a real rate of interest and a nominal rate in Table 8 and Figure 3. The two calculations provide a good indication of the possible range of values that the opportunity cost may take. The largest difference between the two values occurred during periods of high inflation, namely the late 1970s and early 1980s and late 1980s.

5.2 CONSTANT DOLLARS

Another means of testing the effect that different price indices may have on the calculation of the resource rent is to perform the calculation entirely in constant dollars. The value of sales, operating costs, and geological and geophysical expenditures are converted to constant dollars using the GDP implicit price index deflator. The net capital stock and depreciation are calculated in constant dollars by the Capital Stock Division using price indices developed by them. Once these data are converted into constant dollars, then the resource rent may be calculated by the same means as before. The per unit rent is then converted back to current dollars using the GDP deflator.

5.3 ALTERNATIVE SERVICE LIVES

In the Perpetual Inventory Model utilized by the Capital Stock Division, capital assets are depreciated over their service lives. The service lives are determined using periodic surveys of a percentage of companies. The service lives have changed over time, from 25 to 30 years in the 1950s to 10 to 17 years in the 1980s. One concern in the petroleum industry is that another factor may affect the life of assets: the life of production from a well. The average life of oil and natural gas wells was determined by dividing the remaining reserves by annual production in each

province. The average lives were judged to be 12 years for oil wells and 25 years for natural gas wells. The net capital stock calculation was recalculated using these lives instead of those given by the Capital Stock Division.

5.4 SUMMARY AND COMPARISON OF ALTERNATIVE METHODOLOGIES

Table 8 and Figure 3 display the results of re-calculating the value of reserves using the alternative methods described above. This procedure has only been carried out using the net price method and for the Province of Saskatchewan only. Generally speaking, the results seem to indicate only a small variance between the different methods used. This bodes well for the confidence that may be placed in the values generated by the standard calculation.

6.0 REFERENCE LIST

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7.0 APPENDIX

USER COST OF CAPITAL

A firm will expand its plant size until the marginal product of capital equals the real *user cost* of capital:

$$\frac{\partial y}{\partial K} = \frac{C}{P} \equiv c$$

where y is output per unit of time, K is the capital stock, C is the nominal user cost of a capital good, P is the price of the investment and c is the real user cost of capital or implicit rental value for the use of the capital equipment (Branson, 1972).

The user cost of capital has three components:

(i) interest foregone which is the opportunity cost of tying up funds
(ii) economic depreciation of the capital stock
(iii) the change in the market price of the capital good or its capital gain or loss.

Therefore the nominal user cost of the capital stock to its owner is:

$$C = rP + \delta P - \frac{dP}{dt}$$

or

$$C = P(r + \delta - \dot{P})$$

where P is the proportional capital gain or expected rate of inflation:

$$\dot{P} \equiv \frac{\frac{dP}{dt}}{P}$$

Therefore the user cost of capital can be rewritten as:

$$C = P(r - \dot{P}) + \delta P$$

where $(r - P)$ is the real rate of interest. As Branson (1972) points out, adjustments for inflation or appreciation (or deflation) of the value of the capital goods can be made if lenders and borrowers are concerned about the real or purchasing power of the value of assets by using a real rate of interest to calculate the user cost of capital.

In contrast, it might be assumed that investors either do not know or do not care what the anticipated capital gains will be when they purchase the capital investment. It is also possible that at least some of the capital is used up completely so that there is no capital gain applicable. In these cases, the term P can be eliminated from the equation giving:

$$C = rP + \delta P$$

As a result of the previous discussion, we have two options to consider when calculating an imputed user cost of capital for the oil and gas industry: whether or not the opportunity cost (or interest cost) of capital should be determined with a nominal or real interest rate. In the present value calculations, no inflation is assumed by using constant dollars and real discount rate. This can be assumed for the net price method as well if it is assumed that the real net price increases at the real rate of interest or by assuming that net price is the same as a present value calculation (as described above) using a zero per cent discount rate. These assumptions suggest that a real rate of interest should be used to determine the opportunity cost of capital in order to be consistent. As shown in Figure 3, the difference between using a real or nominal rate of interest to determine the user cost of capital is generally small except during periods of increased inflation such as the late 1970s and early 1980s and in 1988.

Symbols and Abbreviations

The following standard symbols are used in Statistics Canada publications:

.. figures not available
- nil or zero
-- amount too small to be expressed

Table 1a: Remaining Established Reserves of Crude Oil in Saskatchewan (millions of cubic metres)

Year	Opening Stock	Revisions	Discoveries	Gross Additions	Depletion	Net Change	Closing Stock
1961	126.6	..	..	8.7	8.9	-0.2	126.4
1962	126.4	..	..	17.6	10.2	7.4	133.8
1963	133.8	..	..	22.4	11.3	11.1	144.8
1964	144.8	..	..	7.7	12.9	-5.3	139.6
1965	139.6	..	..	22.9	13.9	9.0	148.6
1966	148.6	..	..	22.1	14.8	7.3	155.9
1967	155.9	..	..	9.8	14.7	-4.9	151.0
1968	151.0	..	..	13.2	14.6	-1.4	149.6
1969	149.6	..	..	9.7	13.9	-4.2	145.4
1970	145.4	..	..	15.1	14.2	0.9	146.2
1971	146.2	..	..	8.9	14.1	-5.2	141.1
1972	141.1	..	..	3.6	13.8	-10.2	130.9
1973	130.9	6.3	3.0	9.3	13.6	-4.3	126.6
1974	126.6	3.2	0.8	4.0	11.7	-7.7	118.8
1975	118.8	2.4	0.9	3.3	9.4	-6.1	112.7
1976	112.8	1.2	1.8	3.0	8.9	-5.8	107.0
1977	107.0	0.7	3.7	4.4	9.7	-5.4	101.6
1978	101.6	9.9	6.7	16.6	9.6	6.9	108.6
1979	108.6	-0.1	6.0	5.9	9.4	-3.4	105.1
1980	105.2	1.0	7.2	8.2	9.3	-1.1	104.0
1981	104.0	-1.1	5.1	4.0	9.4	-3.4	98.6
1982	100.6	1.2	4.5	5.8	8.1	-2.3	98.2
1983	98.3	1.7	11.7	13.4	9.5	3.9	102.1
1984	102.1	1.0	15.4	16.4	10.8	5.7	107.7
1985	107.8	-4.6	20.3	15.7	11.6	4.2	111.9
1986	111.9	2.5	8.9	11.4	11.7	-0.2	111.7
1987	111.7	4.6	9.2	13.8	12.0	1.8	113.5
1988	113.5	7.7	11.7	19.4	12.2	7.2	120.7
1989	120.7	5.3	4.9	10.2	11.7	-1.4	119.2

Source: Saskatchewan Department of Energy and Mines

Table 1b: Remaining Established Reserves of Natural Gas in Saskatchewan (millions of cubic metres)

Year	Opening Stock	Revisions/ Extensions	Gross Additions	Depletion	Net Change	Closing Stock
1961	21114.7	..	10471.7	864.0	9607.7	30722.4
1962	30722.4	..	-5571.4	917.0	-6488.4	24234.0
1963	24234.3	..	3391.5	892.8	2498.7	26733.0
1964	26733.3	..	5287.5	942.8	4344.7	31078.0
1965	31078.0	..	-1652.7	982.5	-2635.2	28442.8
1966	28442.8	..	3580.7	1138.3	2442.4	30885.2
1967	30885.2	..	1261.9	1151.3	110.6	30995.8
1968	30995.8	..	-3707.7	1337.4	-5045.1	25950.7
1969	25950.7	..	5031.2	1381.8	3649.4	29600.1
1970	29600.1	..	1261.8	1461.8	-200.0	29400.1
1971	29400.1	..	6252.2	1671.1	4581.1	33981.2
1972	33981.2	..	-4463.2	1673.9	-6137.1	27844.1
1973	27844.1	..	3064.5	1657.1	1407.4	29251.5
1974	29251.5	..	221.8	1559.1	-1337.3	27914.2
1975	27914.2	..	-4485.7	1587.3	-6073.0	21841.2
1976	21841.2	..	1733.7	1542.5	191.2	22032.4
1977	22032.4	..	2136.3	1272.3	864.0	22896.4
1978	22896.4	..	15039.9	1195.6	13844.3	36740.7
1979	36740.7	..	1948.6	1196.0	752.6	37493.3
1980	37493.3	..	2143.3	1210.1	933.2	38426.5
1981	38426.5	..	3004.6	1212.2	1792.4	40218.9
1982	40218.9	..	4166.9	1252.3	2914.6	43133.5
1983	43133.5	..	6557.2	1223.5	5333.7	48467.2
1984	48467.2	..	11409.2	1637.4	9771.8	58239.0
1985	58239.0	..	6932.5	1904.0	5028.5	63267.5
1986	63267.5	..	6577.3	2293.0	4284.3	67551.8
1987	67551.8	..	4295.3	2564.7	1730.6	69282.4
1988	69282.4	..	9175.8	4089.3	5086.5	74368.9
1989	74368.9	..	11148.6	5728.9	5419.7	79788.6

Source: Saskatchewan Department of Energy and Mines

Table 1c: Remaining Established Reserves of Natural Gas Liquids (Propane Butane Ethane and Pentanes Plus) in Saskatchewan (thousands of cubic metres)

Year	Opening Stock	Revisions	Extensions	Gross Additions	Depletion	Net Change	Closing Stock
1961	3251	..	..	34	150	-116	3135
1962	3135	..	..	-1112	172	-1283	1852
1963	1852	..	..	-534	187	-721	1131
1964	1131	..	..	363	206	157	1288
1965	1288	..	..	202	200	2	1290
1966	1290	..	..	1174	216	958	2248
1967	2248	..	..	249	263	-14	2234
1968	2234	..	..	68	305	-238	1996
1969	1996	..	..	-61	243	-304	1691
1970	1691	..	..	508	273	235	1926
1971	1926	..	..	39	232	-193	1733
1972	1733	..	..	112	221	-109	1624
1973	1624	..	..	114	221	-107	1517
1974	1517	..	..	109	201	-92	1425
1975	1425	..	..	346	189	158	1583
1976	1583	..	..	91	169	-78	1505
1977	1505	..	..	401	166	235	1739
1978	1739	-60	125	65	184	-119	1620
1979	1620	-47	97	50	174	-124	1496
1980	1496	-34	7	-27	157	-184	1312
1981	1312	0	10	10	127	-117	1195
1982	1195	0	16	16	90	-74	1121
1983	1121	-14	39	25	118	-93	1028
1984	1028	-	-	72	117	-45	983
1985	983	-	-	46	104	-58	925
1986	925	-	-	354	124	230	1155
1987	1155	-	-	1306	122	1184	2339
1988	2339	-	-	40	204	-164	2175
1989	2175	-	-	-4	151	-155	2020

Source: Canadian Petroleum Association

Table 1d: Remaining Established Reserves of Sulphur in Saskatchewan (thousands of tonnes)

Year	Opening Stock	Gross Additions	Depletion	Net Change	Closing Stock
1961	30	-	2	-2	28
1962	28	-10	2	-12	16
1963	16	-	-	-	16
1964	16	-2	-	-2	14
1965	14	-	-	-	14
1966	14	-5	3	-8	6
1967	6	4	4	-	6
1968	6	5	4	1	7
1969	7	17	3	14	21
1970	21	3	2	1	22
1971	22	4	3	1	23
1972	23	4	3	1	24
1973	24	11	3	8	31
1974	31	-10	3	-13	19
1975	19	14	3	11	30
1976	30	3	3	-	30
1977	30	-	2	-2	28
1978	28	1	3	-2	26
1979	26	-	1	-1	25
1980	25	1	1	0	25
1981	25	-	1	-1	24
1982	24	-24	-	-24	..
1983	..	..	..	..	..
1984	..	..	..	..	..
1985	..	..	..	..	..
1986	..	..	..	..	..
1987	..	..	..	..	..
1988	..	..	..	..	..
1989	..	..	..	..	..

Source: Canadian Petroleum Association

Table 2a: Remaining Established Reserves of Crude Oil in British Columbia (thousands of cubic metres)

Year	Opening Stock	Other Adjustments	Revisions	Discoveries	Gross Additions	Depletion	Net Changes	Closing Stock
1961	12090.0	..	..	..	6563.1	161.9	6401.2	18491.2
1962	18491.2	..	..	..	7622.1	1416.5	6205.5	24696.7
1963	24696.7	..	..	..	2755.6	1991.0	764.6	25461.3
1964	25461.3	..	..	..	17960.6	1831.4	16129.2	41590.5
1965	41590.5	..	..	..	4252.1	2140.5	2111.6	43702.1
1966	43702.1	..	..	..	7820.0	2643.9	5176.1	48878.2
1967	48878.2	..	..	..	2291.0	3123.7	-832.7	48045.5
1968	48045.5	..	4088.3	2655.5	6743.8	3519.8	3223.9	51269.3
1969	51269.3	-0.6	-769.7	466.1	-304.2	4026.6	-4330.8	46938.5
1970	46938.5	-22.2	129.9	1237.3	1345.0	4032.2	-2687.0	44251.5
1971	44251.5	3.0	389.4	188.6	581.1	3998.0	-3416.9	40834.6
1972	40834.6	0.2	-1942.5	455.7	-1486.7	3788.4	-5275.2	35559.4
1973	35559.4	-0.2	440.6	391.0	831.4	3367.4	-2535.9	33023.4
1974	33023.4	7.0	657.6	107.5	772.2	2994.8	-2222.7	30800.7
1975	30800.7	-	-18.6	12.3	-6.3	2268.7	-2274.9	28525.8
1976	28525.8	0.6	-1981.2	448.4	-1532.1	2365.7	-3897.8	24627.9
1977	24627.9	6.6	-84.1	4157.0	4079.5	2199.7	1879.8	26507.7
1978	26507.7	15.7	2376.2	2650.2	5042.0	2003.7	3038.5	29546.2
1979	29546.2	22.3	628.7	427.3	1078.3	2140.0	-1061.7	28484.5
1980	28484.5	-0.1	927.1	234.3	1161.3	2002.1	-840.8	27643.7
1981	27643.7	..	-217.8	143.0	-74.8	2060.0	-2134.8	22508.9
1982	25508.9	..	666.1	125.7	791.8	2094.8	-1303.0	24205.9
1983	24205.9	..	661.5	727.2	1388.7	2079.4	-690.7	23515.2
1984	23515.2	..	781.1	-3378.5	-2597.4	2113.1	-4710.5	18804.7
1985	18804.7	..	1568.7	1767.1	3335.8	1944.2	1391.6	20196.3
1986	20196.0	..	144.0	456.0	600.0	2010.0	-1410.0	18786.0
1987	18786.0	-40.0	68.0	631.0	659.0	2084.0	-1425.0	17361.0
1988	17361.0	11.0	-50.0	1238.0	1199.0	1937.0	-738.0	16623.0
1989	16623.0	29.0	2306.0	2402.0	4737.0	1978.0	2759.0	19382.0
1990	19382.0	-	569.0	181.0	750.0	1954.0	-1204.0	18178.0

Source: British Columbia Ministry of Energy Mines and Petroleum Resources

Table 2b: Remaining Established Reserves of Natural Gas in British Columbia (millions of cubic metres)

Year	Opening Stock	Other Adjustments	Revisions	Discoveries	Gross Additions	Depletion	Net Change	Closing Stock
1961	84161	-	40046	61042	101088	2583	98505	182666
1962	182666	..	..	..	8785	2930	5855	188521
1963	188521	..	..	..	13371	2972	10399	198920
1964	198920	..	..	..	-9489	3536	-13025	185895
1965	185895	..	..	..	9269	4406	4863	190758
1966	190758	..	..	..	12842	4767	8075	198832
1967	198832	..	..	..	21652	5745	15907	214739
1968	214739		-2527	6767	4240	6528	-2288	212452
1969	212452	-769	3939	12599	15769	7658	8111	220563
1970	220563	-79	18138	13278	31338	8134	23204	243767
1971	243767	-197	755	6798	7356	8714	-1358	242409
1972	242409	-8	10427	16840	27258	10712	16547	258956
1973	258956	-	28	4502	4530	11923	-7393	251563
1974	251563	-200	-15439	3637	-12002	10007	-22010	229553
1975	229553	-	-27943	3325	-24618	9765	-34384	195170
1976	195170	-	7663	12495	20158	9388	10771	205941
1977	205941	-9281	-12464	15344	-6402	9534	-15936	190005
1978	190005	-	1341	16879	18220	8052	10168	200173
1979	200173	-	1498	21223	22721	10379	12342	212515
1980	212515	-	6020	23666	29686	7335	22351	234866
1981	234866	-	1744	11032	12776	6749	6027	240893
1982	240893	-	1630	6703	8333	6527	1806	242699
1983	242699	-	-153	2360	2207	6284	-4077	238622
1984	238622	-	3158	1609	4767	6656	-1889	236733
1985	236733	-	4950	2367	7317	7086	231	236964
1986	236964	-	-7042	4087	-2955	6980	-9935	227029
1987	227029	-67	-4303	1756	-2614	8014	-10628	216401
1988	216401	-576	-1078	4960	3306	8876	-5570	210831
1989	210831	-101	184	9929	10012	10761	-749	210082

Source: British Columbia Ministry of Energy Mines and Petroleum Resources

Table 2c: Remaining Established Reserves of Natural Gas Liquids (Propane Butane Ethane and Pentane Plus) in British Columbia (thousands of cubic metres)

Year	Opening Stock	Other Adjustments	Revisions	Discoveries	Gross Addition	Depletion	Net Change	Closing Stock
1961	11800	-	2332	5514	7846	462	7383	19184
1962	19184	..	..	..	1450	529	921	20105
1963	20105	..	..	..	2243	410	1834	21939
1964	21939	..	..	..	2472	220	2252	24191
1965	24191	..	..	..	-4994	793	-5787	18403
1966	18403	..	..	..	549	784	-235	18168
1967	18168	..	..	..	346	854	-508	17660
1968	17660	..	1177	827	2004	842	1162	18822
1969	18822	-	-335	2001	1666	779	886	19708
1970	19708	-	1518	381	-1136	809	-1945	17762
1971	17762	-	-193	864	671	673	-2	17761
1972	17761	-	-609	1373	764	868	-104	17656
1973	17656	-	-644	408	-236	925	-1161	16496
1974	16496	-9182	116	39	-9027	395	-9422	7075
1975	7075	-49	1	117	69	363	-294	6781
1976	6781	-	170	345	516	362	154	6934
1977	6934	-	-163	424	261	383	-123	6812
1978	6812	-	206	486	692	343	349	7161
1979	7161	-	221	962	1183	385	798	7959
1980	7959	-	330	973	1302	388	915	8874
1981	8874	111	-662	302	-249	282	-532	8342
1982	8342	-	88	26	113	300	-187	8155
1983	8155	-	83	15	98	212	-114	8041
1984	8041	-	135	70	205	253	-48	7993
1985	..7993	-	479	100	578	268	311	8304
1986	8304	..	..	..	..	..	-	8304
1987	8304	..	..	..	..	..	-	..
1988	..	..	..	..	..	..	-	16200
1989	16200	..	..	..	..	..	-	..

Notes:

1. Between 1973 and 1974 the Ministry re-evaluated recovery rates of natural gas liquids from natural gas processing resulting in a large decrease in reserve estimates. the difference between 1973 closing stock and the 1974 opening stock of 9182 thousand cubic metres is accounted for in 1974 reserves

2. Between 1975 and 1976 the Ministry reported ethane butane and pentane reserve levels individually. The sum of the opening stock for these NGL in 1976 does not equal the closing stock in 1975. The difference is accounted for in "Other Adjustments" in 1975.

3. The Ministry stopped reporting detailed data on NGL in 1986 and publishes only year-end reserve levels.

Source: British Columbia. Ministry of Energy Mines and Petroleum Resources. *Hydrocarbon and By-product Reserves in British Columbia* 1970-1989; *Annual Report* 1961-1969.

Table 2d: Remaining Established Reserves of Sulphur in British Columbia (thousands of tonnes)

Year	Opening Stock	Other Adjustments	Revisions	Discoveries	Gross Additions	Depletion	Net Change	Closing Stock
1961	1871.7	-	376.1	854.5	1230.6	74.5	1156.1	3027.8
1962	3027.8	..	..	..	188.2	81.9	106.4	3134.1
1963	3134.1	..	..	..	241.3	74.7	166.6	3300.7
1964	3300.7	..	..	..	-137.7	61.3	-199.1	3101.6
1965	3101.6	..	..	..	-237.7	71.7	-309.4	2792.2
1966	2792.2	..	..	..	210.5	71.7	138.8	2931.0
1967	2931.0	-	-82.3	-4.8	-87.1	71.1	-158.2	2772.8
1968	2772.8	-	-139.2	262.1	122.9	53.9	69.1	2841.9
1969	2841.9	42.7	1158.3	184.9	1385.9	86.4	1299.5	4141.4
1970	4141.4	-496.8	315.0	283.5	101.7	113.8	-12.1	4129.2
1971	4129.2	-	-10.2	88.4	78.2	96.5	-18.3	4111.0
1972	4111.0	-	40.6	236.7	277.4	148.3	129.0	4240.0
1973	4240.0	-	-97.5	107.7	10.2	140.2	-130.1	4109.9
1974	4109.9	-381.9	395.5	60.7	74.3	168.9	-94.6	4015.3
1975	4015.3	-	372.8	173.8	546.6	131.5	415.2	4430.5
1976	4430.5	-	1970.6	325.8	2296.5	156.2	2140.3	6570.8
1977	6570.8	-	64.4	899.2	963.6	161.7	802.0	7372.8
1978	7372.8	-	-351.7	790.5	438.8	132.8	306.0	7678.8
1979	7678.8	-	-12.0	602.0	590.0	122.8	467.2	8146.0
1980	8146.0	-	731.2	1595.0	2326.2	169.3	2156.9	10302.9
1981	10302.9	-	238.4	957.3	1195.7	180.1	1015.6	11318.5
1982	11318.5	-	-10.9	287.8	276.9	165.4	111.5	11430.0
1983	11430.0	-	80.5	3.2	83.7	263.3	-179.6	11250.4
1984	11250.4	-	316.0	16.2	332.2	229.1	103.1	11353.5
1985	11353.5	-	234.4	25.0	259.4	258.6	0.8	11354.3
1986	11354.3	..	..	..	..	..	..	11354.3
1987	11354.3	..	..	..	..	..	..	..
1988	..	..	..	..	..	..	..	11100.0
1989	11100.0	..	..	..	..	..	..	10800.0

Source: British Columbia. Ministry of Energy Mines and Petroleum Resources. *Hydrocarbon and By-product Reserves in British Columbia* 1970-1989; *Annual Report* 1961-1969.

Table 3a: Remaining Established Reserves of Crude Oil in Manitoba (thousands of cubic metres)

Year	Opening Stock	Revisions	Discoveries	Gross Additions	Depletion	Net Change	Closing Stock
1961	7300	..	..	312	712	-400	6900
1962	6900	..	..	1824	624	1200	8100
1963	8100	..	..	399	599	-200	7900
1964	7900	..	..	802	702	100	8000
1965	8000	..	..	1086	786	300	8300
1966	8300	..	..	6931	831	6100	14400
1967	14400	..	..	788	888	-100	14300
1968	14300	..	..	-114	986	-1100	13200
1969	13200	..	..	-214	986	-1200	12000
1970	12000	..	..	239	939	-700	11300
1971	11300	..	..	591	891	-300	11000
1972	11000	..	..	1135	835	300	11300
1973	11300	..	..	1306	808	498	11798
1974	11798	..	15	15	755	-740	11058
1975	11058	1	4	5	701	-696	10362
1976	10362	-	7	7	633	-626	9736
1977	9736	-1	15	14	630	-616	9120
1978	9120		22	22	598	-576	8544
1979	8544	-1	24	23	583	-560	7984
1980	7984	-	314	314	563	-249	7735
1981	7735	-	544	544	543	1	7736
1982	7736	40	733	773	582	191	7927
1983	7927	10	954	964	737	227	8154
1984	8154	-	663	663	793	-130	8024
1985	8024	-	1628	1628	821	807	8831
1986	8831	-	439	439	823	-384	8447
1987	8447	-	401	401	782	-381	8066
1988	8066	10	343	353	769	-416	7650
1989	7650	4	353	357	723	-366	7284

Source: Manitoba Department of Energy and Mines. Petroleum Branch

Table 3b: Remaining Established Reserves of Natural Gas Liquids in Manitoba (thousands of cubic metres)

Year	Opening Stock	Gross Additions	Depletion	Net Change	Closing Stock
1984	0	15	2	13	13.
1985	13	70	6	64	77
1986	77	-4	5	-9	68
1987	68	-	5	-5	63
1988	63	-	5	-5	58
1989	58	-	4	-4	54

Source: Canadian Petroleum Association

Table 4a: Remaining Established Reserves of Crude Oil in Ontario (thousands of cubic metres)

Year	Opening Stock	Gross Additions	Depletion	Net Change	Closing Stock
1961	1282	105	187	-82	1200
1962	1200	474	180	294	1494
1963	1494	1638	194	1444	2938
1964	2938	317	198	119	3057
1965	3057	178	206	-28	3029
1966	3029	-649	206	-855	2174
1967	2174	5	196	-191	1983
1968	1983	306	198	108	2091
1969	2091	164	177	-13	2078
1970	2078	-3	167	-170	1909
1971	1909	2	157	-155	1753
1972	1753	511	140	371	2124
1973	2124	19	130	-111	2013
1974	2013	273	113	159	2173
1975	2173	-183	107	-290	1883
1976	1883	179	102	77	1960
1977	1960	-2	101	-103	1857
1978	1857	-270	96	-366	1491
1979	1491	64	100	-36	1455
1980	1455	20	90	-70	1385
1981	1385	-346	91	-437	948
1982	948	-23	89	-112	836
1983	836	100	85	15	851
1984	851	202	90	112	963
1985	963	157	114	43	1006
1986	1006	34	136	-102	904
1987	904	23	133	-110	794
1988	794	707	190	517	1311
1989	1311	260	247	13	1324
1990	1324	339	249	90	1414

Source: Canadian Petroleum Association. Statistical Yearbook

Table 4b: Remaining Established Reserves of Natural Gas in Ontario (millions of cubic metres)

Year	Opening Stock	Revisions	Discoveries	Change in Storage	Gross Additions	Depletion	Net Change	Closing Stock
1961	6116	..	..	..	485	373	112	6228
1962	6228	..	..	..	770	1316	-545	5683
1963	5683	..	..	..	1346	1043	303	5986
1964	5986	..	..	..	-1158	347	-1505	4481
1965	4481	..	..	..	1115	363	752	5233
1966	5233	..	..	..	817	338	479	5712
1967	5712	..	..	..	371	366	4	5716
1968	5716	..	..	..	1183	329	854	6570
1969	6570	..	..	..	1037	328	709	7280
1970	7280	..	..	..	1824	467	1357	8637
1971	8637	68	..	..	68	552	-484	8153
1972	8153	52	..	-284	-233	632	-865	7287
1973	7287	-2102	..	2006	-96	262	-358	6929
1974	6929	-171	..	232	61	185	-124	6805
1975	6805	218	..	879	1097	305	792	7598
1976	7598	1270	..	-332	938	128	810	8408
1977	8408	241	..	635	877	238	639	9046
1978	9046	128	28	245	401	341	60	9106
1979	9106	-107	34	-49	-122	398	-520	8586
1980	8586	314	262	-741	-165	446	-611	7975
1981	7975	649	1	405	1055	596	459	8434
1982	8434	26	20	752	798	417	381	8815
1983	8815	4723	420	-859	4284	460	3824	12639
1984	12639	..	..	..	263	204	59	12698
1985	12698	..	..	..	314	1702	-1388	11310
1986	11310	..	..	..	5955	-179	6134	17444
1987	17444	..	..	..	890	385	505	17949
1988	17949	..	..	..	589	227	362	18311
1989	18311	..	..	..	51	833	-782	17529
1990	17529	..	..	..	172	798	-626	16903

Source: Canadian Petroleum Association, Statistical Yearbook

Figure 1. Remaining Established Reserves of Crude Oil
(millions of cubic metres)

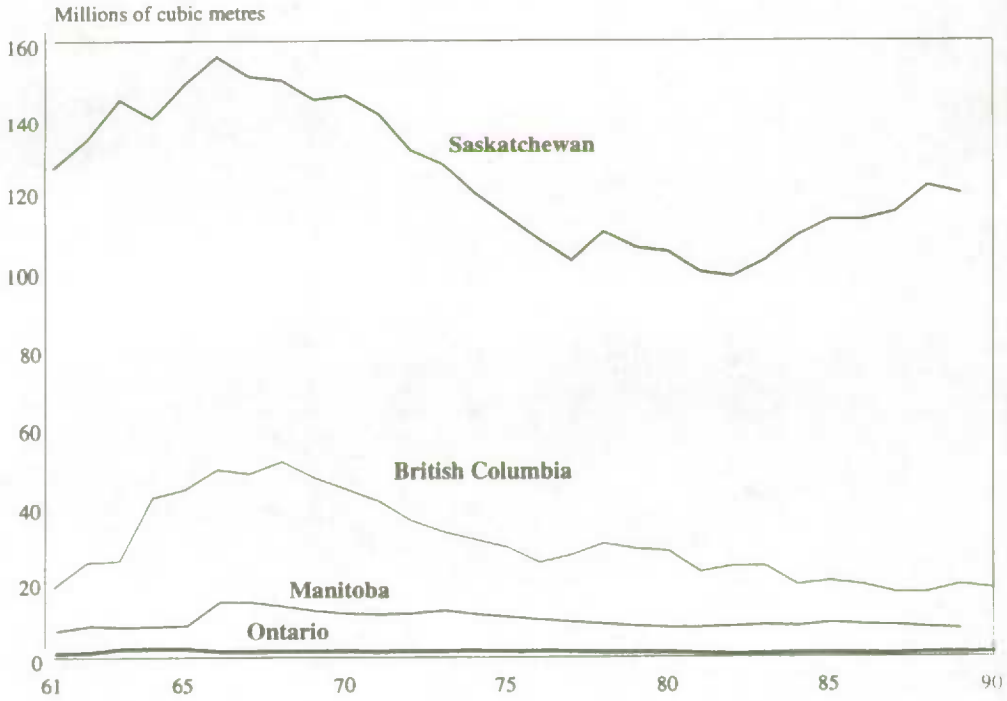


Figure 2. Remaining Established Reserves of Natural Gas
(billions of cubic metres)

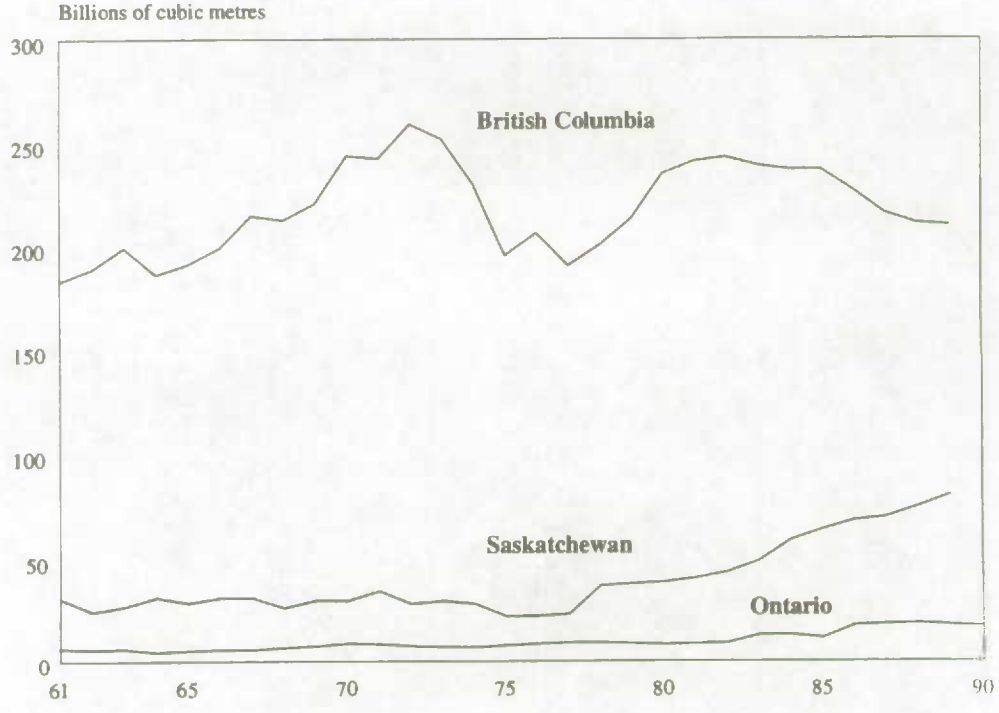


Table 5a: Net Capital Stock and Depreciation Charge of the Oil and Natural Gas Industry in Saskatchewan (millions of dollars)

	Crude Oil		Natural Gas	
Year	Net Capital Stock	Depreciation	Net Capital Stock	Depreciation
1947	1.9	0.1	0.2	..
1948	3.2	0.1	0.4	..
1949	4.7	0.2	0.6	..
1950	7.5	0.4	1.1	..
1951	14.2	0.6	1.9	0.1
1952	33.9	1.4	5.4	0.2
1953	53.3	2.5	7.2	0.4
1954	66.2	3.5	9.8	0.5
1955	91.9	4.9	11.9	0.7
1956	129.9	7.1	12.5	0.8
1957	178.3	9.9	14.4	0.9
1958	199.5	12.5	25.4	1.3
1959	210.6	14.2	24.8	1.7
1960	217.5	15.6	24.1	1.8
1961	231.5	17.4	23.2	1.9
1962	245.3	19.2	22.5	1.9
1963	282.2	22.0	23.3	2.0
1964	318.1	25.5	22.9	2.2
1965	358.3	29.4	25.8	2.4
1966	396.1	33.5	28.2	2.7
1967	415.9	36.7	30.0	2.9
1968	415.6	38.1	31.0	3.0
1969	438.1	41.3	33.7	3.3
1970	446.3	44.0	35.1	3.5
1971	481.2	49.2	44.1	4.1
1972	477.7	51.3	46.2	4.5
1973	489.9	54.6	49.1	4.9
1974	536.4	63.4	66.9	6.2
1975	577.7	71.5	84.5	7.8
1976	594.1	74.6	85.2	8.6
1977	607.8	78.4	92.1	9.2
1978	661.8	83.4	95.0	10.0
1979	803.4	94.0	100.8	10.9
1980	1028.6	111.0	107.1	12.1
1981	1188.1	129.4	111.1	13.2
1982	1347.7	145.9	112.1	14.2
1983	1514.4	154.8	126.3	14.7
1984	1854.7	175.0	173.6	17.2
1985	2353.3	209.6	237.3	21.6
1986	2383.7	230.3	267.3	25.1
1987	2424.9	245.0	325.3	29.5
1988	2558.1	260.7	443.0	36.7
1989	2510.3	274.7	586.2	47.2
1990	2674.8	299.4	687.5	59.7

Source: Statistics Canada, National Accounts and Environment Division

Table 5b: Net Capital Stock and Depreciation of the Oil and Natural Gas Industry in British Columbia (millions of dollars)

	Crude Oil		Natural Gas	
Year	Net Capital Stock	Depreciation	Net Capital Stock	Depreciation
1947	-	-	-	-
1948	-	-	0.5	-
1949	-	-	0.7	-
1950	-	-	1.6	0.1
1951	-	-	3.6	0.1
1952	-	-	6.2	0.3
1953	-	-	11.4	0.5
1954	-	-	14.9	0.7
1955	0.4	-	20.2	1.0
1956	0.9	-	30.6	1.5
1957	3.5	0.1	70.1	2.9
1958	8.2	0.3	75.7	4.3
1959	11.6	0.6	86.2	5.0
1960	18.0	0.9	99.2	5.9
1961	27.7	1.4	111.7	7.0
1962	46.3	2.2	124.9	8.1
1963	51.4	3.1	141.4	9.6
1964	62.1	3.8	161.5	11.3
1965	77.8	4.8	166.2	12.8
1966	91.1	6.0	181.5	14.3
1967	109.0	7.3	206.2	16.3
1968	117.7	8.3	209.6	17.7
1969	127.6	9.6	224.1	19.6
1970	137.8	10.8	245.8	21.7
1971	160.2	13.1	301.6	26.4
1972	166.7	14.5	328.3	29.9
1973	170.7	16.1	368.8	34.1
1974	189.6	19.2	458.3	42.9
1975	201.2	22.1	531.5	52.0
1976	204.1	23.5	594.8	57.9
1977	219.8	25.5	678.6	65.8
1978	277.2	29.4	855.0	77.8
1979	353.2	35.9	1153.1	99.1
1980	409.0	42.9	1594.8	130.7
1981	461.1	49.2	1861.2	163.8
1982	506.9	55.2	2005.1	189.0
1983	507.5	56.6	1916.0	193.7
1984	559.6	59.8	1862.8	198.7
1985	645.9	66.5	1885.2	207.8
1986	662.5	70.4	1821.0	211.0
1987	675.5	74.4	1815.7	220.4
1988	712.9	78.4	1835.2	229.5
1989	772.3	84.2	1938.2	242.0
1990	807.9	93.0	2225.6	270.7

Source: Statistics Canada, National Accounts and Environment Division

Table 5c: Net Capital Stock and Depreciation in the Crude Oil Industry in Manitoba (millions of dollars)

Year	Crude Oil	
	Net Capital Stock	Depreciation
1951	1.4	..
1952	5.1	0.2
1953	9.0	0.4
1954	19.8	0.8
1955	33.4	1.5
1956	43.5	2.3
1957	49.2	2.8
1958	49.6	3.2
1959	48.9	3.4
1960	48.5	3.5
1961	46.1	3.7
1962	43.9	3.7
1963	43.4	3.9
1964	43.1	4.1
1965	42.2	4.3
1966	41.9	4.6
1967	41.0	4.7
1968	38.5	4.7
1969	37.3	4.8
1970	34.9	4.8
1971	35.1	5.1
1972	32.9	5.0
1973	31.4	5.1
1974	32.9	5.6
1975	33.3	5.9
1976	30.9	5.7
1977	29.1	5.5
1978	28.3	5.3
1979	28.6	5.2
1980	32.8	5.3
1981	49.7	5.9
1982	84.4	7.5
1983	131.5	9.8
1984	172.6	12.8
1985	215.5	16.1
1986	226.2	18.3
1987	238.2	20.4
1988	243.7	22.1
1989	239.7	23.4
1990	252.5	25.9

Source: Statistics Canada, National Accounts and Environment Division

Table 5d: Net Capital Stock and Depreciation in the Oil and Natural Gas Industry in Ontario (millions of dollars)

Year	Crude Oil		Natural Gas	
	Net Capital Stock	Depreciation	Net Capital Stock	Depreciation
1961	1.4	--	3.6	0.1
1962	2.8	0.1	7.4	0.3
1963	4.2	0.2	10.8	0.6
1964	5.6	0.3	14.2	0.8
1965	7.2	0.4	17.5	1.1
1966	8.4	0.6	18.9	1.3
1967	8.3	0.6	20.3	1.5
1968	8.3	0.7	20.9	1.6
1969	8.8	0.7	25.7	1.9
1970	9.0	0.8	35.6	2.5
1971	9.5	0.9	46.2	3.4
1972	11.0	1.0	63.4	4.5
1973	14.4	1.2	73.7	5.7
1974	16.8	1.6	90.1	7.3
1975	19.0	1.9	113.1	9.3
1976	19.1	2.0	121.5	10.7
1977	20.7	2.2	135.6	12.2
1978	23.9	2.5	154.9	14.2
1979	26.0	2.9	195.6	17.5
1980	30.5	3.3	267.8	22.7
1981	30.8	3.7	316.5	28.9
1982	35.5	4.1	354.6	34.1
1983	49.9	4.7	351.4	36.0
1984	65.1	5.8	355.7	37.9
1985	75.8	6.9	366.0	40.3
1986	79.4	7.5	353.2	41.1
1987	87.4	8.3	339.5	42.3
1988	107.9	9.6	333.1	43.0
1989	120.6	11.4	317.6	43.6
1990	131.1	13.4	353.0	47.3

Source: Statistics Canada, National Accounts and Environment Division

Table 6.1a: Reconciliation Table for Crude Oil and Natural Gas Reserves in Sasksatchewan

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
CRUDE OIL RESERVES															
Physical Accounts (millions of cubic metres)															
Opening stock	126.6	126.4	133.8	144.9	139.6	148.6	155.9	151.0	149.6	145.4	146.3	141.1	130.9	126.6	118.8
Revisions	..	..	..	..	..	..	..	..	..	..	..	..	6.3	3.2	2.4
Discoveries	..	..	..	..	..	..	..	..	..	..	..	..	3.0	0.8	0.9
Gross additions	8.7	17.6	22.4	7.7	23.0	22.1	9.8	13.2	9.7	15.1	8.9	3.6	9.3	4.0	3.3
Depletion	8.9	10.2	11.3	12.9	14.0	14.8	14.7	14.6	13.9	14.2	14.1	13.8	13.6	11.7	9.4
Net change	-0.2	7.4	11.1	-5.3	9.0	7.3	-4.9	-1.4	-4.2	0.9	-5.2	-10.2	-4.3	-7.7	-6.1
Closing stock	126.4	133.8	144.9	139.6	148.6	155.9	151.0	149.6	145.4	146.3	141.1	130.9	126.6	118.8	112.8
Unit Values (dollars per cubic metre)															
Average wellhead price	12.92	13.74	14.06	14.36	14.32	14.25	14.36	14.13	14.09	14.03	15.50	15.41	19.38	33.93	43.43
Extraction costs	5.79	5.49	6.04	5.65	6.41	7.30	7.89	8.02	8.92	9.23	9.24	9.58	10.28	14.31	19.84
Net Price	7.14	8.25	8.02	8.71	7.91	6.95	6.47	6.11	5.17	4.80	6.26	5.84	9.10	19.62	23.59
Monetary Accounts (millions of dollars)															
Opening stock	..	901.8	1103.7	1162.0	1215.7	1174.9	1084.2	977.3	914.6	751.4	701.8	883.0	764.3	1151.4	2331.4
Revisions	..	..	..	..	..	..	..	..	..	..	..	..	57.6	62.7	56.9
Discoveries	..	..	..	..	..	..	..	..	..	..	..	..	27.0	15.6	22.0
Gross additions	61.7	145.3	179.9	66.9	181.5	153.8	63.2	80.7	50.1	72.4	55.7	20.6	84.6	78.2	78.9
Depletion	63.3	84.5	90.9	112.7	110.3	103.0	95.2	89.3	71.8	68.2	88.0	80.4	123.9	230.0	221.6
Net change	-1.6	60.8	89.0	-45.7	71.2	50.9	32.0	-8.6	-21.7	4.2	-32.2	-59.6	-39.3	-151.8	-142.7
Revaluation	..	141.1	-30.7	99.5	-112.1	-141.5	-75.0	-54.1	-141.5	-53.8	213.4	-59.1	426.3	133.2	471.9
Closing stock	901.8	1103.7	1162.0	1215.7	1174.9	1084.2	977.3	914.6	751.4	701.8	883.0	764.3	1151.4	2331.4	2660.6
NATURAL GAS RESERVES															
Physical Accounts (billions of cubic metres)															
Opening stock	21.1	30.7	24.2	26.7	31.1	28.4	30.9	31.0	26.0	29.6	29.4	34.0	27.8	29.3	27.9
Revisions	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Discoveries	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Gross additions	10.5	-5.6	3.4	5.3	-1.7	3.6	1.3	-3.7	5.0	1.3	6.3	-4.5	3.1	0.2	-4.5
Depletion	0.9	0.9	0.9	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.7	1.7	1.7	1.6	1.6
Net change	9.6	-6.5	2.5	4.3	-2.6	2.4	0.1	-5.0	3.6	-0.2	4.6	-6.1	1.4	-1.3	-6.1
Closing stock	30.7	24.2	26.7	31.1	28.4	30.9	31.0	26.0	29.6	29.4	34.0	27.8	29.3	27.9	21.8
Unit Values (dollars per 000 cubic metres)															
Average wellhead price	6.39	5.80	6.27	6.91	7.32	6.73	7.38	7.00	6.56	6.06	6.24	6.43	7.24	10.24	10.97
Extraction costs	6.87	6.54	6.45	6.17	6.72	7.75	8.03	7.74	8.75	8.12	8.23	9.50	9.85	13.55	17.94
Net Price	-0.48	-0.75	-0.18	0.74	0.60	-1.02	-0.65	-0.74	-2.19	-2.07	-1.99	-3.07	-2.61	-3.30	-6.97
Monetary Accounts (millions of dollars)															
Opening stock	..	-14.8	-18.1	-4.8	22.9	17.1	-31.5	-20.1	-19.2	-64.7	-60.7	-67.5	-85.5	-76.2	-92.2
Revisions	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Discoveries	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Gross additions	-5.0	4.2	-0.6	3.9	-1.0	-3.7	-0.8	2.7	-11.0	-2.6	-12.4	13.7	-8.0	-0.7	31.3
Depletion	0.4	0.7	0.2	-0.7	-0.6	1.2	0.7	1.0	3.0	3.0	3.3	5.1	4.3	5.2	11.1
Net change	-4.6	4.9	-0.5	3.2	-1.6	-2.5	-0.1	3.7	-8.0	0.4	-9.1	18.8	-3.7	4.4	42.3
Revaluation	..	8.1	13.6	24.5	4.2	46.5	11.4	2.8	37.6	3.6	2.3	36.8	13.0	20.4	102.3
Closing stock	-14.8	-18.1	-4.8	22.9	17.1	-31.5	-20.1	-19.2	-64.7	-60.7	-67.5	-85.5	-76.2	-92.2	-152.2

Source: Statistics Canada, National Accounts and Environment DivisionDivision

Table 6.1b: Reconciliation Table for Crude Oil and Natural Gas Reserves in Sasksatchewan

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
CRUDE OIL RESERVES														
Physical Accounts (millions of cubic metres)														
Opening stock	112.8	107.0	101.6	108.6	105.2	104.0	100.6	98.3	102.1	107.8	111.9	111.7	113.5	120.7
Revisions	1.2	0.7	9.9	-0.1	1.0	-1.1	1.2	1.7	1.0	-4.6	2.5	4.6	7.7	5.3
Discoveries	1.8	3.7	6.7	6.0	7.2	5.1	4.5	11.7	15.4	20.3	8.9	9.2	11.7	4.9
Gross additions	3.1	4.4	16.6	5.9	8.2	4.0	5.8	13.4	16.5	15.7	11.5	13.8	19.4	10.3
Depletion	8.9	10.2	11.3	12.9	14.0	14.7	14.6	13.9	14.2	14.1	13.8	13.6	11.7	9.4
Net change	-5.8	-5.4	6.9	-3.4	-1.1	-3.4	-2.3	3.9	5.7	4.2	-0.2	1.8	7.2	-1.4
Closing stock	107.0	101.6	108.6	105.2	104.0	100.6	98.3	102.1	107.8	111.9	111.7	113.5	120.7	119.3
Unit Values (dollars per cubic metre)														
Average wellhead price	50.01	59.58	71.75	77.78	92.60	111.32	147.08	187.04	201.62	204.52	100.32	125.14	84.36	106.36
Extraction costs	22.31	21.33	25.79	33.94	44.96	67.02	69.39	65.68	71.12	77.44	71.84	70.52	75.98	77.06
Net Price	27.70	38.25	45.96	43.84	47.64	44.30	77.69	121.35	130.50	127.09	28.51	54.62	8.38	29.30
Monetary Accounts (millions of dollars)														
Opening stock	2260.1	2963.8	3887.2	4990.3	4610.2	4955.3	4455.5	7634.1	12392.2	14064.4	14224.3	3185.2	6200.9	1010.9
Revisions	3.4	25.9	454.4	4.3	49.5	-49.8	95.9	208.8	134.3	-585.9	72.1	252.2	64.6	156.5
Discoveries	51.0	141.6	307.3	265.0	340.8	225.4	353.3	1416.2	2012.4	2585.4	254.9	503.6	98.0	144.3
Gross additions	85.3	167.4	761.7	260.7	390.3	1755.0	449.2	1625.0	2146.7	1999.6	327.1	755.8	162.6	300.7
Depletion	246.1	372.6	442.3	410.8	444.5	327.4	629.6	1157.2	1408.5	1472.0	332.7	657.3	102.5	342.8
Net change	-160.8	-205.2	319.3	-150.1	-54.2	-151.9	-180.4	467.8	738.2	527.5	-5.6	98.5	60.0	-42.1
Revaluation	464.0	1128.6	783.7	-230.0	399.3	-347.9	3359.0	4290.3	934.1	-367.7	-11033.4	2917.2	-5250.0	2525.2
Closing stock	2963.8	3887.2	4990.3	4610.2	4955.3	4455.5	7634.1	12392.2	14064.4	14224.3	3185.2	6200.9	1010.9	3494.1
NATURAL GAS RESERVES														
Physical Accounts (billions of cubic metres)														
Opening stock	21.8	22.0	22.9	36.7	37.5	38.4	40.2	43.1	48.5	58.2	63.3	67.6	69.3	74.4
Revisions	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Discoveries	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Gross additions	1.7	2.1	15.0	1.9	2.1	3.0	4.2	6.6	11.4	6.9	6.6	4.3	9.2	11.6
Depletion	1.5	1.3	1.2	1.2	1.2	1.2	1.3	1.2	1.6	1.9	2.3	2.6	4.1	6.2
Net change	0.2	0.9	13.8	0.8	0.9	1.8	2.9	5.3	9.8	5.0	4.3	1.7	5.1	5.4
Closing stock	22.0	22.9	36.7	37.5	38.4	40.2	43.1	48.5	58.2	63.3	67.6	69.3	74.4	79.8
Unit Values (dollars per 000 cubic metres)														
Average wellhead price	11.78	14.16	18.35	28.42	24.73	25.51	26.27	64.65	73.65	73.98	81.57	72.02	56.89	51.06
Extraction costs	17.90	19.41	23.46	34.63	35.92	46.44	53.25	77.39	83.32	76.35	69.12	58.90	60.56	51.66
Net Price	-6.12	-5.26	-5.11	-6.22	-11.19	-20.93	-26.98	-12.74	-9.67	-2.36	12.45	13.12	-3.67	-0.60
Monetary Accounts (millions of dollars)														
Opening stock	-152.2	-134.7	-120.4	-187.7	-233.1	-430.1	-841.7	-1163.9	-617.3	-563.2	-149.5	841.0	908.8	-273.2
Revisions	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Discoveries	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Gross additions	-10.6	-11.2	-76.8	-12.1	-24.0	-.62.9	-112.4	-.83.5	-110.3	-16.4	81.9	56.3	-33.7	-6.9
Depletion	9.4	6.7	6.1	7.4	13.5	25.4	33.8	15.6	15.8	4.5	-28.5	-33.6	15.0	3.7
Net change	-1.2	-4.5	-70.7	-4.7	-10.4	-37.5	-78.6	-67.9	-94.5	-11.9	53.3	22.7	-18.7	-3.2
Revaluation	18.6	18.9	3.4	-40.8	-186.6	-374.0	-243.5	614.5	148.6	425.5	937.2	45.1	-1163.3	228.8
Closing stock	-134.7	-120.4	-187.7	-233.1	-430.1	-841.7	-1163.9	-617.3	-563.2	-149.5	841.0	908.8	-273.2	-47.7

Source: Statistics Canada, National Accounts and Environment Division

Table 6.2a: Reconciliation Table for Crude Oil and Natural Gas Reserves in British Columbia

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
CRUDE OIL RESERVES															
Physical Accounts (millions of cubic metres)															
Opening stock	12.1	18.5	24.7	25.5	41.6	43.7	48.9	48.0	51.3	46.9	44.3	40.8	35.6	33.0	30.8
Other Adjustments	..	..	..	..	..	..	..	..	--	--	--	--	--	--	--
Revisions	..	..	..	..	..	..	..	4.1	-0.8	0.1	0.4	-1.9	0.4	0.7	--
Discoveries	..	..	..	..	..	..	..	2.7	0.5	1.2	0.2	0.5	0.4	0.1	--
Gross additions	6.6	7.6	2.8	18.0	4.3	7.8	2.3	6.7	-0.3	1.3	0.6	-1.5	0.8	0.8	--
Depletion	0.2	1.4	2.0	1.8	2.1	2.6	3.1	3.5	4.0	4.0	4.0	3.8	3.4	3.0	2.3
Net change	6.4	6.2	0.8	16.1	2.1	5.2	-0.8	3.2	-4.3	-2.7	-3.4	-5.3	-2.5	-2.2	-2.3
Closing stock	18.5	24.7	25.5	41.6	43.7	48.9	48.0	51.3	46.9	44.3	40.8	35.6	33.0	30.8	28.5
Unit Values (dollars per cubic metre)															
Average wellhead price	12.14	10.68	11.48	11.74	12.51	12.93	13.60	13.68	14.00	14.53	15.94	15.51	19.49	34.56	41.84
Extraction costs	34.00	7.32	5.58	6.26	6.93	6.90	8.54	7.25	6.92	7.87	9.11	9.79	11.14	13.82	22.65
Net Price	-21.86	3.36	5.90	5.48	5.58	6.03	5.06	6.43	7.07	6.67	6.83	5.71	8.36	20.74	19.19
Monetary Accounts (millions of dollars)															
Opening stock	..	-404.2	83.0	150.1	228.0	243.9	294.7	243.1	329.7	332.0	295.0	278.9	203.2	276..0	639.0
Revisions	..	..	..	..	..	..	..	26.3	-5.4	0.9	2.7	-11.1	3.7	13.6	-0.4
Discoveries	..	..	..	..	..	..	..	17.1	3.3	8.2	1.3	2.6	3.3	2.2	0.2
Gross additions	-143.5	25.6	16.2	98.5	23.7	47.1	11.6	43.4	-2.2	9.0	4.0	-8.5	7.0	16.0	-0.1
Depletion	-3.5	4.8	11.7	10.0	11.9	15.9	15.8	22.6	28.5	26.9	27.3	21.7	28.1	62.1	43.5
Net change	-139.9	20.9	4.5	88.4	11.8	31.2	-4.2	20.7	-30.6	-17.9	-23.3	-30.1	-21.2	-46.1	-43.6
Revaluation	..	466.4	62.6	-10.5	4.1	19.5	-47.3	65.8	32.9	-19.1	7.3	-45.6	94.0	409.0	-48.0
Closing stock	-404.2	83.0	150.1	228.0	243.9	294.7	243.1	329.7	332.0	295.0	278.9	203.2	276.0	639.0	547.3
NATURAL GAS RESERVES															
Physical Accounts (billions of cubic metres)															
Opening stock	84.2	182.7	188.5	198.9	185.9	190.8	198.8	214.7	212.5	220.6	243.8	242.4	259.0	251.6	229.6
Other Adjustments	..	..	..	..	..	..	..	..	-0.8	-0.1	-0.2	--	--	-0.2	--
Revisions	40.0	..	..	..	..	..	..	-2.5	3.9	18.1	0.8	10.4	--	-15.4	-27.9
Discoveries	61.0	..	..	..	..	..	..	6.8	12.6	13.3	6.8	16.8	4.5	3.6	3.3
Gross additions	101.1	8.8	13.4	-9.5	9.3	12.8	21.7	4.2	15.8	31.3	7.4	27.3	4.5	-12.0	24.6
Depletion	2.6	2.9	3.0	3.5	4.4	4.8	5.7	6.5	7.7	8.1	8.7	10.7	11.9	10.0	9.8
Net change	98.5	5.9	10.4	-13.0	4.9	8.1	15.9	-2.3	8.1	23.2	-1.4	16.5	-7.4	22.0	-34.4
Closing stock	182.7	188.5	198.9	185.9	190.8	198.8	214.7	212.5	220.6	243.8	242.4	259.0	251.6	229.6	195.2
Unit Values (dollars per 000 cubic metres)															
Average wellhead price	4.29	4.25	4.68	4.54	5.00	4.72	4.63	4.54	4.39	4.27	4.39	4.41	4.41	7.17	11.54
Extraction costs	9.18	8.49	10.39	8.97	7.40	7.39	8.59	8.11	7.85	8.27	9.07	7.30	6.86	9.28	11.69
Net Price	-4.89	-4.24	-5.71	-4.43	-2.40	-2.67	-3.96	-3.57	-3.45	-4.00	-4.68	-2.89	-2.45	-2.11	-0.16
Monetary Accounts (millions of dollars)															
Opening stock	..	-892.9	-799.0	-1134.9	-823.6	-531.2	-530.8	-849.7	-758.0	-761.7	-975.2	-1135.1	-747.6	-615.5	-483.7
Gross additions	-494.2	-37.2	-76.3	42.0	-25.8	-34.3	-85.7	-15.1	-54.5	-125.4	-34.4	-78.7	-11.1	25.3	3.9
Depletion	12.6	12.4	17.0	15.7	12.3	12.7	22.7	23.3	26.4	32.5	40.8	30.9	29.2	21.1	1.6
Net change	-481.5	-24.8	-59.3	57.7	-13.5	-21.6	-62.9	8.2	-28.0	-92.8	6.4	-47.8	18.1	46.4	5.5
Revaluation	..	118.7	-276.6	253.6	305.9	22.0	-255.9	8.3	24.3	-120.7	-166.3	435.3	114.0	85.5	447.2
Closing stock	-829.9	-799.0	-1134.9	-823.6	-531.2	-530.8	-849.7	-758.0	-761.7	-975.2	-1135.1	-747.6	-615.5	-483.7	-31.0

Source: Statistics Canada, National Accounts and Environment Division

Table 6.2b: Reconciliation Table for Crude Oil and Natural Gas Reserves in British Columbia

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
CRUDE OIL RESERVES														
Physical Accounts (millions of cubic metres)														
Opening stock	28.6	24.6	26.5	29.5	28.5	27.6	25.5	24.2	23.5	18.8	20.2	18.8	17.4	16.6
Other Adjustments	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Revisions	-2.0	-0.1	2.4	0.6	0.9	-0.2	0.7	0.7	0.8	1.6	0.1	0.1	-0.1	2.3
Discoveries	0.4	4.2	2.7	0.4	0.2	0.1	0.1	0.7	-3.4	1.8	-.5	0.6	1.2	2.4
Gross additions	-1.5	4.1	5.0	1.1	1.2	-0.1	0.8	1.4	-2.6	3.3	0.6	0.7	1.2	4.7
Depletion	2.4	2.2	2.0	2.1	2.0	2.1	2.1	2.1	2.1	1.9	2.0	2.1	1.9	2.0
Net change	-3.9	1.9	3.0	-1.1	-0.8	-2.1	-1.3	-0.7	-4.7	1.4	-1.4	-1.4	-.7	2.8
Closing stock	246	26.5	29.5	28.5	27.6	25.5	24.2	235	18.8	20.2	18.8	17.4	16.6	19.4
Unit Values (dollars per cubic metre)														
Average wellhead price	49.64	61.25	73.21	80.33	96.29	117.28	158.77	194.42	210.35	221.62	122.46	146.8	110.84	142.40
Extraction costs	24.60	28.97	38.52	42.02	56.67	66.55	72.23	72.57	92.49	115.67	89.49	83.98	108.73	119.05
Net Price	25.04	32.28	34.70	38.31	39.62	50.73	86.54	121.85	117.86	105.94	32.97	62.82	2.11	23.35
Monetary Accounts (millions of dollars)														
Opening stock	547.3	616.6	855.6	1025.1	1091.3	1095.3	1294.0	2094.9	2865.4	2216.3	2139.7	619.4	1090.6	35.1
Revisions	-49.6	-2.7	82.4	24.1	36.7	-11.0	57.6	80.6	92.1	166.2	4.7	4.3	-0.1	53.9
Discoveries	11.2	134.2	92.0	16.4	9.3	7.3	10.9	88.6	-398.2	187.2	15.0	39.6	2.6	56.1
Gross additions	-38.4	131.7	174.9	41.3	46.0	-3.8	68.5	169.2	-306.1	353.4	19.8	41.4	2.5	110.6
Depletion	59.2	71.0	69.5	82.0	79.3	104.5	181.3	253.4	249.0	206.0	66.3	130.9	4.1	46.2
Net change	-97.6	60.7	105.4	-40.7	-33.3	-108.3	-112.8	-84.2	-555.2	147.4	-46.5	-89.5	-1.6	64.4
Revaluation	166.8	178.4	64.1	106.8	37.3	307.1	806.1	854.7	-93.9	-224.0	-1473.8	560.7	-1053.9	353
Closing stock	616.6	855.6	1025.1	1091.3	1095.3	1294.0	2094.9	2865.4	2216.3	2139.7	619.4	1090.6	35.1	452.7
NATURAL GAS RESERVES														
Physical Accounts (billions of cubic metres)														
Opening stock	195.2	205.9	190.0	200.2	212.5	234.9	240.9	242.7	238.6	236.7	237.0	227.0	216.4	210.8
Other Adjustments	-	-9.3	-	-	-	-	-	-	-	-	-	-0.1	-0.6	-0.1
Revisions	7.7	-12.5	1.3	1.5	6.0	1.7	1.6	-0.2	3.2	5.0	-7.0	-4.3	-1.1	0.2
Discoveries	12.5	15.3	16.9	21.2	23.7	11.0	6.7	2.4	1.6	2.4	4.1	1.8	5.0	9.9
Gross additions	20.2	-6.4	18.2	22.7	29.7	12.8	8.3	2.2	4.8	7.3	-3.0	-2.6	3.3	10.0
Depletion	9.4	9.5	8.1	10.4	7.3	6.7	6.5	6.3	6.7	7.1	7.0	8.0	8.9	10.8
Net change	10.8	-15.9	10.2	12.3	22.4	6.0	1.8	-4.1	-1.9	0.2	-9.9	-10.6	-5.6	-0.7
Closing stock	205.9	190.0	200.2	212.2	234.9	240.9	242.7	238.6	236.7	237.0	227.0	216.4	210.8	210.1
Unit Values (dollars per 000 cubic metres)														
Average wellhead price	35.24	29.78	34.37	39.44	47.05	54.96	63.37	66.25	71.65	77.79	63.89	53.18	48.73	49.00
Extraction costs	14.41	17.60	25.47	27.82	52.80	61.99	69.66	70.02	73.78	69.33	68.32	54.63	55.06	52.90
Net Price	20.84	12.18	8.90	11.62	-5.75	-7.02	-6.30	-3.77	-2.13	8.46	-4.43	-1.45	-6.34	-3.90
Monetary Accounts (millions of dollars)														
Opening stock	-31.0	4291.1	2314.7	1781.6	2468.5	-1349.6	-1692.0	-1528.2	-900.2	-504.8	2003.8	-1006.1	-313.2	-1335.8
Gross additions	420.0	-78.0	162.2	263.9	-170.6	-89.7	-52.5	-8.3	-10.2	61.9	13.1	3.8	-20.9	-38.4
Depletion	-195.6	-116.1	-71.7	-120.6	42.2	47.4	41.1	23.7	14.2	-59.9	30.9	11.6	56.2	41.3
Net change	224.4	-194.1	90.5	143.4	-128.4	-42.3	-11.4	15.4	4.0	2.0	44.0	15.4	35.3	2.9
Revaluation	4097.6	-1782.2	-623.6	543.6	-3689.7	-300.0	175.2	612.6	391.4	2506.6	-3054.0	677.6	-1057.9	526.6
Closing stock	4291.1	2314.7	1781.6	2468.5	-1349.6	-1692.0	-1528.2	-900.2	-504.8	2003.8	-1006.1	-313.2	-1335.8	-806.3

Source: Statistics Canada, National Accounts and Environment Division

Table 6.3a: Reconciliation Table for Crude Oil in Manitoba

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
CRUDE OIL RESERVES															
Physical Accounts (millions of cubic metres)															
Opening stock	7.3	6.9	8.1	7.9	8.0	8.3	14.4	14.3	13.2	12.0	11.3	11.0	11.3	11.8	11.1
Revisions	..	..	..	..	..	..	..	..	..	..	..	..	..	..	--
Discoveries	..	..	..	..	..	..	..	..	..	..	..	..	..	..	--
Gross additions	0.3	1.8	0.4	0.8	1.1	6.9	0.8	-0.1	-0.2	0.2	0.6	1.1	1.3	0.1	--
Depletion	0.7	0.6	0.6	0.7	0.8	0.8	0.9	1.0	1.0	0.9	0.9	0.8	0.8	0.8	0.7
Net change	-0.4	1.2	-0.2	0.1	0.3	6.1	-0.1	-1.1	-1.2	-0.7	-0.3	0.3	0.5	-0.7	0.7
Closing stock	6.9	8.1	7.9	8.0	8.3	14.4	14.3	13.2	12.0	11.3	11.0	11.3	11.8	11.1	10.4
Unit Values (dollars per cubic metre)															
Average wellhead price	14.23	15.22	15.57	15.24	15.61	15.74	15.74	15.78	15.84	15.80	17.34	17.46	21.23	36.00	44.83
Extraction costs	14.42	14.64	14.93	12.78	11.44	11.89	11.61	10.98	10.99	11.10	11.44	11.77	11.57	13.01	15.31
Net Price	-0.19	0.59	0.65	2.45	4.17	3.85	4.13	4.80	4.85	4.70	5.90	5.69	9.66	22.99	29.52
Monetary Accounts (millions of dollars)															
Opening stock	..	-1.3	4.8	5.1	19.6	34.6	55.4	59.1	63.3	58.1	53.2	64.9	64.4	113.9	254.2
Revisions	..	..	..	..	..	..	..	..	..	..	..	..	..	..	--
Discoveries	..	..	..	..	..	..	..	..	..	..	..	..	..	0.3	0.1
Gross additions	-0.1	1.1	0.3	2.0	4.5	26.7	3.3	-0.5	-1.0	1.1	3.5	6.5	12.6	0.3	0.1
Depletion	-0.1	0.4	0.4	1.7	3.3	3.2	3.7	4.7	4.8	4.4	5.3	4.8	7.8	17.3	20.7
Net change	0.1	0.7	-0.1	0.2	1.3	23.5	-0.4	-5.3	-5.8	-3.3	-1.8	1.7	4.8	7.8	17.3
Revaluation	..	5.3	0.5	14.3	13.8	-2.7	4.0	9.5	0.6	-1.7	13.5	-2.3	44.8	157.3	72.2
Closing stock	-1.3	4.8	5.1	19.6	34.6	55.4	59.1	63.3	58.1	53.2	64.9	64.4	113.9	254.2	305.9

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Physical Accounts (millions of cubic metres)														
Opening stock	-10.4	9.7	9.1	8.5	8.0	7.7	7.7	7.9	8.2	8.0	8.8	8.4	8.1	7.7
Revisions	..	-	..	..	-	..	-	-	..	..	..	..	-	-
Discoveries	-	-	-	-	0.3	0.5	0.7	1.0	0.7	1.6	0.4	0.4	0.3	0.4
Gross additions	-	-	-	-	0.3	0.5	0.8	1.0	0.7	1.6	0.4	0.4	0.4	0.4
Depletion	0.6	0.6	0.6	0.6	0.6	0.5	0.6	0.7	0.8	0.8	0.8	0.8	0.8	0.7
Net change	-0.6	-0.6	-0.6	-.06	-0.2	-	0.2	0.2	-0.1	0.8	-0.4	-0.4	-0.4	-0.4
Closing stock	9.7	9.1	8.5	8.0	7.7	7.7	7.9	8.2	8.0	8.8	8.4	8.1	7.7	7.3
Unit Values (dollars per cubic metres)														
Average wellhead price	52.99	64.18	76.81	82.97	97.56	118.39	153.28	207.11	214.02	220.21	116.41	140.08	102.69	125.73
Extraction costs	16.93	19.23	23.82	23.86	29.11	38.26	45.56	49.38	69.05	69.40	64.70	72.75	79.36	80.94
Net Price	36.05	44.95	52.99	59.11	68.45	80.13	107.72	157.73	144.98	150.81	51.71	67.33	23.33	44.79
Monetary Accounts (millions of dollars)														
Opening stock	305.9	351.0	409.9	452.8	471.9	529.5	619.9	853.9	1286.1	1163.3	1331.8	436.8	543.1	178.5
Revisions	..	-	..	-0.1	..	..	4.3	1.6	..	..	..	..	0.2	0.2
Discoveries	0.3	0.7	1.2	1.4	21.5	43.6	79.0	150.5	96.1	245.5	22.7	27.0	8.0	15.8
Gross additions	0.3	0.6	1.1	1.4	21.5	43.6	83.3	152.0	96.1	245.5	22.7	27.0	8.2	16.0
Depletion	22.8	28.3	31.7	34.5	38.6	43.5	62.7	116.2	115.0	123.8	42.6	52.6	17.9	32.4
Net change	-22.6	-27.7	-30.5	-33.1	-17.1	0.1	20.5	35.8	-18.9	121.7	-19.9	-25.6	-9.7	-16.4
Revaluation	67.7	86.6	73.3	52.2	74.6	90.4	213.4	396.4	-104.0	46.8	-875.2	131.9	-354.9	164.2
Closing stock	351.0	409.9	452.8	471.9	529.5	619.9	853.9	1286.1	1163.3	1331.8	436.8	543.1	178.5	326.3

Source: Statistics Canada, National Accounts and Environment Division

Table 6.4a: Reconciliation Table for Crude Oil and Natural Gas Reserves in Ontario

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
CRUDE OIL RESERVES															
Physical Accounts (thousands of cubic metres)															
Opening stock	1282	1200	1494	2938	3057	3029	2174	1983	2091	2078	1909	1753	2124	2013	2173
Revisions	90	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Discoveries	15	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Gross additions	105	474	1638	317	178	-649	5	306	164	-3	2	511	19	273	-183
Depletion	187	180	194	196	206	206	196	198	177	167	157	140	130	113	107
Net change	-82	294	1444	119	-28	-855	-191	108	-13	-170	-155	371	-111	160	-290
Closing stock	1200	1494	2938	3057	3029	2174	1983	2091	2078	1909	1753	2124	2013	2173	1883
Unit Values (dollars per cubic metre)															
Average wellhead price	19.42	20.31	20.05	20.26	20.14	20.11	17.88	17.31	16.89	17.05	17.91	17.91	22.32	37.23	45.11
Extraction costs	6.65	8.50	8.65	9.54	10.69	10.65	10.01	10.70	11.81	15.33	17.61	19.61	29.02	28.72	37.76
Net Price	12.77	11.81	11.40	10.72	9.45	9.46	7.88	6.60	5.07	1.72	0.30	-1.70	-6.70	8.51	7.34
Monetary Accounts (millions of dollars)															
Opening stock	..	15.3	17.6	33.5	32.8	28.6	20.6	15.6	13.8	10.5	3.3	0.5	-3.6	-13.5	18.4
Revisions	1.1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Discoveries	0.2	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Gross additions	1.3	5.6	18.7	3.4	1.7	-6.1	-	2.0	0.8	-	-	-0.9	-0.1	2.3	-1.3
Depletion	2.4	2.1	2.2	2.1	1.9	1.9	1.5	1.3	0.9	0.3	-	-0.2	-0.9	1.0	0.8
Net change	-1.0	3.5	16.5	1.3	-0.3	-8.1	-1.5	0.7	-0.1	-0.3	-	-0.6	0.7	1.4	-2.1
Revaluation	..	-1.2	-0.6	-2.0	-3.9	-	-3.5	-2.5	-3.2	-7.0	-2.7	-3.5	-10.6	30.6	-2.5
Closing stock	15.3	17.6	33.5	32.8	28.6	20.6	15.6	13.8	10.5	3.3	0.5	-3.6	-13.5	18.4	13.8
NATURAL GAS RESERVES															
Physical Accounts (millions of cubic metres)															
Opening stock	6116	6228	5683	5986	4481	5233	5712	5716	6570	7280	8637	8153	7287	6929	6805
Revisions	..	..	..	..	..	..	..	..	..	..	0.1	0.1	-2.1	-0.2	0.2
Discoveries	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Change in Storage	..	..	..	..	..	..	..	..	..	..	..	-284	2006	232	879
Gross additions	485	770	1346	-1158	1115	817	371	1183	1037	1824	68	-233	-96	61	1097
Depletion	373	1316	1043	347	363	338	366	329	328	467	552	632	262	185	305
Net change	112	-545	303	-1505	752	479	4	854	709	1357	-484	-865	-358	-124	792
Closing stock	6228	5683	5986	4481	5233	5712	5716	6570	7280	8637	8153	7287	6929	6805	7598
Unit Values (dollars per 000 cubic metres)															
Average wellhead price	13.70	13.16	13.49	13.50	16.21	13.57	13.55	13.53	13.39	13.50	13.82	13.68	13.70	15.30	21.14
Extraction costs	6.34	7.18	7.72	10.18	12.75	9.82	12.07	20.61	19.00	21.34	24.43	40.11	56.44	87.36	71.40
Net Price	7.36	5.98	5.77	3.32	3.46	3.75	1.48	-7.08	-5.61	-7.85	-10.61	-26.43	-42.74	-72.07	-50.26
Monetary Accounts (millions of dollars)															
Opening stock	..	45.8	34.0	34.5	14.9	18.1	21.4	8.5	-46.5	-40.8	-67.8	-86.5	-192.6	-296.2	-490.4
Gross additions	3.6	4.6	7.8	-3.8	3.9	3.1	0.5	-8.4	-5.8	-14.3	-0.7	6.2	4.1	-4.4	-55.1
Depletion	-2.7	-7.9	-6.0	-1.2	-1.3	-1.3	-0.5	2.3	1.8	3.7	5.9	16.7	11.2	13.4	15.3
Net change	0.8	-3.3	1.7	-5.0	2.6	1.8	-	-6.0	-4.0	-10.7	5.1	22.9	15.3	8.9	-39.8
Revaluation	..	-8.6	-1.2	-14.7	0.6	1.5	-12.9	-48.9	9.7	-13.3	-23.8	129.0	-118.9	-203.2	148.4
Closing stock	45.8	34.0	34.5	14.9	18.1	21.4	8.5	-46.5	-40.8	-67.8	-86.5	-192.6	-296.2	-490.4	-381.9

Source: Statistics Canada, National Accounts and Environment Division

Table 6.4b: Reconciliation Table for Crude Oil and Natural Gas Reserves in Ontario

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
CRUDE OIL RESERVES														
Physical Accounts (millions of cubic metres)														
Opening stock	1883	1960	1857	1491	1455	1385	948	836	851	963	1006	904	794	1311
Revisions	..	..	-327	..	17	-346	-28	..	..	..	..	..	..	..
Discoveries	..	..	57	64	3	..	5	..	..	..	..	..	..	..
Gross additions	179	-2	-270	64	20	-346	-23	100	202	157	34	23	707	260
Depletion	102	101	96	100	90	91	89	85	90	114	136	133	190	247
Net change	77	-103	-366	-36	-70	-437	-112	15	112	43	-102	-110	517	13
Closing stock	1960	1857	1491	1455	1385	948	836	851	963	1006	904	794	1311	1324
Unit Values (dollars per cubic metre)														
Average wellhead price	52.69	67.62	86.74	89.67	104.24	123.49	172.37	208.62	219.17	219.00	127.70	142.03	117.19	136.39
Extraction costs	46.44	61.59	83.08	80.20	87.83	94.55	107.83	163.67	191.67	172.89	142.15	142.37	137.27	102.65
Net Price	6.25	6.03	3.66	9.47	16.41	28.94	64.54	44.96	27.50	46.11	-14.45	-0.34	-20.08	33.74
Monetary Accounts (millions of dollars)														
Opening stock	13.8	12.2	11.2	5.5	13.8	22.7	27.4	54.0	38.3	26.5	46.4	-13.1	-0.3	-26.3
Revisions	..	..	-1.2	..	0.3	-10.0	-1.8	..	..	..	..	..	..	..
Discoveries	..	..	0.2	0.6	0.1	..	0.3	..	..	..	..	..	..	..
Gross additions	1.1	--	-1.0	0.6	0.3	-10.0	-1.5	4.5	5.6	7.2	-0.5	--	-14.2	8.8
Depletion	0.6	0.6	0.4	0.9	1.5	2.6	5.7	3.8	2.5	5.3	-2.0	--	-3.8	8.3
Net change	0.5	-0.6	-1.3	-0.3	-1.1	-12.6	-7.2	0.7	3.1	2.0	1.5	--	-10.4	0.4
Revaluation	-2.1	-0.4	-4.4	8.7	10.1	17.3	33.8	-16.4	-14.9	17.9	-60.9	12.8	-15.7	70.6
Closing stock	12.2	11.2	5.5	13.8	22.7	27.4	54.0	38.3	26.5	46.4	-13.1	-0.3	-26.3	44.7
NATURAL GAS RESERVES														
Physical Accounts (millions of cubic metres)														
Opening stock	7598	8408	9046	9106	8586	7975	8434	8815	12639	12698	11310	17444	17949	18311
Revisions	1270	241	128	-107	314	649	26	4723	..	..	..	..	..	..
Discoveries	..	..	28	34	262	1	20	420	..	..	..	..	..	..
Change in Storage	-332	635	245	-49	-741	405	752	-859	..	..	..	..	..	..
Gross additions	938	877	401	-122	-165	1055	798	4284	263	314	5955	890	589	51
Depletion	128	238	341	398	446	596	417	460	204	1702	-179	385	227	833
Net change	810	639	60	-520	-611	459	381	3824	59	-1388	6134	505	362	-782
Closing stock	8408	9046	9106	8586	7975	8434	8815	12639	12698	11310	17444	17949	18311	17529
Unit Values (dollars per 000 cubic metres)														
Average wellhead price	34.50	42.55	60.05	72.68	75.19	82.42	94.79	100.00	125.00	124.00	129.17	122.05	115.44	109.88
Extraction costs	176.31	139.21	118.21	174.56	188.97	184.76	186.29	215.84	223.35	205.68	209.23	191.01	196.29	235.64
Net Price	-141.81	-96.66	-58.16	-101.87	-113.78	-102.34	-91.50	-115.84	-98.35	-81.68	-80.06	-68.96	-80.85	-125.95
Monetary Accounts (millions of dollars)														
Opening stock	-381.9	-1192.3	-974.4	-529.6	-874.7	-907.4	-863.2	-806.6	-1464.1	-1248.8	-923.8	-1396.6	-1237.7	-1480.4
Gross additions	-133.0	-84.7	-23.3	12.4	18.8	-108.0	-73.0	-496.3	-25.9	-25.6	-476.8	-61.4	-47.6	-6.4
Depletion	18.1	23.0	19.8	40.5	50.7	61.0	38.2	53.3	20.1	139.0	-14.3	26.5	18.4	104.9
Net change	-114.9	-61.7	-3.5	53.0	69.5	-47.0	-34.9	-443.0	-5.8	113.4	-491.1	-34.8	-29.3	98.5
Revaluation	-695.5	379.6	348.3	-398.0	-102.2	91.2	91.5	-214.6	221.1	211.7	18.2	193.7	-213.4	-826.0
Closing stock	-1192.3	-974.4	-529.6	-874.7	-907.4	-863.2	-806.6	-1464.1	-1248.8	-923.8	-1396.6	-1237.7	-1480.4	-2207.9

Source: Statistics Canada, National Accounts and Environment Division

Table 7a: Estimates of the Economic Value of Crude Oil and Natural Gas Reserves in Saskatchewan (millions of dollars)

Year	Crude Oil Reserves				Natural Gas Reserves				Total Value			
	Net Price		Present Value		Net Price		Present Value		Net Price		Present Value	
	[1]	[2]	[3]	[4]	[1]	[2]	[3]	[4]	[1]	[2]	[3]	[4]
1961	901.8	1097.0	615.1	554.1	-14.8	91.9	-6.5	-12.5	887.0	1188.9	608.6	541.7
1962	1103.7	1282.5	775.7	607.8	-18.1	55.7	-9.5	-6.4	1085.6	1338.2	766.2	601.4
1963	1162.0	1353.8	826.8	705.3	-4.8	78.0	-2.4	-5.6	1157.2	1431.8	824.4	699.6
1964	1215.7	1361.9	899.4	746.7	22.9	120.7	10.5	-2.6	1238.6	1482.5	909.8	744.1
1965	1174.9	1345.7	864.2	843.6	17.1	105.6	8.3	1.5	1191.9	1451.3	872.5	845.1
1966	1084.2	1311.3	768.3	876.7	-31.5	65.6	-14.6	0.1	1052.7	1376.9	753.6	876.7
1967	977.3	1241.7	678.0	844.6	-20.1	91.6	-8.9	-1.8	957.1	1333.3	669.2	842.8
1968	914.6	1226.8	611.0	757.1	-19.2	58.7	-9.6	-6.2	895.4	1285.5	601.3	751.0
1969	751.4	1148.2	479.5	681.9	-64.7	36.1	-28.8	-16.4	686.7	1184.4	450.6	665.5
1970	701.8	1131.0	442.1	600.9	-60.7	34.8	-27.3	-20.3	641.1	1165.8	414.8	580.6
1971	883.0	1304.2	582.5	585.2	-67.5	52.3	-32.0	-28.3	815.5	1356.5	550.5	556.9
1972	764.3	1152.2	514.7	571.8	-85.5	21.0	-45.5	-38.6	678.8	1173.2	469.2	533.3
1973	1151.4	1553.9	775.7	708.0	-76.2	51.8	-38.8	-48.9	1075.2	1605.8	736.8	659.0
1974	2331.4	2990.6	1414.3	1175.9	-92.2	90.7	-41.7	-63.2	2239.2	3081.3	1372.6	1112.7
1975	2660.6	3690.8	1455.6	1536.0	-152.2	15.3	-77.6	-66.2	2508.4	3706.0	1378.0	1469.8
1976	2963.8	4017.3	1641.3	1960.2	-134.7	42.0	-68.3	-78.8	2829.1	4059.3	1572.9	1881.4
1977	3887.2	4713.1	2378.0	2226.8	-120.4	75.4	-55.9	-95.9	3766.8	4788.5	2322.1	2130.9
1978	4990.3	6023.3	2900.4	2710.7	-187.7	289.7	-57.3	-122.3	4802.6	6313.0	2843.1	2588.4
1979	4610.2	5845.2	2586.1	3482.8	-233.1	444.4	-65.5	-134.0	4377.1	6289.6	2520.7	3348.8
1980	4955.3	6686.6	2513.5	3769.2	-430.1	303.3	-100.1	-129.0	4525.1	6989.9	2413.4	3640.2
1981	4455.5	7666.4	1749.9	3803.1	-841.7	197.3	-154.4	-159.7	3613.8	7863.7	1595.5	3643.4
1982	7634.1	10641.7	3307.8	3750.0	-1163.9	135.7	-212.1	-233.8	6470.2	10777.5	3095.7	3516.2
1983	12392.1	14601.5	6568.2	4754.2	-617.3	898.4	-121.3	-279.0	11774.8	15500.0	6446.9	4475.2
1984	14064.4	16449.7	7487.0	5489.5	-563.2	1192.2	-116.0	-225.5	13501.3	17641.9	7371.0	5263.9
1985	14224.3	16563.7	8249.1	7518.4	-149.5	1553.9	-37.4	-191.5	14074.8	18117.5	8211.7	7327.0
1986	3185.2	5343.8	1968.9	7462.7	841.0	2532.4	262.4	-26.9	4026.2	7876.3	2231.2	7435.8
1987	6200.9	8520.5	3786.9	7313.5	908.8	2419.8	294.0	137.6	7109.8	10940.2	4080.9	7451.2
1988	1010.9	3812.8	600.7	5158.9	-273.2	1118.7	-116.6	128.2	737.7	4931.4	484.1	5287.2
1989	3494.1	6582.7	2057.4	2925.8	-47.7	1188.7	-25.0	112.4	3446.4	7771.3	2032.3	3038.2

Notes:

[1] Net price equals revenue less operating costs return on capital and depreciation charge

[2] Based on methodology by Landefeld and Hines (1985)

[3] Discounted using a long-term corporate bond rate; based on year-end prices and costs

[4] Same as [3] except based on 4-year moving average

Table 7b: **Estimates of the Economic Value of Crude Oil and Natural Gas Reserves in British Columbia (millions of dollars)**

Year	Crude Oil Reserves				Natural Gas Reserves				Total Value			
	Net Price		Present Value		Net Price		Present Value		Net Price		Present Value	
	[1]	[2]	[3]	[4]	[1]	[2]	[3]	[4]	[1]	[2]	[3]	[4]
1961	-404.2	-99.2	-64.4	-16.7	-892.9	-129.1	-225.1	-212.2	-1297.1	-228.3	-289.6	-228.9
1962	83.0	117.4	52.8	3.3	-799.0	-23.4	-220.7	-225.9	-716.0	94.0	-167.9	-222.6
1963	150.1	170.5	106.8	30.3	-1134.9	-171.9	-307.8	-264.8	-984.8	-1.4	-201.0	-234.6
1964	228.0	319.2	128.6	79.5	-823.6	72.7	-268.2	-283.3	-595.6	391.9	-139.6	-203.8
1965	243.9	341.6	142.4	127.1	-531.2	325.5	-196.5	-267.4	-287.3	667.2	-54.2	-140.4
1966	294.7	401.6	168.8	153.0	-530.8	330.2	-181.8	-259.3	-236.1	731.7	-13.0	-106.3
1967	243.1	343.9	145.2	140.5	-849.7	40.6	-295.8	-250.1	-606.5	384.5	-150.6	-109.6
1968	329.7	452.0	191.6	156.5	-758.0	119.5	-269.5	-238.0	-428.3	571.5	-77.8	-81.5
1969	332.0	426.5	203.1	166.3	-761.7	130.6	-275.3	-264.8	-429.7	557.1	-72.2	-98.5
1970	295.0	393.6	181.1	178.7	-975.2	83.1	-329.0	-319.6	-680.2	476.7	-147.8	-141.0
1971	278.9	370.8	182.9	195.9	-1135.1	0.9	-436.2	-381.7	-856.2	371.7	-253.3	-185.8
1972	203.2	272.9	137.4	192.9	-747.6	161.3	-318.4	-422.4	-544.4	434.3	-180.9	-229.5
1973	276.0	350.9	182.6	215.7	-615.5	139.4	-282.5	-465.2	-339.5	490.3	-99.9	-249.5
1974	639.0	735.5	385.3	318.2	-483.7	478.3	-184.9	-517.4	155.3	1213.8	200.4	-199.2
1975	547.3	784.8	292.6	378.7	-31.0	1119.6	-12.5	-293.3	516.3	1904.4	280.1	85.4
1976	616.6	788.1	364.9	416.8	4291.1	5732.9	1656.8	377.1	4907.6	6521.0	2021.7	793.9
1977	855.6	1114.3	491.9	548.2	2314.7	3810.0	1007.5	821.5	3170.4	4924.3	1499.4	1369.7
1978	1025.1	1456.4	521.8	615.2	1781.6	4089.4	644.7	1247.7	2806.8	5545.8	1166.4	1862.9
1979	1091.3	1464.8	561.8	759.5	2468.5	4684.8	971.8	1851.7	3559.8	6149.6	1533.6	2611.2
1980	1095.3	1630.3	490.5	785.2	-1349.6	4059.8	-311.5	1124.3	-254.4	5690.1	179.0	1909.5
1981	1141.9	1651.8	517.6	673.4	-1692.0	7317.9	-289.2	421.3	-550.2	8969.8	228.4	1094.7
1982	2094.9	2751.1	935.6	881.0	-1528.2	9961.3	-258.5	46.5	566.7	12712.4	677.1	927.5
1983	2865.4	3479.7	1476.4	1184.6	-900.2	10652.5	-184.1	-497.4	1965.2	14132.2	1292.3	687.2
1984	2216.3	2737.2	1247.0	1158.5	-504.8	11800.1	-104.0	-318.6	1711.5	14537.3	1143.0	839.9
1985	2139.7	2866.7	1200.7	1512.4	2003.8	12550.0	497.9	-65.0	4143.5	15416.7	1698.6	1447.4
1986	619.4	1111.8	386.5	1305.5	-1006.1	9027.3	-288.7	-29.2	-386.8	10139.0	97.8	1276.3
1987	1090.6	1367.5	698.6	1118.0	-313.2	6588.7	-101.4	15.6	777.4	7956.3	597.3	1133.6
1988	35.1	395.3	22.1	735.6	-1335.8	4873.1	-470.7	-110.9	-1300.7	5268.5	-448.7	624.7
1989	452.7	1005.6	271.0	494.3	-806.3	4125.1	-330.6	-426.8	-353.7	5130.6	-59.5	67.5

Notes:

[1] Net price equals revenue less operating costs return on capital and depreciation charge

[2] Based on methodology by Landefeld and Hines (1985)

[3] Discounted using a long-term corporate bond rate; based on year-end prices and costs

[4] Same as [3] except based on 4-year moving average

Table 7c: Estimates of the Economic Value of Crude Oil Reserves in Manitoba (millions of dollars)

	Net Price		Present Value	
Year	[1]	[2]	[3]	[4]
1961	-1.3	57.7	-1.0	13.3
1962	4.7	82.5	3.3	7.4
1963	5.1	85.6	3.6	3.9
1964	19.6	90.0	14.3	5.1
1965	34.6	102.1	25.5	11.9
1966	55.4	172.2	32.7	25.1
1967	59.1	174.0	34.6	31.9
1968	63.3	161.4	38.2	33.5
1969	58.2	149.9	34.9	33.9
1970	53.2	143.5	31.4	35.7
1971	64.9	159.3	39.6	40.5
1972	64.4	161.1	37.8	45.5
1973	113.9	212.3	64.0	60.7
1974	254.2	358.1	129.3	103.2
1975	305.9	424.9	149.9	132.9
1976	351.0	468.4	170.8	188.9
1977	409.9	516.6	215.5	230.8
1978	452.8	555.4	234.5	257.1
1979	471.9	562.3	239.2	321.7
1980	529.5	630.1	238.0	343.0
1981	619.9	763.1	235.6	347.8
1982	853.9	1057.4	342.7	391.1
1983	1286.1	1515.0	670.3	494.2
1984	1163.3	1477.3	615.3	533.6
1985	1331.8	1719.4	735.0	720.9
1986	436.8	809.6	262.5	711.0
1987	543.1	898.3	319.5	674.1
1988	178.5	539.6	105.6	478.6
1989	326.3	702.8	193.0	294.7

Notes:
[1] Net price equals revenue less operating costs return on capital and depreciation charge
[2] Based on methodology by Landefeld and Hines (1985)
[3] Discounted using a long-term corporate bond rate; based on year-end prices and costs
[4] Same as [3] except based on a 4-year moving average

Table 7d: Estimates of the Economic Value of Crude Oil and Natural Gas Reserves in Ontario (millions of dollars)

Year	Crude Oil Reserves				Natural Gas Reserves				Total Value of Reserves			
	Net Price		Present Value		Net Price		Present Value		Net Price		Present Value	
	[1]	[2]	[3]	[4]	[1]	[2]	[3]	[4]	[1]	[2]	[3]	[4]
1961	15.3	14.7	12.6	..	45.8	46.7	30.7	..	61.1	61.3	43.3	..
1962	17.6	17.1	13.9	..	34.0	35.6	24.1	..	51.6	52.7	38.0	..
1963	33.5	35.8	22.6	..	34.5	38.5	24.2	..	68.0	74.3	46.8	..
1964	32.8	36.4	21.7	24.5	14.9	18.2	10.8	20.9	47.7	54.6	32.5	45.4
1965	28.6	33.3	19.1	22.6	18.1	29.5	12.0	20.0	46.7	62.8	31.1	42.6
1966	20.6	22.5	14.6	17.4	21.4	32.8	14.2	15.4	42.0	55.3	28.7	32.8
1967	15.6	18.6	10.9	15.0	8.5	26.7	5.2	11.1	24.1	45.2	16.1	26.2
1968	13.8	19.6	9.1	13.2	-46.5	-8.0	-23.4	3.3	-32.7	11.6	-14.3	16.4
1969	10.5	17.3	6.4	11.7	-40.8	20.8	-17.4	-4.4	-30.3	38.0	-11.0	7.3
1970	3.3	11.5	2.0	8.1	-67.8	-8.6	-32.6	-16.4	-64.5	2.9	-30.6	-8.3
1971	0.5	9.4	0.3	5.2	-86.5	-12.1	-44.2	-30.5	-86.0	-2.6	-43.9	-25.3
1972	-3.6	11.5	-2.0	2.7	-192.6	-77.9	-90.1	-50.0	-196.2	-66.4	-92.1	-47.3
1973	-13.5	3.4	-7.4	-1.9	-296.2	-120.3	-118.1	-81.7	-309.7	-116.9	-125.5	-83.6
1974	18.5	45.9	8.0	-0.9	-490.4	-206.8	-141.5	-108.6	-472.0	-160.9	-133.5	-109.5
1975	13.8	47.3	6.1	1.1	-381.9	-85.3	-131.8	-127.2	-368.0	-38.0	-125.7	-126.1
1976	12.2	56.9	5.2	4.0	-1192.3	-210.2	-187.6	-168.5	-1180.0	-153.3	-182.5	-164.5
1977	11.2	57.5	5.1	9.2	-874.4	-214.9	-229.9	-204.5	-863.2	-157.3	-224.8	-195.3
1978	5.5	46.6	2.7	6.4	-529.6	36.0	-168.4	-196.8	-524.1	82.5	-165.7	-190.4
1979	13.8	53.1	6.8	7.3	-874.7	-281.2	-261.5	-221.6	-860.9	-228.1	-254.7	-214.3
1980	22.7	69.1	9.5	9.1	-907.4	-306.1	-291.0	-222.6	-884.6	-237.0	-281.5	-213.5
1981	27.4	62.5	12.8	10.0	-863.2	-58.4	-249.5	-218.5	-835.7	4.2	-236.7	-208.5
1982	54.0	88.8	27.2	18.1	-806.6	171.0	-238.0	-263.7	-752.6	259.8	-210.8	-245.6
1983	38.3	78.2	21.0	24.3	-1464.1	-25.9	-403.4	-370.3	-1425.9	52.3	-382.5	-346.0
1984	26.5	96.6	13.6	24.5	-1248.8	371.6	-341.0	-349.9	-1222.3	468.2	-327.4	-325.4
1985	46.4	95.4	28.0	26.7	-923.8	319.5	-329.9	-372.2	-877.4	414.9	-302.0	-345.5
1986	-13.1	0.0	-9.1	12.7	-1396.6	648.2	-379.6	-451.5	-1409.7	648.2	-388.7	-438.8
1987	-0.3	-8.5	-0.2	7.7	-1237.7	629.1	-317.8	-398.4	-1238.0	620.5	-318.0	-390.7
1988	-26.3	-24.6	-17.8	-0.2	-1480.4	433.2	-367.2	-379.3	-1506.7	408.6	-385.1	-379.5
1989	44.7	24.1	32.6	2.3	-2207.9	-174.6	-527.9	-421.6	-2163.2	-150.5	-495.3	-419.3

Notes:

[1] Net price equals revenue less operating costs return on capital and depreciation charge

[2] Based on methodology by Landefeld and Hines (1985)

[3] Discounted using a long-term corporate bond rate; based on year-end prices and costs

[4] Same as [3] except based on 4-year moving average

Table 8: Estimates of the Economic Value of Crude Oil and Natural Gas Reserves in Saskatchewan - a Comparison of Methods (millions of dollars)

Year	Crude Oil Reserves				Natural Gas Reserves				Total Value			
	[1]	[2]	[3]	[4]	[1]	[2]	[3]	[4]	[1]	[2]	[3]	[4]
1961	908.4	901.8	894.9	842.9	-12.9	-14.8	-18.3	-1.3	895.5	887.0	876.6	841.6
1962	1113.3	1103.7	1095.9	1055.2	-16.1	-18.1	-21.0	-7.9	1097.3	1085.6	1075.0	1047.3
1963	1180.0	1162.0	1163.3	1123.1	-1.1	-4.8	-5.7	7.5	1178.9	1157.2	1157.6	1130.6
1964	1239.8	1215.7	1221.0	1193.6	28.5	22.9	22.7	37.4	1268.3	1238.6	1243.6	1231.0
1965	1205.4	1174.9	1180.3	1163.0	23.2	17.1	16.8	30.1	1228.6	1191.9	1197.2	1193.1
1966	1138.4	1084.2	1105.0	1105.7	-21.2	-31.5	-29.1	-15.7	1117.2	1052.7	1075.9	1090.0
1967	1028.6	977.3	986.3	1015.2	-9.9	-20.1	-20.1	-6.5	1018.6	957.1	966.2	1008.7
1968	957.2	914.6	880.3	970.2	-13.0	-19.2	-25.7	-12.9	944.2	895.4	854.6	957.3
1969	815.7	751.4	734.1	850.5	-54.6	-64.7	-69.4	-56.6	761.1	686.7	664.7	793.9
1970	766.2	701.8	674.5	822.3	-51.2	-60.7	-66.6	-55.3	715.0	641.1	607.9	767.0
1971	936.4	883.0	914.8	1007.2	-57.3	-67.5	-62.8	-62.2	879.1	815.5	852.0	945.0
1972	850.7	764.3	829.2	925.3	-69.5	-85.5	-74.5	-73.3	781.3	678.8	754.6	852.0
1973	1297.0	1151.4	1267.7	1373.5	-45.6	-76.2	-52.5	-48.9	1251.4	1075.2	1215.2	1324.6
1974	2635.8	2331.4	2629.1	2744.2	-20.1	-92.2	-22.7	-21.9	2615.7	2239.2	2606.4	2722.3
1975	2966.3	2660.6	3016.6	3208.5	-96.8	-152.2	-90.2	-101.6	2869.5	2508.4	2926.4	3106.9
1976	3271.3	2963.8	3288.4	3559.1	-79.9	-134.7	-77.9	-85.2	3191.3	2829.1	3210.5	3474.0
1977	4096.4	3887.2	4109.9	4396.8	-72.2	-120.4	-69.8	-79.8	4024.2	3766.8	4040.1	4317.0
1978	5244.1	4990.3	5264.3	5620.5	-93.3	-187.7	-86.4	-110.6	5150.8	4802.6	5177.9	5509.9
1979	5151.0	4610.2	5164.8	5498.7	-18.6	-233.1	-12.8	-27.6	5132.4	4377.1	5152.0	5471.1
1980	5757.9	4955.3	5780.4	6152.4	-190.5	-430.1	-183.1	-211.1	5567.3	4525.1	5597.3	5941.3
1981	5732.6	4455.5	5774.2	6301.7	-519.8	-841.7	-508.2	-574.4	5212.8	3613.8	5266.0	5727.4
1982	8773.0	7634.1	8869.8	9296.7	-818.6	-1163.9	-786.3	-908.2	7954.4	6470.2	8083.5	8388.5
1983	13105.7	12392.1	13113.5	13489.9	-320.8	-617.3	-317.7	-423.3	12784.9	11774.8	12795.8	13066.6
1984	14600.6	14064.4	14620.1	14949.8	-323.9	-563.2	-315.8	-443.2	14276.6	13501.3	14304.3	14506.6
1985	14792.5	14224.3	14875.1	14985.8	83.2	-149.5	117.0	45.7	14875.7	14074.8	14992.1	15031.6
1986	3709.4	3185.2	3709.4	3774.3	1070.0	841.0	1070.0	1088.1	4779.3	4026.2	4779.3	4862.3
1987	7295.0	6200.9	7261.3	7253.0	1354.5	908.8	1341.5	1425.2	8649.5	7109.8	8602.8	8678.1
1988	2305.1	1010.9	2202.7	2243.3	214.0	-273.2	179.5	305.5	2519.0	737.7	2382.2	2548.8
1989	4780.9	3494.1	4593.5	4731.0	435.4	-47.7	375.9	549.1	5216.3	3446.4	4969.4	5280.1

Notes:

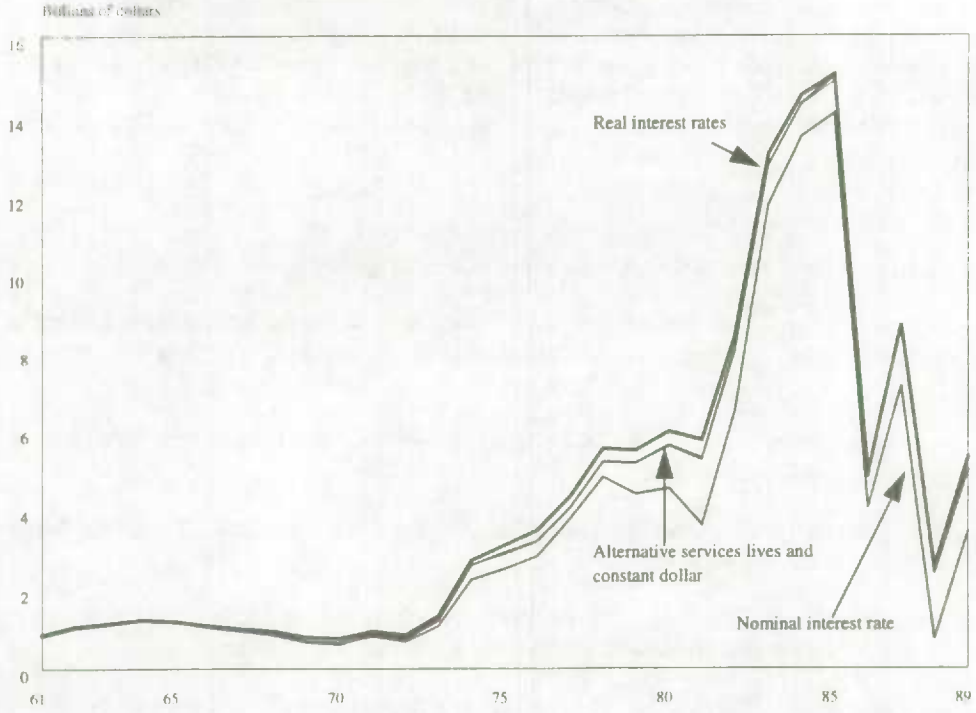
[1] Net price value using real interest rates to calculation the opportunity cost of capital (see Section 8.1)

[2] Net price value using nominal interest rates to calculate the opportunity cost of capital (see Section 8.1)

[3] Net price value using constant dollars (see Section 8.2)

[4] Net price value using 12-year service lives for oil and 25-year service lives for natural gas (see Section 8.3)

Figure 3. Estimated Monetary Values Based on the Net Price Method for Crude Oil and Natural Gas Reserves in Saskatchewan (billions of dollars)



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