A Study of Storage and Distribution Costs for Petroleum Products throughout Newfoundland and Labrador

FINAL REPORT

Prepared for
The Petroleum Pricing Office of
The Public Utilities Board of Newfoundland and Labrador

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1.0 Executive Summary

In the spring of 2001, the Government of Newfoundland and Labrador enacted legislation to regulate prices of petroleum products to retail consumers in the province. By the fall of 2001, base prices and a mechanism for their monthly adjustment had been established and the Petroleum Products Pricing Commission (PPPC) published the first set of maximum prices for retail automotive fuels and home heating fuels. At the same time, the PPPC established a number of pricing zones designed to account for cost differences in distributing petroleum products to various geographic areas of the province.

Since the fall of 2001, there has been little change in the boundaries of the established pricing zones or in the price differentials between them.

To ensure that the pricing zone structure continues to be fair to all stakeholders, the Commission issued a Request for Proposals for consultants to conduct a detailed review of pricing zone boundaries and their price differentials. In response to this public request, David M. French and Associates Inc. submitted a proposal and was subsequently engaged to undertake a Storage and Distribution Cost Study for all regulated petroleum products throughout Newfoundland and Labrador.

The consultant was to review all supply chains and distribution networks around the entire province and develop models as necessary to estimate costs of moving regulated products from initial arrival by marine tanker through storage, handling and final delivery to the end consumer. In this process, the consultant would examine the existing zone boundaries, the zone pricing differentials for each class of product, and recommend any changes that might be considered necessary to ensure a greater degree of fairness to all stakeholders. As part of the Study, the consultant was also requested to identify and report on all storage facilities around the province.

Confidentiality and Non-Disclosure Agreements were signed with some major oil companies and others players in the industry in order to gather as much information as possible. However, some operators would not agree to sign agreements nor supply relevant information on their operations. This lack of participation and cooperation, which was particularly relevant in the case of sole operators in certain areas, detrimentally impacted progress on the assignment. As a result, the consulting team had to undertake and develop extensive ‘cost modelling’ processes to arrive at realistic cost estimates and conclusions.

Field visitations were made to essentially all storage facilities in Newfoundland and Labrador. Cost schedules for marine freight into marine terminals and marine depots were constructed using proprietary figures normalized with information developed by the consulting team. The cost of storing and handling products at marine terminal locations was determined in a similar manner. In the case of the smaller marine depots along the Labrador Coast, little proprietary information was available. An operating costing model had first to be constructed for bulk storage plants and then extrapolated to estimate capital replacement and operating costs for these facilities.

Each class of product including automotive fuels, distillate heating fuels, and propane used for home heating purposes was then addressed in turn for delivery, either directly from marine terminals, through intermediate storage plants, or by other means to the end consumer. In some cases, the costs involved in the transportation of fuel in drums to remote communities had to be calculated to encompass the full product supply network.

The costs of each step in the process were then added to arrive at laid-in cost figures for each product for each zone and sub-zone. Laid-in costs for automotive fuels were determined to the 'wholesale point of sale' whereas for heating fuels, laid-in costs were determined to the consumer's storage tank or the 'retail point of sale'. Individual cost diagrams were also constructed for each product by zone to more clearly illustrate how the various cost calculations were applied to each link in the supply chain.

Zone boundaries were studied in detail for each class of product. It was concluded that existing zone configurations for automotive and propane home heating are appropriate as confirmed by the study data. However, three new home heat zones for furnace/ stove oil are recommended to address current inequities in costs primarily related to the necessity of local area bulk plants. In addition, some minor changes in zone designations for Pricing Zones 10, 10a and 11 are recommended to streamline pricing structures for these areas for all products.

The total costs to the wholesale point of sale determined for automotive fuels in each zone were compared with existing differentials from the Avalon base zone. Adjustments in existing differentials are recommended and range from a reduction of 1.9 cents per litre (cpl) to an increase of 5.9 cpl.

Total costs for furnace and stove home heating fuels were determined to their retail points of sale and compared with existing differentials from the Avalon base zone. In addition to zone differentials developed for the recommended three new zones, the remaining adjustments to existing differentials range from –1.3 cpl to +7.6 cpl.

Recommended adjustments in zone differentials for propane used as a heating fuel are confined to a single zone where a 1.0 cpl increase is considered appropriate.

Through the visitation process, a listing of a total of 78 operational and non-operational storage terminals, depots and bulk plants was developed. Photos of these facilities are included in Appendix L to this report.

2.0 Background

2.1 The Petroleum Products Act

In 2001, the Government of Newfoundland and Labrador responded to consumer concerns with respect to prices charged for automotive and home heating fuels through the introduction of the Petroleum Products Act and accompanying Regulations.

The Act was proclaimed into law on May 24, 2001 with the primary objectives of establishing a process that would enable:

- *Pricing stability.*
- *Predictability of price changes.*
- *Transparency as to how maximum prices are determined and changed.*

Copies of the Act and Regulations are available through the provincial government website or from the Office of the Queen's Printer.

To administer the Act, a Petroleum Products Pricing Commission office directed by a Petroleum Products Pricing Commissioner was established in Grand Falls - Windsor.

In the spring of 2004, during the 45th General Session of the House of Assembly of Newfoundland and Labrador, *AN ACT TO AMEND THE PETROLEUM PRODUCTS ACT* was introduced, passed and became law on June 8, 2004. One of the amendments to the Act was to remove reference to the Commissioner and transfer the authority, duties and functions of the Commissioner to the 'Board' where the 'Board' means the Board of Commissioners of Public Utilities established under the *Public Utilities Act* of Newfoundland and Labrador. The Petroleum Products Pricing Commission office in Grand Falls – Windsor became the 'Petroleum Pricing Office' of the Public Utilities Board.

Because this Study was commissioned prior to the above amendment to the Act, and for the sake of clarity, where the ***Petroleum Products Pricing Commissioner*** *is referenced in this Report, it should be taken to mean the* ***Board of Commissioners of Public Utilities****, and where the* ***Petroleum Products Pricing Commission (PPPC)*** *is referenced it will mean the* ***Petroleum Pricing Office (PPO) of the Public Utilities Board of Newfoundland and Labrador (PUB)****.*

2.2 Petroleum Products Pricing Commission and Price Regulation

Under the Act, the Commissioner is empowered to set, and shall set, maximum wholesale and retail prices for automotive and home heating fuels sold directly to the consuming public throughout the province. The Commissioner also has the authority to determine the minimum and maximum mark-up between the wholesale prices and retail prices to consumers for these regulated products.

The consultant's understanding of the overall objective of the PPPC is to enable consumers to purchase petroleum products at fair and reasonable prices while at the same time help foster a competitive marketplace and, to the extent possible, ensure security of supply. Price regulation of consumer products is a complex matter and needs to be implemented and administered in an informed manner. The regulatory process must recognize the delicate balance between fairness in consumer pricing and reasonable financial returns to major oil companies and to local product supply chain participants.

2.3 Establishment of Base Prices

In order to set maximum wholesale and retail prices, it was first necessary to set 'base prices' for each product. The establishment of initial base prices for each regulated petroleum product required the identification and selection of industry recognized 'benchmark' prices to which base prices could be referenced. Benchmark prices are regularly posted market prices recognized by all stakeholders and readily available as standard reference prices. Once chosen, benchmark prices first provide a basis to establish initial base prices, and then provide a reference for an adjustment mechanism by which subsequent changes in base prices can be made on a periodic basis. For gasolines, diesel fuel, and furnace oil, the benchmark prices chosen were the industry recognized New York Harbour Cargo Prices as published at the close of each business day by Platts – Oilgram Report (Platts). For propane, the benchmark price chosen was the average weekly contract price at Sarnia, Ontario as published by Bloomberg Oil Buyer's Guide (OBG).

The initial base price for regular unleaded gasoline was established by comparing the average differential between New York Harbour Cargo prices to that of the ex-tax price of self-serve regular unleaded gasoline in St. John's, Newfoundland tracked daily over a two and one-half year period from April 1999 to September 2001. The average daily Platts prices, which are quoted in US Cents per US Gallon, were converted to Canadian Dollar Cents per Litre (CPL) using the noon Bank of Canada exchange rate for each business day.

This gave an average differential which, when added to the posted Platts price, gave an ex-tax self serve retail pump price for regular unleaded gasoline in St. John's based on historical numbers over the selected period. A similar exercise was completed for the other grades of gasoline, automotive diesel fuel, and No. 2 heating oil (furnace fuel) to establish initial base prices for these products at St. John's. The base price for stove oil was established by a reference differential of 1.8 cents per litre above the furnace oil price, which had been the traditional difference in wholesale or rack pickup prices for these products in Halifax as published by the OBG.

The base price for propane as a heating fuel was established by comparing the historic price of propane at the Sarnia rack with the corresponding delivered ex-tax retail price in St. John's. No base price was established for propane used as motor fuel due to its negligible use in the province as a retail product.

2.4 Establishment of Pricing Zones

The next step in the process was to establish initial base prices for defined geographic pricing zones throughout the province. These zones were established based on historic pricing differentials from the St. John's area with some adjustments made to reflect more current storage and transportation cost structures. One of the guiding factors in establishing pricing zones was to keep their number to a minimum, albeit still consistent with a rational delineation of geographic areas and population. Fourteen primary pricing zones were initially established. In addition, based on identified unique circumstances (such as transportation cost to various islands and remote communities), a number of pricing sub-zones were, or have since been, added within some of the primary zones.

Since the PPPC established its initial maximum prices in the fall of 2001, the Commissioner received representations from a number of stakeholders concerning the pricing differentials

used between certain zones and /or sub-zones. The Avalon Peninsula, which includes the capital city of St. John's and encompasses close to half of the province's population, was designated as Zone 1. In the main, differentials established for other areas were referenced to that Zone. Since that time, some consumers have argued that differentials between certain zones are too high while conversely some suppliers maintain they are not sufficient to cover the additional costs involved, particularly in servicing the more remote areas of the province.

3.0 A Study of Storage and Distribution Costs for Petroleum Products

3.1 Study Impetus

The Petroleum Products Pricing Commission has to date undertaken considerable affirmative action and measures to understand the dynamics of the market place, and to quantify factors affecting maximum prices established for regulated products in the province. Detailed implementation work has been undertaken to give effect to the legislation as prescribed.

In past dialogue with the PPPC, oil companies have made representations that the market for regulated products was competitive prior to regulation and the relatively high consumer prices were attributable to the higher costs of doing business in the province. Companies have pointed to factors such as high marine freight rates, expensive storage facilities (with increased operation costs due in large part to more stringent environmental requirements and insurance costs), and high distribution costs exacerbated by low volume throughputs in many areas due to a widely dispersed population.

Oil companies have continued to argue that the regulation process and high operating costs are having significant negative impacts on the level of financial returns that would sustain long term viability of their operations. As a result, and in a effort to be fair to all stakeholders, the PPPC determined that its affirmative action agenda required a closer examination of identified cost factors that are involved in transporting, storing and distributing regulated products to consumers. These costs include marine tanker freight; marine terminal storage and handling; distance truck haulage; bulk plant storage and handling; tank-wagon delivery and other direct costs associated with getting product to the point of sale for the end consumer.

Pricing zones and the relative pricing differentials between them are an integral part of the regulatory process and their re-examination built on sound and detailed cost analyses provided the impetus for this Study.

3.2 Study - Request for Proposals

The PPPC released a *Request for Proposals*, which outlined the purpose and scope of the Study as follows:

(1) Review of Number of Zones and Zone Boundaries:

Using the information collected for this study, the consultant will review, analyze and confirm existing pricing zone boundaries or recommend revised boundaries for existing, additional, or fewer zones that more accurately reflect the current mode(s) of supplying regulated petroleum products to each area.

(2) Review of Zone Price Differentials:

Using the information collected for this study, the consultant will review, analyze and confirm the existing zone pricing differentials or recommend revised differentials that more accurately reflect the current cost differences in providing products to different zones or areas as defined and recommended in (1) above

While completing (1) and (2), the consultant should be cognizant of natural geographical separations between areas and the desire to keep the number of pricing zones as low as reasonably and realistically possible.

(3) Information for Storage and Distribution Database:

The work will include the gathering of physical and product 'thruput' information on all marine terminals, bulk plants, and other storage depots that are operated throughout the province for holding petroleum products for sale to wholesalers or retailers. This would include those in active operation as well as those that have been "mothballed" but that are still standing and could be re-commissioned in the future.

3.3 Consultant's Undertakings

In its proposal submission, the consultant undertook to provide the following information:

1. Costs of Shipping Products to Marine Terminals and Depots

   Estimates of the direct cost of delivering 'clean' petroleum products via marine tanker into secondary marine terminals operating in the province from normal supply sources. These costs will include the cost of supplying product to small marine depots along the Labrador Coast and possibly to some depots along the south coast of the Island portion of the province. The costs of delivering products to primary marine terminals were addressed in a study undertaken in 2002, and although referenced, their determination will not be part of this Study.

2. Costs of Product Storage and Terminal Operations

   Estimates of the costs associated with operating primary and secondary marine terminals and marine depots expressed in annual dollar amounts as well as on a cent per litre throughput basis of all products through each terminal.

3. Costs of Land Transportation

   Estimates of costs to transport regulated petroleum products to retail outlets, bulk storage plants, and the direct delivery of product to customer storage tanks on an area averaged basis.

4. Costs of Operating Bulk Storage Plants

   Identify each Bulk Plant in the province and determine estimated total costs of operation expressed in annual dollar amounts as well as on a cent per litre throughput basis.

5. Costs of Delivery from Bulk Storage Plants

Estimates of average costs to deliver regulated products from each bulk plant to retailers and consumers.

6. Identification of Storage Terminals, Bulk plants and Depots

Identify each active bulk storage facility in the province and where possible provide a physical description of each with digital pictures, plan layout sketches with approximate tank sizes / capacities, with total product throughput volumes. Inactive or mothballed bulk storage facilities will also be identified as may be evident during the consultant's visitation process throughout the province.

Study Conclusions and Recommendations

1. Recommendations on Zone Boundaries

The consulting team will use all information collected to draw conclusions and make recommendations for potential changes to existing pricing zone boundaries. Included will be commentary as to the appropriateness of continuing with the same zone structure for both retail automotive fuels and home heating products with recommendations, as the consultant may feel necessary.

2. Recommendations on Zone Pricing Differentials

The consulting team will use all cost information collected to draw conclusions and make recommendations for potential changes to existing pricing zone price differentials. The cost of providing products will be complied individually by zone and sub-zone and will reflect as accurately as possible the cost of the current methods of supply in each case.

3. Identification of Bulk Storage Facilities

The consulting team will identify and provide information on all bulk storage facilities around the province, noting those facilities that are currently inactive or mothballed.

4.0 Supply and Storage of Petroleum Products

4.1 Product Supply Chains

The existing pricing zones established throughout the province are presented in Appendix A together with geographic descriptions for each. As they now exist, Pricing Zones are the same for automotive fuels and home heating fuels.

In order to judge the appropriateness of existing zonal boundaries and price differentials, all identified costs involved in getting product to the point of sale for the end consumer in each zone or sub-zonal area had to be calculated with as much accuracy as possible.

To identify all cost elements, product flow or Supply Chain Configuration Diagrams were developed for each product group. Figures 1 and 2 on the following page depict basic supply chain configuration diagrams for retail automotive fuels and home heating fuels respectively. These diagrams show the primary methods of product supply and distribution for each of these product groups.

The main difference between the two diagrams is that the majority of automotive fuel volume is delivered directly from marine terminals via tractor trailer to retail outlets, whereas home heating fuels are delivered to consumers' household storage tanks via tank wagon vehicles, which operate direct from marine terminals or from local areas bulk plants.

Because many variations of these supply and delivery modes are used in the province depending on the product and the particular zone in question, Supply Chain Diagrams for each individual zone and sub-zone and for each product group are included in this Study.

In some cases, complicating factors affect cost determinations because different petroleum marketers sometimes use different methods of product supply to the same area. The Consulting Team had to be cognizant of these differences and decide on the inclusion of a chosen supply chain consistent with that of primary suppliers to certain areas without giving preference to any particular supplier.

In all but a few instances, the supply chain chosen was that identified to be the one on which the majority of consumers depend as the primary method of product supply to their particular areas.

It should be noted that cost calculations in this Study do not reflect, nor include, the inventory carrying costs for product held in marine terminals, bulk plants, storage depots, retail outlets, or tank trucks. The main reason for not attempting to include these costs is the wide and indeterminate variations in inventory levels that exist in storage locations at any point in time. This is particularly significant for inventories in the large primary marine terminals. The difficulty in quantifying inventory costs does not allay the fact that they are real costs and therefore must be considered when looking at total margins available to supply chain participants.

FIGURE 1

BASIC SUPPLY CHAIN CONFIGURATION DIAGRAM

Retail Automotive Fuels

Newfoundland and Labrador

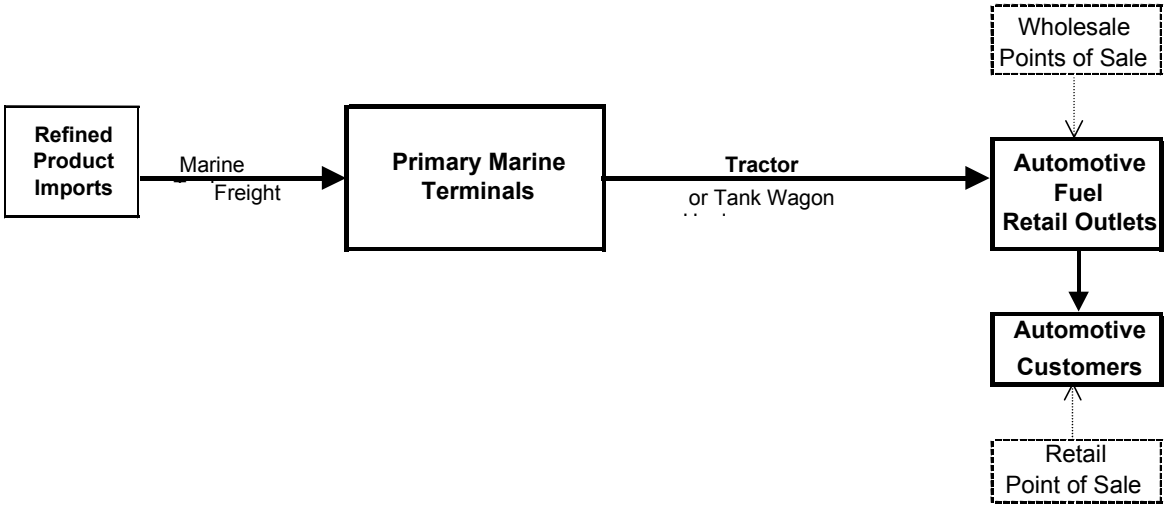
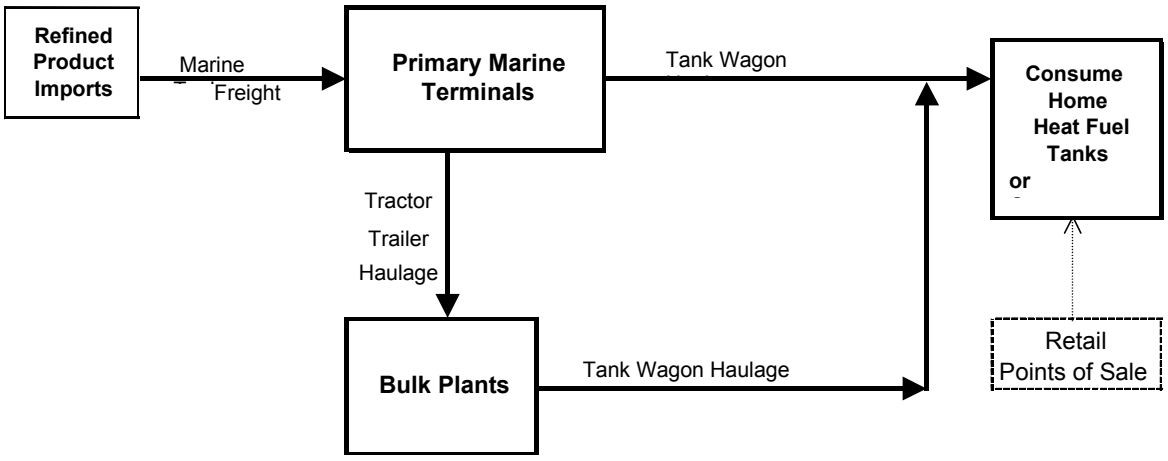


FIGURE 2

BASIC SUPPLY CHAIN CONFIGURATION DIAGRAM

Home Heating Fuels (Excluding Propane)

Newfoundland and Labrador



4.2 Costs of Shipping Products to Marine Terminals and Marine Depots

The costing models developed in this Study for specific modes of storage and transportation use a combination of proprietary costs supplied in confidence by some petroleum and transportation companies, together with cost estimates developed by the Consulting Team through data collection, its analysis and application.

The determination of marine freight costs to primary marine terminals was not to be part of this Study because they were already identified in a Marine Tanker Freight Cost Study undertaken by the Petroleum Products Pricing Commission in 2002. However, the Consulting Team had the advantage of additional information presumably not available to those who carried out the referenced Marine Tanker Freight Study. This resulted in some revisions to estimated average marine freight numbers to specific marine terminals.

A summary of the estimated average laid-in marine freight costs for currently operating Primary Marine Terminals, Secondary Marine Terminals and Marine Depots is presented in Table 1 below:

Storage and Distribution Study

Table 1

Estimated Average Laid-in Marine Freight Costs*Note 1

Existing PPPC Zone	Existing PPPC Sub-Zone	Area Serviced	Notes	Average Marine Freight Estimate CPL
1		Avalon Peninsula	Average Freight to St. John's / Holyrood Primary Marine Terminals	0.85
3		Central Newfoundland	Average Freight to Lewisporte Primary Marine Terminal	1.24
6		Corner Brook Area	Average Freight Corner Brook Primary Marine Terminals	1.19
9		Northern Peninsula North	Average Freight to St. Barbe Secondary Marine Terminal	2.19
10		Labrador-The Straits	Average Freight to Marine Depots	4.42
10	a	Labrador Coast - South	Average Freight to Marine Depots	6.64
12		Central Labrador	Average Freight to Goose Bay Primary Marine Terminals	1.80
14		Labrador Coast - North	Average Freight to Marine Depots	6.64

*Note 1: See next page for glossary of terms.

Some of the marine freight rates include calculated shipping costs via coastal tankers to secondary marine terminals and marine depots. These reflect 2004 estimated costs of product deliveries to these specific locations from identified source terminals. Some of this data is proprietary and was provided under Confidentiality and Non-Disclosure Agreements with the Consultant Team. Detailed calculations are therefore not included in this report.

A glossary of terms used in Table 1 follows:

Laid-in Cost

The landed cost of product pumped into receiving storage tanks.

Primary Marine Terminals

Large storage terminals supplied with refined products via marine tanker from Canadian refineries or from offshore sources. These terminals have the capacity to supply large geographic areas either by direct delivery or by trans-shipment through local bulk plants. The North Atlantic Petroleum refinery at Come by Chance is considered to be a primary marine terminal for the purposes of this Study.

Secondary Marine Terminals

Smaller marine terminals having sufficient storage capacity to supply a particular area where supply from primary terminals is, or has in the past, been impractical. These terminals are generally supplied with product by trans-shipment via coastal tankers from primary terminals, but sometimes receive product direct from other sources.

Marine Depots

These facilities are small capacity storage plants generally supplied by coastal tankers from the larger marine terminals. These depots are usually associated with isolated communities such as those that exist along the Labrador Coast. Due to the short shipping season, particularly in northern Labrador, the capacity of many of these depots is often sufficient to hold enough product inventory for an entire year.

Bulk Plants

These are intermediate 'drop-off' storage facilities supplied by tractor-trailers from marine terminals by road. They are often essential to properly service home heat consumers in a local geographic area but in some cases also contain gasoline storage necessary to service small local area retail outlets where product delivery by tractor-trailer direct from marine terminals is not practical.

4.3 Operating Costs of Marine Terminals, Marine Depots and Bulk Plants

The next link in the product supply chain is the operation of storage terminals. Some of the costs for the operation of primary and secondary marine terminals were obtained under Confidentiality and Non-Disclosure Agreements. Using these figures, normalized with other available and developed costing information, the Consulting Team was able to calculate costs on a cents per litre basis for the operation of these storage facilities including allowances for depreciation and stock losses. These estimates are presented in Table 2 below:

Storage and Distribution Study

Table 2

Estimated Average Operating Costs - Marine Terminals

Area Serviced	Terminal Identification and Location	Operating Cost Estimates 2004 CPL
Avalon / Burin / Bonavista-Peninsulas -and Central Newfoundland	St. John's / Holyrood Primary Marine Terminals	0.81
Central Newfoundland	Lewisporte Primary Marine Terminal	1.57
Corner Brook Area	Corner Brook Primary Marine Terminals	1.22
Northern Peninsula North	St. Barbe Secondary Marine Terminal	1.76
Central Labrador	Goose Bay Primary Marine Terminals	2.71

Accurate total annual operating costs for terminals were not available in a form that could be used on a consistent basis in comparing one terminal with another so they are not included in this report.

Marine depots are identified in Table 1 in zones along the coast of Labrador. However, very little reliable information was available with respect to their costs of operation. Whereas these depots receive product via smaller marine tankers, they are not otherwise greatly different in configuration from that of many bulk plants in operation around the province. Thus, one approach in developing a costing model for marine depots was to extrapolate costs based on the cost of operating bulk plants. First, however, it was necessary to develop a model with associated capital replacement costs estimated for environmentally sound and insurable bulk plants. Once the capital costs were established, operating costs could then be addressed.

Capital Replacement costs of Bulk Plants and Marine Depots

The approach used in this process was to categorize bulk plants and marine storage depots in the following classifications:

Case A. Bulk Plant - Intermediate tractor-trailer drop-off storage for subsequent delivery of furnace oil to local area home heat customers. (Construction on Island portion of province) Tank capacities are sized according to product turnover so that no more than four tractor-trailer deliveries per week were required during the peak demand winter months leaving a buffer of at least one working day per week spare capacity.

Case B: Bulk Plant - Intermediate tractor-trailer drop-off storage for subsequent delivery of furnace oil to local area home heat customers and gasoline storage for local distribution. Gasoline is held for deliveries to small local retail outlets where delivery via tractor-trailer is impractical. Operating costs for these particular bulk plants on the island portion of the province were obtained via proprietary information from owner/ operators with adjustments applied for consistency following information gathered during field visitations.

Case C. Bulk Plants on the Labrador Coast - Bulk storage facilities along the Labrador Coast supplied via tank wagon from connected marine depots. Storage for both gasoline and stove oil is assumed. Gasoline can be redelivered to small retail outlets in the local area or can be dispensed directly at the bulk plant. Stove oil (the only petroleum product used throughout Labrador for home heating) is stored for subsequent delivery to local area home heat customers by tank-wagon. Stove oil used for diesel fuel is also available.

Case D. Marine Depots - Bulk Storage facilities along the South Labrador Coast supplied via Coastal Tanker- sometimes via floating hose discharge. These storage depots are connected by road to adjacent communities. As with Case C bulk plants, gasoline and diesel fuel is provided for local deliveries to retail outlets via tank-wagon or in some cases dispensed directly to retail customers at the depot. Stove oil is stored for subsequent delivery to local area home heat customers via tank-wagon.

Case E. Marine Depots (Isolated) - Bulk Storage facilities located in isolated Labrador Coastal communities and supplied via coastal tanker - often via floating hose discharge. Stove oil/ diesel fuel distillate storage is available for subsequent delivery, or for pickup at the depots by customers via drums or other containers. These depots also have storage for gasoline, which is generally dispensed directly to retail customers via an onsite retail pump.

Appendix B includes capital cost estimates for each of the above storage facilities as follows:

Table B -1 Cost estimate versus volume for Class A Bulk Plants
Table B -2 Cost estimate for Class B Bulk Plant (nominal storage only)
Table B- 3 Cost estimate for a specific Class C Bulk Plant in Charlottetown, Labrador
Table B- 4 Cost estimate for a specific Class D Marine Depot in the Port Hope Simpson / Cartwright area of Labrador.
Table B -5 Cost estimate for a specific Class E Marine Depot in Rigolet
Table B -6 Cost estimate for a specific Class E Marine Depot in Makkovik
Table B -7 Cost estimate for a specific Class E Marine Depot in Postville
Table B -8 Cost estimate for a specific Class E Marine Depot in Hopedale
Table B -9 Cost estimate for a specific Class E Marine Depot in Nain

The capital cost estimates for these storage facilities take into account only the product volumes estimated for individual consumer use. No provision is made for automotive or heating fuels for commercial customers, nor for other fuels such as Jet Fuel or Diesel used for non-regulated product consumption. These volumes were unavailable to the Consulting Team and no estimates of their quantities were made.

Due to specific storage requirements for bulk plants and marine depots along the Labrador coast, each facility was addressed separately. Estimated seasonal demand in a particular section or area of the coast dictated how much storage capacity was required in each case.

Since the north coast of Labrador is inaccessible due to local ice or arctic ice flows for eight to nine months of the year (November to June), the storage capacity for these communities was sized to accommodate a full year's demand to provide a buffer in case of extended access problems or unusually high demand during the closed shipping season.

The south Labrador coast generally has a larger window of accessibility by marine tanker so depots were sized to hold less than the estimated demand for a full year, but sufficient to satisfy demand for about ten months. The bulk plant in Charlottetown was sized to store more than sufficient product for the winter months when the road to a larger feeder depot in the Labrador Straits area could be blocked by snowdrifts or otherwise become impassable.

In these capital cost estimates, provision for higher transportation and construction costs is made for bulk plants and depots along the Labrador Coast. Approximately 20% is added to certain costs for road-connected plants and some costs are increased up to 50% for construction in isolated communities.

It could be argued that this approach to estimating a capital replacement cost for these bulk storage facilities is not realistic in view the fact that the existing plants have been in place in the subject locations for a number of years. It is felt, however, that this is a necessary approach given the possibility that an existing supplier could withdraw or that a competitor may wish to enter the market place.

Operating Costs for Bulk Plants and Marine Depots

Case A - Bulk Plants with Home Heating Fuels only:

Proprietary information obtained from companies operating 'home heat distillates only' bulk plants was sporadic and inconsistent making general comparisons difficult and cost standardization impossible. It was therefore decided to construct a costing model for home heat bulk plants based on storage volume - versus thruput - versus operating costs. Given estimated sales volumes, one could then project the capital and operating cost of a bulk plant on the Island of Newfoundland with some consistency. Capital cost estimates for Case A Bulk Plants having three thruput ranges are presented in Appendix B, Table B-1. Operating cost estimates versus volume could therefore be calculated and are presented in Appendix B, Table B-10.

Case B - Bulk Plants with Home Heating Fuels and Gasoline:

The nominal capital replacement cost for a combination Case B Bulk Plant for local storage of home heat fuels, gasoline and diesel fuel is given in Table B-2 of Appendix B. In the case of the four identified combination bulk plants currently in use, proprietary operating costs were obtained and by normalizing stock losses and some other expense items, the final cents per litre thruput costs for gasoline and diesel fuel through these plants are estimated as follows:

Gander Bulk Plant	-	Automotive Fuels	-	0.67 cpl
Fogo Island Bulk Plant	-	Automotive Fuels	-	1.51 cpl
Pool's Cove Bulk Pant	-	Automotive Fuels	-	1.03 cpl
Springdale Bulk Plant	-	Automotive Fuels	-	0.71 cpl

Case C Bulk Plants on the South Labrador Coast:

To date, this specifically includes a single bulk storage plant at Charlottetown, which is normally filled via tank-wagon from the marine depot in L'Anse au Loup.

Case D Marine Depots on the South Labrador Coast - connected by road to communities from L'Anse au Clair to Cartwright:

These currently include the storage depots at L'Anse au Clair, L'Anse au Loup, Port Hope Simpson, Cartwright and possibly others. The Port Hope Simpson Marine Depot is reportedly being upgraded to become the central distribution depot for the section of the south Labrador Coast from Lodge Bay to Cartwright for one supplier. The average operating cost for the marine depots at L'Anse au Clair and L'Anse au Loup is estimated at 2.45 cpl.

The estimated annual operating costs for the plants identified in Case C (Charlottetown) and Case D (Port Hope Simpson) are calculated in Table B-11. Average costs for gasoline and distillate fuels are shown separately to accommodate a relatively higher stock loss provision for gasolines, which is traditionally experienced in these plants in Labrador. These stock losses are partly due to wide day/ night temperature variances, but are otherwise unexplained shortages.

Case E Isolated Marine Depots along the Labrador Coast:

Separate operating cost estimates are given for each of five North Labrador Coast communities based on capital costs and annual volumes. These are shown in Appendix B, Tables B-12 through B-14. Table B-15 summarizes and averages the costs of operating these depots separately for gasoline and distillates (stove oil and diesel fuel).

The Innu community of Natuashish is not directly considered in these analyses and was not visited during the Consulting Team field trips. It is understood that the Innu Band Council is responsible for operating the fuel depot in that community and no details on supply or other costs were acquired. It is, however, expected that the costs of supplying fuels at Natuashish would be similar to that for the five other communities on the North Labrador Coast.

Black Tickle, an isolated island community located on the South Coast of Labrador, also has a Marine Storage Depot. The cost of fuel supply to that location is also considered to be the same as the average costs calculated for the five North Coast communities.

<u>Thruput costs for Automotive Fuels through Bulk Plants and Marine Depots</u>

Table 3 below summarizes the average estimated costs for the thruput of gasolines and diesel fuel through bulk plants and marine depots around the province. The costs for both products are considered to be the same for plants on the island portion of the province and for the Straits section of Labrador. For the rest of the Labrador Coast with generally smaller facilities, stock loss allowances for gasolines and distillates are higher, as is the difference between them. Therefore, where indicated in the Tables in Appendix B as well as in Table 3, plant-operating costs for each of these products are shown separately.

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Table 3

Automotive Fuels

Estimated Operating Costs for Bulk Plants / Marine Depots

Area Serviced	Type of Facility	Location of Storage Facility	Approximate Average Annual Thruput Kilolitres	**Estimated Average Operating Cost CPL**
Central Newfoundland	Bulk Plant	Gander	10,000	**0.67**
Fogo Island	Bulk Plant	Fogo Island	1,500+	**1.51**
Connaigre Peninsula	Bulk Plant	Pool's Cove Crossroads	3,200+	**1.03**
Triton/ Springdale/ Baie Verte	Bulk Plant	Springdale	3,000+	**0.71**
Labrador Straits	Marine Depots	L'Anse au Clair / L'Anse au Loup	5,000	**2.45**
Labrador South – Lodge Bay to Cartwright	Bulk Plant / Marine Depot	Port Hope Simpson/ Charlottetown / Other (Gasoline)	2,000	**7.77**
Labrador South – Lodge Bay to Cartwright	Bulk Plant / Marine Depots	Port Hope Simpson/ Charlottetown / Other (Diesel)	N/A	**7.39**
Labrador South - Black Tickle	Marine Depot	Black Tickle – Isolated Community (Gasoline)	270	**15.59**
Labrador South - Black Tickle	Marine Depot	Black Tickle – Isolated Community (Diesel)	N/A	**14.09**
Western Labrador	Bulk Plant	Labrador City	N/A	N/A
Northern Labrador Coastal Communities	Marine Depots	Isolated Communities (Gasoline)	263	**15.59**
Northern Labrador Coastal Communities	Marine Depots	Isolated Communities (Diesel)	N/A	**14.09**

Thruput costs for Heating Fuels through Bulk Plants and Marine Depots

Table 4 below summarizes the estimated costs for thruputting home heating fuels (furnace and stove oil) through bulk plants and marine depots around the province. Costs in cents per litre have been calculated using the costing model as previously explained and shown in detail in the Tables of Appendix B. In the majority of cases, the calculations have been made for bulk plants that already exist in the locations indicated. The sole exception is for Bell Island where a small bulk plant is included in the list because one has reportedly been proposed by at least one company in order to properly service the Island's home heat customers.

The operating or thruput costs for bulk plants in some adjacent areas are sufficiently close numerically that they have been combined and averaged as shown in the Table.

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Table 4

Home Heating Fuels

Estimated Thruput Costs for Bulk Plants / Marine Depots

Area Serviced	Location of Bulk Plant / Marine Depot	Estimated Home Heat Fuel Volume for Area Kls	Estimated Number Heating Fuel Storage Plants in Area	Estimated Average Operating Cost per Plant CPL	Combined Area Average Operating Cost per Plant CPL
North West Avalon	Bay Roberts/ Harbour Grace/Carbonear	22,000	4	1.19	**1.19**
South West Avalon	Placentia / Dunville Area	6,500	2	1.47	**1.46**
South East Avalon	Aquaforte / Trepassey/ St. Mary's	6,600	2	1.46	
Bell Island	*Bell Island*	*2,500*	*1*	*1.86*	***1.86***
Burin Peninsula	Marystown / Grand Bank / Burin	14,900	3 to 4	1.30	
Clarenville Area	Clarenville / Musgravetown/ Lethbridge	7,500	2	1.40	**1.36**
Bonavista Peninsula	Catalina / Trinity/ Bonavista Area	9,500	2 to 3	1.40	
Central Newfoundland	Gander / Lewisporte/ Grand Falls	42,000	4 to 5	0.84	**0.84**
Fogo Island	Fogo Island	2,000	1	1.23	**1.23**
Connaigre Peninsula	Milltown/ Pool's Cove / Harbour Breton	5,000	1	1.17	**1.17**
Triton/ Springdale/ Baie Verte Peninsula	South Brook/ Springdale/ Baie Verte	10,000	2	1.17	**1.17**
Deer Lake / Corner Brook/ Humber Arm	Deer Lake/ Pasadena / Corner Brook	21,000	1	1.37	**1.37**
Stephenville/ Port au Port Peninsula	Stephenville/ Stephenville Crossing	12,000	3	1.30	**1.34**
Port aux Basques Area	Port aux Basques	3,700	1	1.41	
Burgeo	Burgeo/ Ramea/ Coastal Communities	1,900	1	2.35	**2.35**
Northern Peninsula North	Port au Choix/ Plum Point/ Roddickton	8,800	2	1.40	**1.40**
Labrador Straits	L'Anse au Clair/ L'Anse au Loup	1,200	2	2.45	**2.45**
Labrador South – Lodge Bay to Cartwright	Port Hope Simpson/ Charlottetown	450	2	7.39	**7.39**
Western Labrador	Labrador City / Wabush	N/A	1	N/A	N/A
Northern & Isolated Labrador Coastal Communities	Various - Each Isolated Community	980	5	14.09	**14.09**

Table 5 on the following page combines all marine freight and storage terminal / depot operating cost estimates as indicated in this section of the report into a single table, which has been expanded to include all existing zones as designated by the PPPC in Appendix A. Some of the cost numbers have been reallocated to more realistically reflect the method by which much of the product is supplied to certain areas. For instance, the cost of product to secondary terminals has been dropped in favour of using the cost through primary terminals and subsequent direct trucking. Also, due to supply logistics, some major suppliers truck

product from marine terminals on the Avalon Peninsula to bulk plants and / or directly to retail outlets in central Newfoundland. The figures in Table 5 will be used as cost inputs for zone differential calculations later in this report.

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Table 5

Summary – Automotive and Home Heat Fuels

Estimated Average Marine Freight and Marine Terminal / Marine Depot - Operating Costs used for Calculations			Marine Freight to Terminals/ Depots 2004 (Table 1)	Estimated Terminal / Depot Operating Cost (Tables 2, 3, & 4)	Total Estimated Freight and Terminal Operating Cost
Zone		**Zone Description**	**CPL**	**CPL**	**CPL**
1		Avalon	0.85	0.81	1.66
1	a	Bell Island	0.85	0.81	1.66
2		Burin-Bonavista Peninsulas	0.85	0.81	1.66
3		Central Newfoundland – Avalon Terminals	0.85	0.81	1.66
3	a	St. Brendan's Island	0.85	0.81	1.66
3	b	Fogo Island	0.85	0.81	1.66
3	c	Change Islands	0.85	0.81	1.66
4		Connaigre Peninsula	0.85	0.81	1.66
4	a	Gaultois-Francois	0.85	0.81	1.66
5		Springdale-Baie Verte (Ex Corner Brook)	1.19	1.22	2.41
5	a	Long Island	1.19	1.22	2.41
5	b	Little Bay Islands	1.19	1.22	2.41
6		Corner Brook Area	1.19	1.22	2.41
7		Stephenville-Port aux Basque-Burgeo	1.19	1.22	2.41
7	a	Ramea	1.19	1.22	2.41
7	b	Grey River/La Poile	1.19	1.22	2.41
8		Northern Peninsula South	1.19	1.22	2.41
9		Northern Peninsula North	1.19	1.22	2.41
10		Labrador - The Straits (Averaged)	4.42	2.45	6.87
10	a	Mary's Harbour to Cartwright – Gasoline	6.64	7.77	14.41
10	a	Mary's Harbour to Cartwright – Stove Oil / Diesel	6.64	7.39	14.03
11		Isolated Communities with Marine Depots Labrador Coast- South – Gasoline	6.64	15.59	22.23
11		Isolated Communities with Marine Depots Labrador Coast- South – Stove Oil / Diesel	6.64	14.09	20.73
12		Central Labrador (Goose Bay)	1.80	2.71	4.51
13		Western Labrador – Gasoline & Diesel	N/A	N/A	6.50
13	a	Churchill Falls – Gasoline & Diesel	N/A	N/A	6.50
14		Labrador Coast – North – Gasoline	6.64	15.59	22.23
14		Labrador Coast – North - Stove Oil / Diesel	6.64	14.09	20.73

5.0 Automotive Fuels – Distribution

With the expansion and improvement in the highway system throughout Newfoundland and Labrador during the past three decades, the distribution of petroleum products has evolved from a network of marine terminals into one where imported product is stored in larger primary terminals and then trucked throughout the province. This has resulted in the closure of a number of smaller marine terminals, which had previously been the lifeline supply of petroleum products in many regions. Whereas it may first appear that using tractor-trailers to haul over long distances compared with delivery from local marine terminals is a more costly proposition, mitigating factors include:

- Higher thruputs at primary marine 'mother' terminals, which reduce costs on a CPL thruput basis.

- More centralized control and efficiencies in scheduling deliveries to retail gasoline outlets.

- Cost reductions in closing lower thruput marine terminals, including all operating costs and the high cost of insurance and liability claims and potential remediation operations.

Moreover, the major oil companies have gradually moved from operating their own tractor-trailer fleets to contract carriers, a process that is now practically universal in the province.

5.1 Costs of Land Transportation

The development of an accurate but flexible tractor-trailer costing model is therefore one of the more important elements in quantifying the costs of distribution of petroleum products throughout the province.

Costing Model for Tractor Trailer Transport of Petroleum Products

Some of the input factors considered in constructing a cost model for tractor-trailers (T/Ts) are:

- Total Load (litres) per T/T
- Loading and discharge times
- Distance travelled from the source terminal to the destination location including:
    - Distance travelled on Class A paved highways (TCH standard built and maintained highways)
    - Distance travelled on Class B paved highways (paved highways - good condition)
    - Distance travelled on Class C Roads (paved highways - fair condition)
    - Distance travelled on Class City/Town local roads
- Average speed attained on each road class
- Number of drops made per load
- Driver break-time and other delays
- T/T positioning cost at loading terminal
- Ferry crossing charges, where applicable
- Overnight accommodations for driver if applicable
- Other non-travel costs and idle time for T/T and driver, where applicable
- Diesel Fuel Surcharge* (DFS) applied as % of CPL haulage rate

    * See Table C-1, Appendix C for description of Diesel Fuel Surcharge

5.2 Tractor Trailer Deliveries of Gasolines to Bulk Plants

A basic costing model for full load tractor-trailer deliveries from specific marine terminals to specific bulk plants for gasolines was first developed. Proprietary T/T transportation rates were obtained from several of the prominent contract haulers operating in the province. A tractor-trailer costing model was then developed through a process of iteration using the input variables listed above in various formula structures. Known proprietary rates were used as reference markers, however, the nominal proprietary rates obtained did not always agree with each other and therefore a degree of judgement had to be employed in fine-tuning the costing model. The final model was applied to each instance where tractor-trailer transfers of gasolines from marine terminals to bulk plants would logically occur. These are summarized in Appendix C Table C-1. Sample detail calculation sheets using the developed costing model for three representative deliveries are also included in Appendix C as Tables C-2 and C-3. These rates compare favourably with proprietary rates obtained. Table 6 below gives a summary of the T/T rates to bulk plants where trucking operations for automotive fuels are currently in use.

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Table 6

Tractor Trailer Costs - Gasoline to Bulk Plants where Applicable

Zone	Sub	Zone Description	Originating Storage Terminal	Bulk Plant Location	T/T Freight To Bulk Plants (See Appendix C, for details) CPL
3	a	St. Brendan's from Avalon Peninsula	Avalon Marine Terminals	Gander	1.98
3	b	Fogo Island from Avalon Peninsula	Avalon Marine Terminals	Fogo Island	4.61
3	c	Change Islands - from Fogo BP via TW	Avalon Marine Terminals	Fogo Island	4.61
4		Connaigre Peninsula from Avalon	Avalon Marine Terminals	Pool's Cove Crossroads	3.56
4	a	Gaultois-McCallum-Rencontre East from BP (Drums)	Avalon Marine Terminals	Pool's Cove Crossroads	3.56
5		Springdale-Baie Verte from Corner Brook via BP	Corner Brook Marine Terminal	Springdale	1.44
5	a	Long Island via T/W Ex Springdale Bulk Plant	Corner Brook Marine Terminal	Springdale	1.44
5	b	Little Bay Islands via T/W ex Springdale BP	Corner Brook Marine Terminal	Springdale	1.44

5.3 Tractor Trailer Deliveries of Gasolines Direct to Retail Outlets

This was the most significant part of the Study with respect to evaluating automotive fuel zone boundaries and the pricing differentials between them.

The initial methodology employed was to use the T/T costing model to determine the cost of T/T deliveries to specific cities or towns and then to compare these rates with the cost of deliveries to adjacent communities. If these differences were not significant, and/or if there was no sparsely inhabited area or natural geographic boundaries between them, then the adjacent communities and areas would be annexed in turn to the hypothetically developing 'Pricing Zone'. In the case of the Avalon Peninsula, currently designated as Zone 1 by the PPPC, this procedure was incrementally advanced to the conclusion that except for Zone 1a (Bell Island) there was no reasonable or easily recognized intra-dividing geography between populated areas within the entire zone. The pricing of automotive fuels in a relatively continuously populated area means that there are usually no differences between pricing at

outlets in adjacent communities because the consumer can easily drive to the area of lower pricing for fuel purchases.

Each existing zone and sub-zone for automotive fuels within the province was subsequently analysed and tested in a similar manner with similar results.

An analysis was undertaken on an alternative-costing model for retail gasoline on the Avalon Peninsula whereby the larger centres were linked by a high population density 'geographic ribbon' that comprised the vast majority of high volume retail outlets throughout the zone. Whereas it made some sense to test the technical validity of this approach, it was eventually abandoned due to the perennial problem of deciding where a pricing zone or sub-zone boundary could reasonably be established in an area of adjoining and continuously populated geography.

It was finally concluded that the existing automotive fuel pricing zone boundaries were established as reasonably as they could be around the entire province. Another practical reason for not recommending any changes to these boundaries was that information gathered through field trips by the Consulting Team demonstrated that there were no negative comments or problems with the current boundaries and the existing zonal structure for automotive fuels.

The next task was to examine price differentials between the automotive fuel zones. A method to determine an average cost of product delivery to and within a zone or sub-zone was first necessary. The approach used identified T/T delivery costs to a particular city, town, or cluster of smaller communities in contiguous areas within the zone. These delivery rates were weighted by product volume consumption applicable to the each cluster and a final average delivery rate was then calculated for the zone in question. The database listing of retail outlets created and supplied by the PPPC was helpful but no detailed volume information by outlet was available from that, nor any other source.

The latest Statistics Canada Census (2001) was obtained and broken down by census sub-division. The populations of the larger centres and of clusters of communities within contiguous areas were determined. The selected area or 'sub-region' was then compared with the retail outlet listing provided by the PPPC and the number of outlets was noted for each sub-region. This was also an iterative process since if an identified sub-region had no outlets, then it would be included with the adjacent one where outlets did exist.

The number of outlets was also compared against the population to calculate the population per outlet for the sub-region. While this was of no meaningful value to the zone delivery rate calculation process, it did highlight the difficulty some of the smaller rural outlets might have in maintaining their economic viability for fuel sales in servicing a relatively small population.

Overall provincial gasoline consumption, numbers of motor vehicles, kilometres of roads and other information was sourced through Statistics Canada and the Economics and Statistics Branch of the Newfoundland & Labrador Statistics Agency. An analysis of these data showed that there was a direct and quantifiable relation between the population of areas connected by roads and the average consumption of automotive gasoline. Thus, in lieu of product consumption by retail outlet or area, which was unavailable, one could alternately use populations of identified 'clusters' of communities in zonal sub-regions for the purpose of arriving at a weighted average T/T delivery rate for the zone.

Appendix D Table D-1 uses the existing PPPC Zone 6 [Deer Lake/ Corner Brook/ Bay of Islands/ Gros Morne] as an example of the process undertaken for all zones in the determination of population by cluster and also gives the important average distance from the source terminal for all communities (and outlets) in each cluster. Appendix D Table D-2 applies the tractor-trailer costing model to the sample Zone 6 by cluster and then weights the delivery rates according to the percentage of the zone population within each cluster. The resultant calculated average CPL delivery rate should therefore be appropriate for the zone being considered. The model was adjusted to provide for cases where there would normally be more than one drop per T/T load. In fact, two or three drops were used in each case for all tractor-trailer deliveries.

Using the above methodology, the weighted average T/T delivery rates were calculated for each automotive fuel zone throughout the Island portion of the province. A summary of truck delivery rates for all applicable zones and sub-zones is presented in Appendix D Table D-3. It is concluded that same zone rate differentials are also applicable for diesel fuel; notwithstanding that only a very small number of retail outlets in the province carry diesel fuel for sale. (The vast majority of diesel is sold through Cardlock / Keylock facilities as commercial transactions)

Gasoline delivery rates for many of the sub-zones and for the Labrador areas had to be calculated using rates developed for tank-wagons (either tandem or single axle). These rates are also included in Appendix D Table D-3 however the process for these calculations is described in the next section of this Report.

5.4 Tank Wagon Deliveries of Gasolines to Retail Outlets

The approach to developing a costing model for the delivery of products by tank-wagon (straight truck) vehicles was quite different than that used for tractor-trailers. No proprietary carrier rates for tank-wagon deliveries were available for reference or comparison. The approach used was one of building up a delivery cost model using capital replacement costs and operating cost variables, employing methodology similar to that previously used for bulk plants.

Capital replacement costs for both single axle and tandem axle tank-wagons (T/W) completely equipped with cab and chassis, tank, pumping equipment, meter, hose reel, etc were obtained from local vehicle suppliers. Current costs (2004) were averaged at $195,000 for a fully equipped tandem axle with a 20,000-litre tank and $160,000 for a single axle with an 11,500 litre-tank.

Operating costs for each or these vehicles were then estimated using data from truck suppliers, some of the smaller petroleum companies in the province, and delivery agent owner/ operators. A summary of these costs is presented In Appendix E as Table E-1.

Each identified case where tank wagons are used to deliver gasoline or diesel fuel to retail outlets was addressed individually. Each tank-wagon delivery cost is calculated and included in separate sheets in Appendix E. In a few cases with confined geography, such in Zone 10 (Labrador Straits), there is insufficient retail outlet gasoline volume demand for the full time operation of even a dedicated single axle tank wagon. In such cases the dedicated vehicle is considered to be on a standby basis at a reduced cost during the periods it is not in use. (The changeover of tank trucks in gasoline service to carry distillate fuels is an extremely dangerous practice and is discouraged in the industry due to the potential of an

explosion caused by static electricity). The standby or idle time cost is therefore calculated and factored into the average gasoline delivery cost for the specific area as detailed in Appendix E.

Table 7 below summarizes all cents per litre cost estimates for T/T and T/W deliveries of gasoline to retail outlets in the applicable zones.

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Table 7

Trucking Costs of Automotive Fuels to Retail Outlets

Zone	Sub	Zone Description	Originating Storage Facility	Estimated Average T/T Freight from Marine Terminals to Retail Outlets (See Appendix D for Details) CPL	Estimated Average T/W Freight from Bulk Plants to Retail Outlets (See Appendix E for details) CPL
1		Avalon	St. John's / Holyrood Terminals	0.68	-
1	a	Bell Island	St. John's / Holyrood Terminals	1.42	-
2		Burin-Bonavista Pens	St. John's / Holyrood Terminals	2.11	-
3		Central Newfoundland from Avalon Peninsula	St. John's / Holyrood Terminals	2.62	-
3	a	St. Brendan's from Avalon Peninsula & Gander	Holyrood Marine Terminal	-	3.88
3	b	Fogo Island from Avalon Peninsula (Existing)	Holyrood Marine Terminal	-	0.92
3	c	Change Islands - from Fogo BP via TW (Existing)	Holyrood Marine Terminal	-	4.96
4		Connaigre Peninsula from Avalon (Existing)	Holyrood Marine Terminal	-	0.81
5		Springdale-Baie Verte from Corner Brook via BP	Corner Brook Marine Terminals	-	1.05
5	a	Long Island via T/W from Springdale Bulk Plant	Corner Brook Marine Terminals	-	4.69
5	b	Little Bay Islands via T/W from Springdale BP	Corner Brook Marine Terminals	-	5.04
6		Corner Brook Area	Corner Brook Marine Terminals	0.56	-
7		Stephenville-Port aux Basque - Burgeo	Corner Brook Marine Terminals	1.25	-
7	a	Ramea	Corner Brook Marine Terminals	4.05	-
8		Northern Peninsula South	Corner Brook Marine Terminals	1.39	-
9		Northern Peninsula North	Corner Brook Marine Terminals	2.93	-
10		Labrador-The Straits - Gasoline	Area Marine Deports	-	2.18
10		Labrador-The Straits - Arctic Diesel	Area Marine Deports	-	0.88
11		Labrador Coast South - Gasoline	Area Marine Deports/ Bulk Plants	-	2.49
11		Labrador Coast South - Arctic Diesel	Area Marine Deports/ Bulk Plants	-	1.65
12		Central Labrador (Goose Bay) - Gasoline	Goose Bay Marine Terminal	-	0.98
12		Central Labrador (Goose Bay) - Arctic Diesel	Goose Bay Marine Terminal	-	0.85
13		Western Labrador - Gasoline & Arctic Diesel	Labrador City Rail Car Bulk Plant	-	0.63
13	a	Churchill Falls - Gssoline & Arctic Diesel	Labrador City Rail Car Bulk Plant	-	2.72

5.5 Drum Deliveries of Gasoline to Isolated Communities

Drum deliveries for retail sales take place in three areas of the Island part of the province and potentially one location in Labrador. On the south coast of the Island, drums of gasoline and furnace oil are delivered by freight ferry from ports on the Connaigre Peninsula; Pool's Cove to Rencontre East; and from Hermitage to Gaultois and McCallum. Drum deliveries are also made from Burgeo to Grey River and Francois and can be made from Burgeo to Grand Bruit and La Poile. Alternately, drums can be shipped via freight ferry from Rose Blanche to supply Grand Bruit and La Poile.

There is also a freight ferry service that could supply fuel in drums from Petite Forte on the Burin Peninsula to the small community of South East Bight in Placentia Bay. It is understood, however, that petroleum product supply to South East Bight is provided by a

commercial enterprise to consumers there who, in turn, supply raw material for the enterprise and these particular transactions are not currently part of the petroleum pricing regulatory system.

With respect to drums delivered from ports on the Connaigre Peninsula, they are filled via tank-wagon at dockside either at Pool's Cove or Hermitage. When they arrive at the destination port and are unloaded, this is considered to be the 'Wholesale Point of Sale' for gasoline (or diesel fuel) in the community. From there, the distribution and sale by drum or other means to the end consumer would comprise the retail margin for the transaction. Appendix E, Table E-13 details the calculations involved in arriving at the cost of drums delivered to dockside in the destination communities from the bulk storage plant on the Connaigre Peninsula. This calculation generates part of the supply chain cost to arrive at a wholesale price for gasoline at the ports of delivery. The currently established retail margin for drums from dockside to the dispensing point of gasoline consumers is 10.0 cpl or $20.50 per drum. This margin is considered to be reasonable in all cases where drums must be handled. The same filling, handling and shipping costs would apply to diesel fuel supplied in drums to these communities, and therefore the landed cost for diesel in drums would be the same as that for gasoline.

With respect to drums of gasoline delivered to Grey River and other isolated south coast (western) ports, it is understood that these are currently loaded on an open truck and filled at a service station outlet in Burgeo. (There is no tank-wagon delivery of gasoline available in Burgeo on an ongoing basis, nor at Rose Blanche) The cost at the Burgeo retail outlet for the drums supplier is therefore the first link in the remaining supply chain to Grey River, Francois and the other communities. Appendix E, Table E-14 details the calculations involved in arriving at an average cost for drums of gasoline delivered to the destination communities via freight ferry from Burgeo. Dockside at the receiving communities would again be the 'Wholesale Point of Sale' for drums of gasoline. Diesel fuel delivered by drums to these communities would have the same freight ferry and handling cost as is calculated for heating fuel later in this report. (Appendix H, Table H-7b gives the calculation for furnace oil, and the same numbers would apply for diesel since the bulk plant at Burgeo would have storage for diesel).

An available freight ferry delivery service in Labrador could potentially service the small communities of Williams Harbour and Norman Bay on the South Labrador Coast. For some years up until 2002, it is understood that these communities were serviced via coastal marine tanker with small marine depots located in each. However, low sales volumes and the high cost of marine freight made continued operations uneconomical. Since deliveries ceased, the residents have apparently managed to service themselves by shipping fuel in drums or in other containers from Charlottetown or Port Hope Simpson. The freight ferry does, however, provide an alternate means to service these locations via drums. The calculation of the freight cost involved is quite different and much more expensive than that for the ferries on the south coast of the Island. For palletized freight such as drums the transportation cost is based on the actual weight or the cubic weight, whichever is greater. For full drums, the actual weight is used; while for empty drums returned, the cubic weight would be greater and thus would be used in the freight calculation. The landed costs in cents per litre is summarized in Appendix E, Table E-15, while the detailed calculation of freight for drums shipments to these communities is outlined in the Table E-15 Supplement. Separate Tables are presented for gasoline and for diesel fuel, since the ferry freight for diesel is higher. If the freight rates for drums on this ferry service were calculated the same as that for the ferries on the south coast of the Island, the shipping rates would be approximately 9.5 cpl lower than that those shown in these Tables.

5.6 Summary of Automotive Fuel Costs to the Wholesale Point of Sale

Table 8 below presents a summarized format of each identified cost in the supply chain to the wholesale point of sale for gasolines in each pricing zone. The ex-tax wholesale point of sale price to the retailer is taken as the standard reference price for automotive fuels. The retail margin add-on differs by the grade of gasoline and whether it is a self-serve or full-serve sale to the consumer. Unless otherwise noted in Table 8, the laid-in zone costs for diesel fuel can be taken to be the same as those for gasolines.

In Appendix F, supply chain diagrams depict more clearly how each element of the laid-in cost figures are applied for each zone and sub-zone as listed in Table 8.

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Table 8

Laid-in Cost of Automotive Fuels to Wholesale point of Sale

Automotive Fuels Calculated Laid-In Cost to Retail Outlet or Wholesale Point of Sale by Zone			Estimated Marine Freight & Terminal / Depot Operating Cost (Table 5)	T/T Freight To Bulk Plants where Applicable (Table 6 & Table 9)	Associated Average Bulk Plant Operating Costs (Table 3 & Table 4)	Average T/T Freight to Retail Outlets (Table 7)	Average T/W Freight from BP to Retail Outlets where Applicable (Table 7)	Cost of Handling and Filling Drums at Loading Port (Appendix E)	Freight Cost Drums Delivered to Dockside Destination Port (Appendix E)	Total Laid-in Cost to Retail Outlets or Wholesale Point of Sale
Zone	**Sub**	**Zone Description**		**CPL**	**CPL**	**CPL**	**CPL**	**CPL**	**CPL**	**CPL**
1		Avalon	1.66	-	-	0.68	-			**2.34**
1	a	Bell Island	1.66	-	-	1.42	-			**3.08**
2		Burin-Bonavista Pens	1.66	-	-	2.11	-			**3.77**
3		Central Newfoundland from Avalon Peninsula	1.66	-	-	2.62	-			**4.28**
3	a	St. Brendan's from Avalon Peninsula (Existing)	1.66	1.98	0.67	-	3.80			**8.11**
3	b	Fogo Island from Avalon Peninsula (Existing)	1.66	4.61	1.51	-	0.92			**8.70**
3	c	Change Islands - from Fogo BP via TW (Existing)	1.66	4.61	1.51	-	4.96			**12.74**
4		Connaigre Peninsula from Avalon (Existing)	1.66	3.56	1.03	-	0.81			**7.06**
4	a	Gaultois-McCallum-Rencontre East from Zone 4 (Drums)	1.66	3.56	1.03	-	-	2.97	0.97	**10.19**
5		Springdale-Baie Verte from Corner Brook via BP	2.41	1.44	0.71	-	1.05			**5.61**
5	a	Long Island via T/W Ex Springdale Bulk Plant	2.41	1.44	0.71	-	4.69			**9.25**
5	b	Little Bay Islands via T/W from Springdale BP	2.41	1.44	0.71	-	5.04			**9.60**
6		Corner Brook Area	2.41	-	-	0.56	-			**2.97**
7		Stephenville-Port aux Basque - Burgeo	2.41	-	-	1.25	-			**3.66**
7	a	Ramea	2.41	-	-	4.05	-			**6.46**
7	b	Grey River/La Poile/Grand Bruit/Francois - Gasoline (Drums)	2.41	-	-	1.25	-	8.98	1.37	**14.01**
7	b	Grey River/La Poile/Grand Bruit/Francois - Diesel (Drums)	2.41	2.05	2.35			2.75	1.52	**11.08**
8		Northern Peninsula South	2.41	-	-	1.39	-			**3.80**
9		Northern Peninsula North	2.41	-	-	2.93	-			**5.34**
10		Labrador-The Straits - Gasoline	6.87	-	-	-	2.18			**9.05**
10		Labrador-The Straits - Arctic Diesel	6.87	-	-	-	0.88			**7.75**
11		Labrador South - Lodge Bay to Cartwright - Gasoline	14.41	-	-	-	2.49			**16.90**
11		Labrador South - Lodge Bay to Cartwright - Arctic Diesel	14.03	-	-	-	1.65			**15.68**
11	a	Labrador Coast- South (Isolated Communities) - Gasoline	22.23	-	-	-	-			**22.23**
11	a	Labrador Coast- South (Isolated Communities) - Arctic Diesel	20.73	-	-	-	-			**20.73**
11	b	*Labrador Coast- South - (Drums- Freight Ferry) - Gasoline*	14.41	-	-	-	-	3.06	10.80	**28.27**
11	b	*Labrador Coast- South - (Drums- Freight Ferry) - Arctic Diesel*	14.03	-	-	-	-	3.06	11.48	**28.57**
12		Central Labrador (Goose Bay Area) - Gasoline	4.51	-	-	-	0.98			**5.49**
12		Central Labrador (Goose Bay Area) - Arctic Diesel	4.51	-	-	-	0.85			**5.36**
13		Western Labrador (Labrador City) - Gasoline & Artic Diesel	6.50	-	-	-	0.63			**7.13**
13	a	Churchill Falls - Gasoline & Arctic Diesel	6.50	-	-	-	2.72			**9.22**
14		Labrador Coast-North (Isolated Communities) - Gasoline	22.23	-	-	-	-			**22.23**
14		Labrador Coast- North (Isolated Communities) - Arctic Diesel	20.73	-	-	-	-			**20.73**

Note: The laid in cost for drums at dockside is used as the wholesale price to retailers at the destination community.

6.0 Distillate Heating Fuels – Distribution

Whereas the reduction in the number and consolidation of marine terminals around the province has also impacted heating fuel, the logistics of delivering these fuels directly via tank-wagon to consumers' home fuel tanks has not significantly changed. The storage facility from which home heat trucks obtain their supply must be within a reasonable distance to enable the area to be properly serviced, particularly during the high volume winter months when deliveries are often necessary under treacherous road conditions. Hence, the need for local area bulk plants has, in essence, increased as marine terminals have been closed. Generally, the major oil companies have not responded to fill this need. In fact, they have tended to reduce the number of local bulk plants they operate and in recent years have withdrawn completely from certain areas. This rationalization has occurred primarily in rural areas of the province where there has been a significant reduction in the population base and where any new or replacement homes being built generally install cheaper electric heating systems, thereby further reducing the demand for home heating fuel. Local 'resellers' either carrying a major oil company brand, or their own brand, have stepped in to fill this void. A notable exception to this general trend has been the expansion of North Atlantic Petroleum (with the only operating refinery in the province at Come by Chance) in the marketplace with the construction of several new bulk plants throughout the province over the past few years.

Some resellers have bought bulk plants previously owned by major oil companies, while others have constructed their own. In a growing number of instances, they now provide the only source of home heating fuels in a particular rural area.

6.1 Tractor Trailer Deliveries of Heating Fuels to Bulk Plants:

The same costing model that was used for gasoline has also been utilized for distillate deliveries to bulk plants. The only modification necessary was to integrate the volume difference of full loads in the calculations. A typical tractor-trailer carries 43,000 litres of gasoline but only approximately 38,000 litres of stove, furnace or diesel, because these fuels are heavier per unit volume and a full load must be reduced to conform to highway weight restrictions. The resultant rates in CPL for each known or probable delivery of distillate from marine terminals to bulk plants are summarized in Appendix G, Table G-1. (Probable or hypothetical delivery locations are included in italics in Table G-1. They represent delivery rates to bulk plants that may be under consideration, but do not currently exist). Three representative sample calculation sheets detailing how the costing model was adapted to arrive at these figures are also included in Appendix G.

These are:

Table G-2	Source Terminal: St. John's	Receiving Bulk Plant: Harbour Grace
Table G-3	Source Terminal: Holyrood	Receiving Bulk Plant: Fogo Island
Table G-4	Source Terminal: Corner Brook	Receiving Bulk Plant: Springdale

Table 9 below summarizes the T/T estimated haulage rates for all identified deliveries of home heating fuels from marine terminals to bulk plants around the province.

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Table 9

Tractor Trailer Costs - Heating Fuel Deliveries to Bulk Plants where Applicable

Zone	Sub	Zone Description	Originating Storage Terminal	Bulk Plant Location	T/T Freight To Bulk Plants (See Appendix G for details) CPL
1	ANW	Avalon North West	St. John's/ Holyrood/ Come by Chance	Bay Roberts / Harbour Grace Area	0.98
1	AS	Avalon South	St. John's/ Holyrood/ Come by Chance	Aquaforte/ Trepassey/ St Mary's/ Dunville Areas	1.09
1	a	Bell Island	St. John's/ Holyrood/ Come by Chance	Bell Island	2.11
2		Burin-Bonavista Peninsulas	St. John's/ Holyrood/ Come by Chance	Marystown/ Clarenville/ Bonavista areas	1.94
3		Central Newfoundland from Avalon Peninsula	St. John's/ Holyrood/ Come by Chance	Gander/ Lewisporte/ Grand Falls areas	1.95
3	a	St. Brendan's from Avalon Peninsula (Existing)	Holyrood	Gander	2.24
3	b	Fogo Island from Avalon Peninsula (Existing)	Holyrood	Fogo Island	4.82
3	c	Change Islands - from Fogo BP via TW (Existing)	Holyrood	Fogo Island	4.82
4		Connaigre Peninsula from Avalon (Existing)	Holyrood	Pool's Cove Crossroads	3.99
4	a	Gaultois-McCallum-Rencontre East (Drums)	Holyrood	Pool's Cove Crossroads	3.99
5		Springdale-Baie Verte from Springdale BP	Corner Brook	Springdale	1.63
5	a	Long Island via T/W Ex Springdale Bulk Plant	Corner Brook	Springdale	1.63
5	b	Little bay Islands via T/W ex Springdale BP	Corner Brook	Springdale	1.63
7	W	Stephenville and Port aux Basques	Corner Brook	Stephenville/ Port aux Basques	1.45
7	SW	Burgeo	Corner Brook	Burgeo	2.05
7	a	Ramea	Corner Brook	Burgeo	2.05
7	b	Grey River/La Poile/Grand Bruit/Francois (Drums)	Corner Brook	Burgeo	2.05
9		Northern Peninsula North	Corner Brook	Plum Point/ Other areas	2.64

6.2 Tank Wagon Deliveries of Heating Fuel to Homes:

The approach to developing a costing model for the delivery of home heating fuels by tank wagon was much different than that for tank wagon deliveries of gasoline to retail outlets. The estimated operating costs of both tandem and single axle tank wagon vehicles are the same in most respects and are presented in Appendix H, Table H-1. The operating days per year are also assumed at 300, which provides for one day off per week and 13 days per year for statutory holidays and / or other non-operating days.

However, the method of operation for a tank wagon vehicle delivering home heat fuel to consumer household storage tanks is much more intricate and demanding than the relatively large volume drops at a retail gasoline outlet. In developing a costing model, firstly, the number of households in a specific area that used oil as a heating medium had to be estimated followed by an estimate of the average annual consumption of each household. Wood stoves used for supplementary heating had to be considered as one of the factors affecting oil consumption.

Other relevant data and sources were identified for input in the costing model. These are listed in Table 10 below.

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TABLE 10

Variables considered for Home Heat Fuel Deliveries

Item	Sources for Information
Population of specific geographic sub-areas	Statistics Canada
Number of households located in a specific area	Statistics Canada
Average population per household	Calculated
Number of homes with electric heat	Newfoundland Power – where available – otherwise estimated.
% of Homes with oil / other heating methods	By difference
Annual volume for households using oil	Industry Sources
Average T/W drop per household – winter/ summer	Industry Sources
Loading time per vehicle	Industry Sources
Distance between communities	Road Distance Database - Newfoundland & Labrador Statistics Agency
Estimated kilometres travelled per load	Calculated
Drop time for each delivery	Industry Sources
Average speed attained during travel times per load	Estimated
Average delivery time for each load	Calculated
Volume delivered over a period of months	Calculated
Average volume delivered litres per hour	Calculated
Required trips per day for period	Calculated
Ferry rates where applicable	NL Government Services Website (2004 Rates)

The identification of each specific geographic home-heat area or zone and an overview of how existing home heat businesses service particular areas was ascertained by field visits and follow-up contact with key personnel. These areas were then further delineated using population profiles, natural geographic boundaries, and estimated demand for home heating fuels. Considerable effort was made in keeping the final model structure practical and understandable, yet universally applicable and as accurate as possible.

The first area to be studied was the Avalon Peninsula, all of which is now included in one Home Heat Pricing Zone. A close examination of this zone with its highly populated urban section around St. John's, contrasted with sparsely populated sections in its south western portion and other large and small towns spread around the rest of the area, resulted in some interesting anomalies. Nevertheless, through a methodical application of the costing model, it became apparent, as explained below, that the Avalon Peninsula should be divided into three Home Heat Zones in addition to the existing Sub-Zone, Bell Island.

The North East Avalon, supplied from marine terminals at St. John's and Holyrood and from a large bulk plant at Donovans, Mount Pearl, would become Home Heat Pricing Zone 1 – Avalon North East (HH-1 ANE) and would include all communities from Georgetown/ Marysvale in Conception Bay, to Holyrood, north to Pouch Cove and then south to Maddox Cove and Petty Harbour, including the town of Conception Bay South and the cities of Mount Pearl and St. John's. (See Map portion Appendix I Figure I -1) All this area can be serviced via tank-wagon deliveries directly from storage facilities in St. John's, Mount Pearl and Holyrood.

The costing model as applied to this Avalon North East Base Zone is presented in Appendix H as Table H1-ANE. The cost calculations are based on the equipment and manpower needed to deliver the estimated demand volumes during the peak demand winter months (December through March - about 61% of annual volume). For the remaining months of the year, fewer tank-wagons and lower operating hours per day are needed, however fixed costs such as insurance, depreciation, etc. must still be covered so the unit cost (in cents per litre delivered) will not necessarily be lower. In the peak period, costs for required full time vehicles, part time vehicles, and the idle time for the part time vehicles (except in special circumstances) are all included in the total cost calculation. In the off-season months, the idle time for any part time vehicles required is not included since it is assumed that these vehicles would not be on 'stand-by' status. They would most likely be laid up or involved in other delivery work such as commercial fuel deliveries. This logic is applied consistently in the calculation tables for all identified zones with annual volumes in excess of one million litres. For total annual volumes less than a million litres, only one part time vehicle is required for the entire volume and the cost of the idle time for the vehicle is not applied since it would, in most cases, distort the CPL delivery rates unnecessarily. Since home heat deliveries are generally made by owner/ operator type businesses, no provision was included for overtime for drivers when the standard eight hours per day is exceeded during the peak demand months.

The proposed HH- Zone 1- Avalon North East was 'backed into' upon testing the pricing model for other areas of the Avalon Peninsula. For example, it was concluded that to properly service the Bay de Verde (Conception Bay North) Peninsula, a bulk fuel storage plant was required somewhere in, or near, the Bay Roberts – Carbonear area. In fact, it was determined by field trips that there was one bulk plant in Bay Roberts and two fuel storage facilities in Harbour Grace from which tank-wagons currently pick up heating fuels for most of the peninsula. The costing model sheet for this area is presented in Appendix H, Table H1-ANW. Whereas the cents per litre delivery cost calculated at 4.19 cpl is not dramatically more than that for Zone 1 – NE at 3.42 cpl, the main difference between the two proposed home heat zones would be the added cost of an area bulk plant and tractor-trailer deliveries to keep it supplied. The HH Zone 1 – Avalon North West would encompass the area from Brigus in the south, north along the Conception Bay North coastline to Grates Cove, then south along the Trinity Shore side of the peninsula to Old Shop and then to the Trans Canada Highway (TCH). The outline of this HH Zone 1 - Avalon North West is shown in Appendix-I as Figure I-2.

The costing model calculations for each of the Avalon South West and Avalon South East peninsulas are given in Tables H1-ASW and H1-ASE of Appendix H. Notwithstanding that separate bulk storage plants are assumed to be located in each of these areas, the average delivery costs of 4.95 cpl and 5.21 cpl are sufficiently close to regard the entire area as one home heat zone. This also alleviates the difficulty of determining a geographic dividing point between the two areas around St. Mary's Bay. When taken as one zone, the average delivery cost for this proposed HH Zone 1 - Avalon South is 5.06 cpl as calculated in Appendix H Table H1-AS. This proposed new zone would include the balance of the existing Zone 1 of the Avalon Peninsula as shown by the map portion included in Appendix I as Figure 1-3.

Where applicable, in each of the costing model calculation sheets, delivery costs for both single and tandem axle tank-wagon units are considered and the average of each mode is taken as the final CPL estimated cost. The tandem axle units generally become more

economically feasible as the size of the area and the average distance travelled per delivered load increases.

The developed home heat costing model was applied to all areas, irrespective of existing zonal boundaries. Nevertheless, this extensive iterative process resulted in a mix of recommended home heat zones for the province, the majority of which did align with existing boundaries. For clarity and completeness, a detailed cost model calculation sheet for every home heat pricing zone is included in Appendix H.

Besides the recommended increase of two additional zones for the Avalon Peninsula, the only other additional zone would be for Burgeo, which would separate that area from the current Zone 7, which includes Stephenville, the Port au Port Peninsula and Port aux Basques areas, as well as Burgeo. This results in a recommended Zone 7 - West and a Zone 7 - South East as is indicated in Appendix H, Tables H-7W and H-7SE. The main reason for designating Burgeo as a separate home heat zone was the higher CPL cost of operating the bulk plant and the delivery tank wagons therein due to its relatively lower volume thruput.

6.3 Drum Deliveries of Heating Fuels to Isolated Communities:

The same areas where drum deliveries are necessary for gasoline also apply to home heating fuels. Drum delivery calculation sheets are not separated but are included in turn by sub-zone in the tables of Appendix H. Particular note should be made of the proposed new Zone 11b where drum delivery costs are calculated for Williams Harbour and Norman Bay on a different ferry freight basis than for the south coast of the Island. If the same rates applied in the case of Zone 11b, the calculated freight rate would be reduced by approximately 9.5 CPL.

In areas where drum delivery to households is required from dockside, the cost to handle and deliver the drums and return the empties for refilling is maintained at 10.0 CPL, which is the existing retail margin established for this service, both for heating and automotive fuels.

6.4 Heating Fuels Dispensing Fees at Isolated Marine Depots:

In areas that have isolated marine depots such as coastal Labrador, the householder generally brings the drum or other container to the depot for filling. A similar situation exists for the distribution of automotive fuels in these communities. The retail margin or filling fee in these instances, is also 10.0 CPL, however, included in this fee is a portion of the depot's operating labour cost. In the case of gasoline sold at full serve retail outlets around the province, the maximum retail margin has been established at 7.61 cpl. before taxes. The portion of the filling fee attributable to depot operation can therefore be taken as 10.0 – 7.61 or 2.39 cpl. A similar expense can also be allocated to heating fuels. Hence in the operating cost calculations for isolated marine depots per Appendix B, Table B-15, 2.39 cpl has been deducted from the operating cost of these marine depots and applied to the retail margin as part of the dispensing fee.

6.5 Summary of Heating Fuel Delivery Costs

Table 11 below presents a summarized format of each identified cost in the supply chain that adds up to the total cost at the 'Retail Point of Sale' for heating fuels in each pricing zone.

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Table 11

Home Heating Fuels Calculated Costs of delivery to Customer Tanks (Retail Point of Sale) by Zone				Estimated Marine Freight & Terminal / Depot Operating Cost (Table 5)	Average T/T Freight To Intermed-iate Bulk Plants (Table 9)	Average Bulk Plant Operating Cost where Applicable (Table 4)	Average Cost T/W Delivery to Homes in Area	Average Cost Filling of Drums at Dockside and Shipping	Average Freight & Handling or Filling Cost for Drums for Customers in Remote Com-munities	Average Delivered Cost to Households for Area (Point of Retail Sale)
Zone	**Sub**	**Supply Point and Methods**			**CPL**	**CPL**	**CPL**	**CPL**	**CPL**	**CPL**
1	**ANE**	**Avalon -North East**	Ex Marine Terminals 75%	1.66	-	-	3.42			(Weighted Average)
			From Come by Chance 25%	N/A	1.32	0.50	3.42			**5.12**
1	**ANW**	Avalon North West		1.66	0.98	1.19	4.19			**8.02**
1	**AS**	Avalon South		1.66	1.09	1.46	5.06			**9.26**
1	**a**	Bell Island		*1.66*	*2.11*	*1.86*	*3.82*			***9.45***
2		Burin and Bonavista Peninsulas		1.66	1.94	1.36	4.25			**9.21**
3		Central Newfoundland from Avalon Peninsula		1.66	1.95	0.84	4.41			**8.86**
3	**a**	St. Brendan's from Avalon Peninsula (Existing)		1.66	2.24	0.84	7.49			**12.23**
3	**b**	Fogo Island from Avalon Peninsula (Existing)		1.66	4.82	1.23	3.93			**11.64**
3	**c**	Change Islands - from Fogo BP via TW (Existing)		1.66	4.82	1.23	6.71			**14.42**
4		Connaigre Peninsula from Avalon (Existing)		1.66	3.99	1.17	4.97			**11.79**
4	**a**	Gaultois-McCallum-Rencontre East (Drums)		1.66	3.99	1.17	-	4.85	10.00	**21.67**
5		Springdale-Baie Verte from Springdale BP		2.41	1.63	1.17	4.22			**9.43**
5	**a**	Long Island via T/W from Springdale Bulk Plant		2.41	1.63	1.17	4.94			**10.15**
5	**b**	Little Bay Islands via T/W from Springdale BP		2.41	1.63	1.17	5.38			**10.59**
6		Corner Brook Area		2.41	-	-	3.62			**6.03**
7	**W**	Stephenville and Port aux Basques		2.41	1.45	1.34	3.98			**9.18**
7	**SE**	Burgeo		2.41	2.05	2.35	4.80			**11.61**
7	**a**	Ramea		2.41	2.05	2.35	8.58			**15.39**
7	**b**	Grey River/La Poile/Grand Bruit/Francois (Drums)		2.41	2.05	2.35	-	4.27	10.00	**21.08**
8		Northern Peninsula South		2.41	-	-	4.64			**7.05**
9		Northern Peninsula North		2.41	2.64	1.40	4.84			**11.29**
10		Labrador-The Straits		6.87	-	-	5.79			**12.66**
11		Mary's Harbour-Cartwright area		14.03	-	-	6.35			**20.38**
11	**a**	Labrador Coast- South (Isolated Marine Depots)[1]		20.73	-	-	-	-	10.00	**30.73**
11	**b**	Labrador Coast- South (Drum Deliveries via Coastal Freight Ferry)		*14.03*	-	-	-	*16.29*	*10.00*	***40.32***
12		Central Labrador (Goose Bay and Area)		4.51	-	-	3.84			**8.35**
13		Western Labrador (Labrador City / Wabush)		6.50	-	-	3.88			**10.38**
13	**a**	Churchill Falls		6.50			*5.94*			***12.44***
14		Labrador Coast- Norht (Isolated Marine Depots)[1]		20.73	-	-	-	-	10.00	**30.73**

Notes: 1. For Isolated Marine Depots - Product is dispensed at the depot into consumer drums or other containers.

In Appendix K, supply chain cost diagrams for each zone and sub-zone are presented to show more clearly how the laid-in costs to households or to the 'Retail Point of Sale' are built up by each cost element identified in Table 11.

7.0 Propane Heating Fuel – Supply and Distribution

7.1 Propane Supply and Usage as a Heating Fuel

Propane use for home heating in Newfoundland and Labrador is fairly limited. Of the total annual consumption of propane in the province, only an estimated 15% to 18% is delivered to residences for various uses. Very few homes utilize propane as a primary heating source. However, a number have auxiliary propane space heaters or fireplaces equipped with heat blower fans to supplement the primary means of heating the residence. The PPPC sets the maximum retail price of propane by zone (where propane is available to be delivered via tank-wagon) when it is used as a primary or auxiliary home heating fuel. Propane used for home appliances such as stoves and refrigerators as well as its use in fireplaces and other equipment for 'atmosphere' or 'ambiance' is not intended to be included in the regulated price.

The PPPC uses the following definition for price regulation of propane used in the home[1]:

> 'Propane that is delivered to a consumer's household by tank-truck into fixed storage and which is used by an appliance designed and intended to generate heat for the residence. Such appliances are furnaces, space heaters, and fireplaces equipped with heat blower fans. Fixed storage is defined as one, or an interconnected number of storage tanks approved and certified for propane use, with a total capacity of at least 178 litres. (2 x 100 pound cylinders or greater)'

[1] Source: News Release- Department of Government Services and Lands – December 14-2001

There are three main suppliers of propane in the province: Superior Propane, North Atlantic Petroleum and Irving Oil. Superior has four propane bulk storage depots throughout the Island part of the province at St. John's, Clarenville, Grand Falls-Windsor and Pasadena. North Atlantic produces propane at its Come by Chance Refinery and has a storage depot for redistribution in Donovans near St. John's. Irving has bulk storage depots at St.John's, Grand Falls-Windsor and Corner Brook. All three suppliers obtain the majority of their supply from North Atlantic's Refinery. However, both Superior and Irving maintain supply links for propane from mainland sources and import product via the North Sydney to Port aux Basques Ferry when it is more economical for them to do so, or when the fuel is not readily available from the refinery. Unscheduled shutdowns and other disruptions at the refinery have caused some serious problems with propane supply in the past, which has necessitated the import of propane from mainland sources at higher laid-in costs, particularly to the eastern parts of the province.

7.2 Cost of Tractor Trailer Deliveries to Bulk Storage Depots

The cost of overland transport of propane to all redistribution depots is based on tractor-trailer supply from the primary supply source, the Come by Chance Refinery. The model previously developed and used in calculating tractor-trailer delivery rates for gasolines is still applicable for propane transport notwithstanding the design and structure of pressurized tanks required to keep that product in a liquid state. The shell of the propane tanks is much thicker and hence heavier in order to withstand this pressure and the tanks are only filled to 80% liquid volume. A standard propane trailer with a total volume capacity of about 55,000 litres would therefore only carry approximately 44,000 litres of liquid propane. Liquid propane has a lower density and is therefore lighter than gasoline, however, the additional weight of the tank shell and other equipment limits the highway scale weight accordingly.

The estimated T/T costs for propane shipped from the Come by Chance Refinery to the various storage depots identified around the province have been calculated as follows using the modified tractor-trailer costing model for 44,000 litres of liquid propane:

Come by Chance	to	St. John's	**1.37** cpl
Come by Chance	to	Grand Falls	**2.10** cpl
Come by Chance	to	Pasadena/ Corner Brook	**3.66** cpl

The above figures are taken from Table J-1, Appendix J.

7.3 Cost of Operating Bulk Storage Depots – Propane

Because the vast majority of propane is used for commercial purposes, any attempt to break out the cost of storing and handling the relatively small volume thruput at a bulk storage depot for residential heating purposes is not feasible. The operation's economics are largely dependent on the commercial volume and without that volume the depot would not be viable. The estimated cost of operating a propane storage depot as an industry norm is reported to be about 0.5 cents per litre. This figure is used in cost calculations for each depot in the province.

7.4 Tank Wagon Deliveries of Propane to Households

The average costs of tank wagon delivery of propane to individual homes in major centres, and in defined pricing zones where the depots are located, are assumed to be quite similar in each case. However, the incremental extra costs of delivering propane to households in adjacent zones without a depot must be calculated to ascertain pricing differentials from the supplying zone.

As was the case with home heating distillate fuels, firstly the operating costs of propane tank-wagon delivery vehicles had to be estimated. These calculations for both tandem and single axle vehicles are included in Appendix J as Table J-2. The capital cost of a propane tank-wagon is greater than that of a normal unit due to the pressurized tank construction and specialized pumping and metering equipment. It is assumed that since home heat deliveries are not a scheduling priority in the sense of peak vehicle usage, the cost per hour of operation is based on a standard 8 hour day, 5 days per week. The average cost per hour for a tandem axle propane tank-wagon is calculated at $64.50 per hour, while a single axle unit is estimated at $60.00 per hour. The costs of the units when idle (with driver) and when idle (without driver) are also calculated in Table J-2.

The PPPC publishes maximum delivered propane prices for only 10 out of the 25 listed zones due to the non-availability of tank-wagon delivered propane to households in the remaining zones or sub-zones. For reference, the published table of propane prices effective October 15, 2004 is included as Table J-3 in Appendix J.

The extra tank-wagon delivery costs to zones or sub-zones, which do not have storage depots, are calculated in Appendix J, Tables J-4 through J-10. These costs are then added to the delivered cost in the supplying zones to arrive at a realistic cost for the areas without storage depots.

7.5 Summary of Propane Heating Fuel Delivery Costs

Table 12 below gives the total delivered cost of propane to households above that of Zone 2, which is the base zone for propane with supply originating at the Come by Chance refinery.

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Table 12

Calculated Delivery Costs of Propane Heating Fuels to Households

By Zone where Tank Wagon Delivery is Available

Zone	Geographic Area for Zone	T/T Costs from Come By Chance to nearest Bulk Depot CPL	Estimated Operating Cost of Bulk Storage Depot CPL	Extra Delivery Costs to Zones without Depots CPL	Total Delivered Cost to Households Above Base Zone CPL
1	St. John's & Avalon	1.4	0.5	0	1.9
1a	Bell Island	1.4	0.5	1.1	3
2	**Clarenville/ Burin-Bonavista Peninsulas (Base Zone)**	**0**	**0**	**0**	**0**
3	Central Newfoundland - Glovertown to Buchans	2.1	0.5	0	2.6
3a	St. Brendan's (Island)	N/A	N/A	N/A	N/A
3b	Fogo Island	N/A	N/A	N/A	N/A
3c	Change Islands	N/A	N/A	N/A	N/A
4	Connaigre Peninsula	2.1	0.5	0.8	3.4
4a	Gaultois to Francois / Rencontre East	N/A	N/A	N/A	N/A
5	Springdale & Baie Verte Peninsula	2.1	0.5	0.6	3.2
5a	Long Island	N/A	N/A	N/A	N/A
5b	Little Bay Islands	N/A	N/A	N/A	N/A
6	Deer Lake - Corner Brook Areas	3.7	0.5	0	4.2
7	Gallants to Port aux Basques / Burgeo	3.7	0.5	1.2	5.4
7a	Ramea (Island)	N/A	N/A	N/A	N/A
7b	Grey River/ Grand Bruit / La Poile	N/A	N/A	N/A	N/A
8	Northern Peninsula - Gros Morne to Belburns	3.7	0.5	1.1	5.2
9	Northern Peninsula - to Englee and St. Anthony	3.7	0.5	2.9	7.1
10	Labrador Straits - L'Anse au Clair to Red Bay	N/A	N/A	N/A	N/A
11	Mary's Harbour to Cartwright (road access)	N/A	N/A	N/A	N/A
11a	Coastal Labrador – South	N/A	N/A	N/A	N/A
12	Central Labrador - Goose Bay Area	N/A	N/A	N/A	N/A
13	Western Labrador - Labrador City / Wabush	N/A	N/A	N/A	N/A
13a	Churchill Falls	N/A	N/A	N/A	N/A
14	Coastal Labrador – North	N/A	N/A	N/A	N/A

8.0 Identification of Storage Facilities around Newfoundland and Labrador

During this Study, the Consulting Team visited essentially all storage terminals, bulk plants and depots around the province. Due to the non-cooperation of several companies, many of these storage facilities could be seen only from outside their perimeters, enabling only a few photos to be taken and rough estimates of storage tank capacities made.

Some of the companies were quite cooperative and under Confidentiality and Non-Disclosure Agreements provided significant information on their storage plants, including tank sizes, product service, annual throughputs, and in some cases annual operating cost estimates. Whereas these proprietary figures were a substantial help in providing reference numbers used to test the developed costing models, they were provided in confidence and therefore will not be included in this report. Information on each storage facility is therefore limited to a photo or two with captions indicating ownership and location.

A listing of all identified petroleum products storage facilities in Newfoundland and Labrador are given in Appendix L, Table-1, with notes on each. A total of 69 facilities were identified with 52 of these currently in operation. Where available, photos of each storage facility with their locations noted are presented sequentially in Appendix L with the corresponding ID Number as indicated in Table-1. Included in the listing are terminals or bulk plants that have been decommissioned but are still standing and could potentially be re-commissioned in future.

Propane storage depots are listed separately in Appendix L Table-2. Photos, locations and owners are also included following the sequence of photos for the Table-1 listed facilities.

9.0 Study Conclusions and Recommendations

9.1 Zone Boundaries

All zone and sub-zone boundaries were examined in detail during the study process. Using all information, provided and uncovered, the following conclusions were reached with recommendations in each case:

A. Zone Boundaries for Automotive Fuels

No changes in existing boundaries for automotive fuels are recommended. Except for the zone and sub-zone designation change from Sub-Zone 10a to become Zone 11, 11a and 11b in southern Labrador, it is recommended that all existing zones for automotive fuels retain their existing boundaries and designations.

B. Zone Boundaries for Distillate Home Heating Fuels

There are two changes recommended for zone boundaries for distillate home heating fuels. As described in Section 6 of this Report, three zones have been proposed for the existing Zone 1 – Avalon Peninsula, with boundaries as described and shown on the map portions in Appendix I. A second change in boundaries is recommended for the west coast of the Island part of the province where the town of Burgeo has been separated within the existing Zone 7 to become Zone 7-SE (South East). It is proposed that the balance of the existing Zone 7 be designated Zone 7–W (West)

These changes in heating zone boundaries come primarily as a result of cost differences in operating bulk plants in the identified areas as indicated in Table 4.

As is the case with automotive fuels, the same changes in designations for Zones 10a and 11 are being recommended for distillate heating fuels.

C. Zone Boundaries for Propane Home Heating Fuel

A survey of the areas where propane is available for delivery via tank wagon trucks to households for heating purposes resulted in no recommendations for additions or deletions to the zones or zone boundaries currently designated for propane. It is recommended that the ten zones / sub-zones wherein propane is available should therefore remain the same as they now exist and as they are described for automotive fuels.

9.2 Zone Pricing Differentials

A. Pricing Differentials for Automotive Fuel Zones

The first column of figures in Table 13 on the following page gives the total estimated cost to provide automotive fuels to the wholesale point of sale for each zone and sub-zone throughout the province as was derived in Table 8. Table 13 next shows the indicated differential for each zone from that of the Avalon – (Base Zone). The Table then compares the existing cost differentials for each zone with those that are indicated and recommended through the cost analyses as calculated in this Study. The final column shows the change in the recommended pricing differential for each zone/ sub-zone.

The following points should be noted for Table 13:

a. The laid-in cost for diesel fuel in Zone 7b differs from that for gasoline in Zone 7b. This is because of the differing methods of supply for each product used to fill drums at dockside in Burgeo. The supply chain diagrams, Figures 7b1 and 7b2 in Appendix F, clearly show the differences in methods and costs.

b. In all areas of Labrador a diesel fuel product that can be stored and used in very cold temperatures is supplied year round. In the Table, this product is termed 'Arctic Diesel' to differentiate it from the 'heavier' diesel used throughout the Island part of the province. Due to product storage limitations and in order to prevent mixing problems during the colder months, no attempt is made to segregate the two grades of diesel in Labrador on a seasonal basis.

c. When the PPPC first instituted price regulation in the fall of 2001, the difference in the 'refinery rack' prices between furnace and stove oil in eastern Canada was 1.8 cpl. This differential was added to the base price of diesel fuel in all areas of Labrador before the normal distribution cost differential from the base zone was applied. (The 'refinery rack' prices are posted prices by each refiner at a number of major centres, and represent the nominal wholesale prices charged to 'resellers' who buy large amounts of product at suppliers' truck loading racks. One recognized source for these rack prices is the Bloomberg Oil Buyer's Guide, which posts them on a weekly basis) The indicated differentials in the second column of figures in Table 13 do not include this built-in 1.8 cpl premium for diesel fuel in Labrador. The premium would be applied to the base price before the differentials are added to be consistent with the current practice of the PPPC in setting maximum prices. This practice was adopted by the PPPC in order that the location differentials for both gasolines and diesel fuels are the same in each zone.

   Although not specifically intended to be addressed in this Study, it should be noted that the differential between furnace and stove oil or between 'light' and 'heavy' distillate has now increased to approximately 3.0 cpl as noted by current postings in the OBG. Should this current differential be applied to diesel fuel in Labrador, the resultant ex-tax prices would increase by 1.2 cpl accordingly.

d. As previously mentioned in this report, because stock losses incurred at the smaller marine depots in Labrador are notably higher for gasoline than for diesel fuel, laid-in costs for these products are shown separately in the affected zones.

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Table 13

Recommended Adjustments to Zone Differentials for Automotive Fuels (Wholesale Prices)

Zone	Sub	Zone Description and Supply Method	Total Laid-in Cost to Wholesale Point of Sale (Table 8)	Indicated Total Differential From Base Zone (Ex-Tax)	Existing Differential From Base Zone (Ex-Tax)	Recommended Differential from Base Zone (Ex-Tax)	Indicated Change in Wholesale Differential for Zone
			CPL	CPL	CPL	CPL	CPL
1		Avalon (Base Zone) T/T from Terminals	**2.34**	0.00	0.0	**0.0**	**0.0**
1	a	Bell Island - T/T from Avalon Terminals	**3.08**	0.74	0.5	**0.7**	**0.2**
2		Burin-Bonavista Pens - T/T from Avalon Terminals	**3.77**	1.43	1.0	**1.4**	**0.4**
3		Central Newfoundland - T/T from Avalon Terminals	**4.28**	1.94	1.5	**1.9**	**0.4**
3	a	St. Brendan's - T/T from Avalon Peninsula via Gander Bulk Plant and Tank Wagon	**8.11**	5.77	5.0	**5.8**	**0.8**
3	b	Fogo Island from Avalon Peninsula via T/T / Ferry / Bulk Plant and Tank Wagon	**8.70**	6.36	2.5	**6.4**	**3.9**
3	c	Change Islands - from Fogo Bulk Plant via T/W and Ferry	**12.74**	10.40	4.5	**10.4**	**5.9**
4		Connaigre Peninsula - T/T from Avalon via Bulk Plant via T/W	**7.06**	4.72	3.0	**4.7**	**1.7**
4	a	Gaultois-McCallum-Rencontre East via Bulk Plant - T/W and Drums - **Gasoline**	**10.19**	7.85	6.6	**7.9**	**1.2**
4	a	Gaultois-McCallum-Rencontre East via Bulk Plant -T/W and Drums - **Diesel**	**10.19**	7.85	9.0	**7.9**	**-1.1**
5		Springdale Areas from Corner Brook via Springdale Bulk Plant and Tank-Wagon	**5.61**	3.27	2.0	**3.3**	**1.3**
5	a	Long Island via T/W from Springdale Bulk Plant	**9.25**	6.91	4.0	**6.9**	**2.9**
5	b	Little Bay Islands via T/W from Springdale Bulk Plant	**9.60**	7.26	4.5	**7.3**	**2.8**
6		Corner Brook Area - T/T from Marine Terminals	**2.97**	0.63	0.0	**0.6**	**0.6**
7		Stephenville - Port aux Basque - Burgeo - T/T from Corner Brook Terminals	**3.66**	1.32	2.0	**1.3**	**-0.7**
7	a	Ramea - T/T from Corner Brook Terminal and Ferry from Burgeo	**6.46**	4.12	6.0	**4.1**	**-1.9**
7	b	Grey River/Francois -/Grand Bruit/La Poile - via Burgeo Retail Outlet and Drums via Freight Ferry - **Gasoline**	**14.01**	11.67	6.6	**11.7**	**5.1**
7	b	Grey River/Francois -/Grand Bruit/La Poile - via Burgeo Retail Outlet and Drums via Freight Ferry - **Diesel**	**11.08**	8.74	9.0	**8.7**	**-0.3**
8		Northern Peninsula South - T/T from Corner Brook Terminals	**3.80**	1.46	1.5	**1.5**	**0.0**
9		Northern Peninsula North - T/T from Corner Brook Terminals	**5.34**	3.00	3.0	**3.0**	**0.0**
10		Labrador-The Straits- T/W Via Marine Terminal and Marine Depot - **Gasoline**	**9.05**	6.71	7.5	**6.7**	**-0.8**
10		Labrador-The Straits- T/W Via Marine Terminal and Marine Depot - **Artic Diesel**	**7.75**	5.41	7.5	**5.4**	**-2.1**
11		Lodge Bay-Cartwright- T/W Via Bulk Plant and Marine Depot (Cost Averaged) - **Gasoline**	**16.90**	14.56	12.5	**14.6**	**2.1**
11		Lodge Bay-Cartwright- T/W Via Bulk Plant and Marine Depot (Cost Averaged) - **Artic Diesel**	**15.68**	13.34	12.5	**13.3**	**0.8**
11	a	Labrador Coast - South - Isolated Communities via Marine Tanker and Depots - **Gasoline**	**22.23**	19.89	19.6	**19.9**	**0.3**
11	a	Labrador Coast - South - Isolated Communities via Marine Tanker and Depots - **Artic Diesel**	**20.73**	18.39	18.0	**18.4**	**0.4**
11	b	*Labrador Coast- South - Drums via Freight Ferry - **Gasoline***	***28.27***	*25.93*	*N/A*	***25.9***	***N/A***
11	b	*Labrador Coast- South - Drums v ia Freight Ferry - **Artic Diesel***	***28.57***	*26.23*	*N/A*	***26.2***	***N/A***
12		Central Labrador (Goose Bay Area) - T/W from Marine Terminals - **Gasoline**	**5.49**	3.15	4.5	**3.2**	**-1.3**
12		Central Labrador (Goose Bay Area) - T/W from Marine Terminals - **Artic Diesel**	**5.36**	3.02	4.5	**3.0**	**-1.5**
13		Western Labrador (Labrador City - T/W from Rail Car Bulk Plant - **Gasoline & Arctic Diesel**	**7.13**	4.79	4.0	**4.8**	**0.8**
13	a	Churchill Falls - T/W from Labrador City Rail Car Bulk Plant - **Gasoline & Arctic Diesel**	**9.22**	6.88	6.0	**6.9**	**0.9**
14		Labrador Coast - North - Isolated Communities via Marine Tankers and Depots - **Gasoline**	**22.23**	19.89	19.6	**19.9**	**0.3**
14		Labrador Coast - North - Isolated Communities via Marine Tankers and Depots - **Artic Diesel**	**20.73**	18.39	18.0	**18.4**	**0.4**

Note: The laid-in cost for drums at dockside is used as the wholesale price to retailers at the destination community.

Automotive Fuels - Notes on recommended price changes greater than 1.0 cpl:

Zone 3b – Fogo Island: - Whereas some of the gasoline delivered to retail outlets on Fogo Island may come via tank wagon from the primary marine terminal in Lewisporte, the main source for automotive fuels for the Island is via tractor-trailer from the Avalon terminals and then redelivery from Fogo bulk plants via tank wagon. The increased pricing differential of 3.9 cpl accommodates this reality.

Zone 3c – Change Islands: - It was determined through field visitations that the gasoline for Change Islands is redelivered from the bulk plant on Fogo Island via tank wagon and ferry. The recommended price differential recognizes the costs involved with this supply chain. (See Figure 3c, Appendix F)

Zone 4 – Connaigre Peninsula: - A significant volume of automotive fuels supplied to retail outlets on this peninsula comes from the bulk plant at the Pool's Cove crossroads This plant is supplied via tractor trailer from the Avalon Peninsula. The fuel is then redelivered via tank wagon from the bulk plant to small retail outlets in the area. The recommended differential takes into account all costs elements for this process. (See Figure 4, Appendix F)

Zone 4a – Drums to remote communities from the Connaigre Peninsula: - The effective wholesale differential for regular gasoline between these remote locations and the base zone is currently 6.61 cpl. A wholesale differential of 7.85 from Zone 1 is calculated as being required prior to the retail margin of 10.0 cpl being applied to gasoline. (See Figure 4a, Appendix F for supply chain details) In the case of diesel fuel, however, the effective wholesale differential is currently 9.0 cpl and therefore a reduction of 1.1 cpl is proposed.

Zone 5 – Springdale /Triton/ Baie Verte Peninsula: - The rationale for the 1.3 cpl increase in differential in this zone is due to the fact that much of the automotive fuel volume now goes through the bulk plant in Springdale for redelivery to the retail outlets in the area by tank wagon.

Zone 5a – Long Island and Zone 5b: Little Bay Islands: - Both these sub-zones are supplied from the bulk plant at Springdale. The detailed calculations for the supply chain cost elements, in particular the ferry crossings to these Islands, are shown in Figures 5a and 5b, Appendix F and justify the increased differentials recommended.

Zone 7a – Ramea: - From field visits, the Consulting team learned than the single retail outlet in Ramea is supplied via a light loaded tractor trailer via ferry from Burgeo. This method assumes that part of the full tractor-trailer load can be dropped at an outlet in Burgeo prior to the ferry crossing. The detailed calculation for the tractor-trailer haulage cost is shown Table D-4 Appendix D, while the costs resulting in a reduced differential is depicted by Figure 7a, Appendix F.

Zone 7b – Drums to remote communities from Burgeo: - The recommended differentials for gasoline and diesel differ significantly due to the different methods used in enabling product supply to fill the drums at dockside. The supply chain cost diagrams for both gasoline and diesel is depicted in Figures 7b1 and 7b2 of Appendix F. The gasoline wholesale differential increases by 5.1 cpl while there is a slight decrease in the recommended diesel fuel differential.

Zone 10 – Labrador Straits: - By averaging of the marine freight and the operation costs of the marine depots in this area, the total cost of product delivered to retail outlets is calculated at 2.1 cpl less than the existing differentials for both gasoline and diesel fuel. However, the use of a dedicated vehicle for gasoline deliveries is the reason the cost for gasoline is reduced by only 0.8 cpl.

Zone 11 – Lodge Bay to Cartwright: - The increase in differential of 2.1 cpl for gasoline is primarily due to the required use of a dedicated tank wagon vehicle to deliver gasoline to the small volume retail outlets throughout the area.

Zone 12 – Central Labrador – The decrease in the recommended gasoline and diesel differentials in this zone is primarily due to a reduction in marine freight as determined in this Study.

B. Pricing Differentials for Distillate Home Heating Fuels Zones

Table 14 on the following page recaps the total estimated cost for the delivery of distillate home heating fuels to households in each of the recommended zones and sub-zones for the province. The cost of delivering furnace oil to customers in Zone 1 – Avalon North East, (the Base Zone) from marine tanker freight through to tank-wagon delivery to households is calculated to be an average of 5.12 cents per litre. This number, and all delivered costs for each Zone shown in the first column of figures in Table 14 are taken from the last column of Table 11, previously presented.

The next column of figures in Table 14 gives the indicated price differentials from the base zone as calculated through the processes used in this Study. The third column of figures shows the price differentials between each zone and the base zone as they currently exist in the PPPC maximum allowable price tables.

The fourth column of figures gives the rounded price zone differentials that this cost Study indicates should be applied in each case. These are the revised differentials recommended by the Consulting Team based on the cost differences of providing product in each zone. The final column in Table 14 indicates the resultant changes from the existing differentials for each zone and sub-zone. With but two exceptions, the recommended zone price differential changes are higher than they have been.

The costs calculated for home heating fuels (furnace and stove oil), are those at the retail level, i.e. to the consumer's storage tank, as opposed to the numbers for gasoline, which are the laid-in wholesale costs to the retailer before the retail margin is added.

The high differential cited for Zone 11b is that for a new zone that does not now exist, and where drum deliveries, as suggested, may never be implemented. The cost figures indicate that if the drum deliveries were put in place for these communities, this would be the differential necessary to cover the costs incurred in providing the service.

The supply of home heating fuels to households is a very detailed, time consuming, and demanding business. It has become even more so with each passing year with out migration from rural parts of the province, and the installation of electric heat in almost every new home that is being built or replaced. Volumes of oil consumed per household have also decreased with supplemental heat provided by wood stoves. This is not a new phenomenon in the province, but as household incomes in many cases remain static at best, any increases in the costs of heating fuels will also tend to further cut back consumption.

The costs calculated for home heat deliveries are therefore bare minimums and do not provide for inflation, contribution to overhead, nor return on investment for the supply chain participants in the business. All these elements are supposedly covered in the base fuel price. There is general concern that, given all the downsides of the home heat business, notwithstanding the increased differentials recommended by this report, unless other measures are taken, specifically an increase in the maximum base price, many home heating businesses in the province may well cease to exist over the next few years. Specifically, a detailed analysis of the margins that resellers have between their rack pick-up price, and the maximum allowable retail price to consumers, should be undertaken to evaluate and quantify all costs and the economic viability of their operations.

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Table 14

Recommended Adjustments to Home Heating Fuels - Zone Definitions and Zone Differentials to Retail Points of Sale

Home Heating Fuels (Distillates)				Average Delivered Cost to Households for Area (Retail Point of Sale)	Indicated Total Differential from Retail Price Base Zone	Existing Differential from Base Zone Retail Price Fuel	Recommended Differential from Avalon North East Base Zone	Recommended Change In Differential for Zone
Zone	**Sub**	**Supply Point and Methods**		**CPL**	**CPL**	**CPL**	**CPL**	**CPL**
1	**ANE**	**Avalon North East (Base Zone)**	Ex Marine Terminals	(Weighted Average)				
			From Come by Chance	**5.12**	**N/A**	**0.00**		
1	**ANW**	Avalon North West		**8.02**	**2.91**	**0.0**	**2.9**	**2.9**
1	**AS**	Avalon South		**9.26**	**4.15**	**0.0**	**4.1**	**4.1**
1	**a**	*Bell Island*		*9.45*	*4.33*	*2.0*	*4.3*	*2.3*
2		Burin and Bonavista Peninsulas		**9.21**	**4.09**	**2.0**	**4.1**	**2.1**
3		Central Newfoundland from Avalon Peninsula		**8.86**	**3.74**	**2.5**	**3.7**	**1.2**
3	**a**	St. Brendan's from Avalon Peninsula (Existing)		**12.23**	**7.11**	**6.0**	**7.1**	**1.1**
3	**b**	Fogo Island from Avalon Peninsula (Existing)		**11.64**	**6.52**	**3.5**	**6.5**	**3.0**
3	**c**	Change Islands - from Fogo BP via TW (Existing)		**14.42**	**9.30**	**5.5**	**9.3**	**3.8**
4		Connaigre Peninsula from Avalon (Existing)		**11.79**	**6.67**	**4.0**	**6.7**	**2.7**
4	**a**	Gaultois-McCallum-Rencontre East (Drums)		**21.67**	**16.55**	**9.0**	**16.6**	**7.6**
5		Springdale-Baie Verte from Springdale BP		**9.43**	**4.31**	**3.0**	**4.3**	**1.3**
5	**a**	Long Island via T/W Ex Springdale Bulk Plant		**10.15**	**5.03**	**4.5**	**5.0**	**0.5**
5	**b**	Little Bay Islands via T/W ex Springdale BP		**10.59**	**5.47**	**5.0**	**5.5**	**0.5**
6		Corner Brook Area		**6.03**	**0.91**	**0.0**	**0.9**	**0.9**
7	**W**	Stephenville and Port aux Basques		**9.18**	**4.06**	**3.0**	**4.1**	**1.1**
7	**SE**	Burgeo		**11.61**	**6.49**	**3.0**	**6.5**	**3.5**
7	**a**	Ramea		**15.39**	**10.27**	**7.0**	**10.3**	**3.3**
7	**b**	Grey River/La Poile/Grand Bruit/Francois (Drums)		**21.08**	**15.96**	**9.0**	**16.0**	**7.0**
8		Northern Peninsula South		**7.05**	**1.93**	**1.5**	**1.9**	**0.4**
9		Northern Peninsula North		**11.29**	**6.17**	**4.0**	**6.2**	**2.2**
10		Labrador-The Straits (Stove Oil Only)		**12.66**	**7.54**	**7.5**	**7.5**	**0.0**
11		Mary's Harbour-Cartwright Area (Stove Oil Only)		**20.38**	**15.26**	**12.5**	**15.3**	**2.8**
11	**a**	Labrador Coast- South (Isolated Marine Depots[1]) Stove Oil Only		**30.73**	**25.61**	**18.0**	**25.6**	**7.6**
11	**b**	*Labrador Coast- South (Isolated Communities -Drum Deliveries via Coastal Freight Ferry) Stove Oil Only*		*40.32*	*35.20*	*N/A*	*35.2*	*N/A*
12		Central Labrador (Goose Bay and Area) Stove Oil Only		**8.35**	**3.23**	**4.5**	**3.2**	**-1.3**
13		Western Labrador (Labrador City / Wabush) Stove Oil Only		**N/A**	**N/A**	**4.0**	**4.0**	**0.0**
13	**a**	*Churchill Falls - Stove Oil only*		*N/A*	*N/A*	*7.0*	*7.0.*	*0.0*
14		Labrador Coast - North (Isolated Marine Depots[1]) Stove Oil Only		**30.73**	**25.61**	**18.0**	**25.6**	**7.6**

Notes: 1. Cost does not include delivery to households, only filling customer's drums or other containers at depot.

2. Italicised entries are calculations for deliveries that would be made if the delivery methods indicted were adopted.

With respect to the delivered cost of stove oil to consumers in Labrador, the existing differential from the base zone is a 4.5 cpl differential added to the base price of furnace oil plus the location differential calculated in this Study. It is understood that the 4.5 cpl retail differential between furnace and stove oil was initially established to accommodate both the

basic differential between the products, plus provide an appropriate allowance to cover product segregation and the cost of small deliveries of stove oil to more remote customers. Since stove oil is the only distillate heating fuel product used in Labrador, it could be justifiably argued that the portion of the cost allowance for segregation and small deliveries should be removed from the delivered price. If this practice were implemented, the product cost difference of 4.5 cpl would be reduced to 3.0 cpl, being the current rack price difference between the products. This would reduce the price of stove oil by 1.5 cpl throughout Labrador.

Heating Fuels - Notes on recommended price changes greater than 2.0 cpl:

Zone 1ANW – Avalon North West - This newly recommended pricing zone recognizes the necessity of having a local bulk storage plant in the area in order to properly service the heating fuel market. There are now three existing bulk plants in the proposed zone. (See Figure 1-ANW in Appendix K for costing details)

Zone 1AS – Avalon South - This newly recommended zone also recognizes the necessity of having a local bulk storage plants in the area in order to properly service the heating fuel market. While some of the additional differential for Zone 1- Avalon North East of 4.1 cpl is due to bulk plant operations, a significant portion is due to the higher cost of tank wagon delivery throughout this dispersed area. (See Figure H1-AS of Appendix K)

Zone 1a – Bell Island - To ensure security of supply during the winter months, a bulk plant is necessary for this sub-zone. The recommended pricing differential increase of 2.3 cpl provides for a small bulk plant.

Zone 2 – Burin and Bonavista Peninsulas – The requirement of local area bulk plants for the majority of supply in this Zone and relatively high local delivery costs account for the recommended increase of 2.1 cpl in the existing differentials.

Zone 3b – Fogo Island: - Heating fuels for this market are primarily delivered to local bulk plants via tractor trailer from the Avalon and Come by Chance terminals. They are then delivered to local households by tank wagons. As detailed in Figure H3b of Appendix K, the cost of both these trucking operations dictate that the pricing differential be increased by 3.0 cpl.

Zone 3c – Change Islands: - Heating fuel for Change Islands is delivered by tank wagon via ferry from the Fogo Island bulk plants. The recommended price differential of an additional 3.8 cpl recognizes the costs involved with this supply method. (See Figure H 3c, Appendix K).

Zone 4 – Connaigre Peninsula: - A significant volume of the home heat supply for this market comes from the bulk plant at the Pool's Cove crossroads This plant is supplied via tractor trailer from the Avalon Peninsula. The fuels are then delivered to households via tank wagon. The recommended differential takes into account all costs elements for this supply chain, which is depicted in Figure H4, Appendix K.

Zone 4a – Drums to remote communities from the Connaigre Peninsula: - The cost of delivering drums of heating fuel to remote communities via freight ferry plus a suggested 10.0 cpl retail margin allowance for handling the drums at the destination community adds up to significantly more than the existing differential. Suppliers in these communities have complained that the existing margin does not allow them to break even, but they continue supply as a service to the people in their community. The Consulting Team agrees that the total allowable margin should be increased to that indicated, albeit it is, in the case of this Zone 4a, an increase in the maximum retail price of 7.6 cpl. (See Figure H4a, Appendix K for supply chain details)

Zone 7SE – Burgeo: - This newly proposed zone is separated from the existing Zone 7 due to the higher cost of bulk plant operation and tank wagon delivery operations on a cents per litre basis due to the lower volume involved. As can be seen from Figures H7-W and H7-SE in Appendix K, the laid-in cost to consumer household tanks is 11.61 in the Burgeo zone versus 9.18 in the balance of area of Zone 7. This is the reason the separate zones are being recommended with an increased differential for the Burgeo Zone of 3.5 cpl.

Zone 7a – Ramea: - Heating fuel for the Island of Ramea has to be delivery by tank wagon and ferry from the bulk plant in Burgeo. As shown in Table H-7a of Appendix H, to make all household deliveries requires that the truck and driver overnight in Ramea in order to finish deliveries the following day before boarding the return ferry. This increases the cost of supplying heating fuel substantially and justifies the 3.3 cpl increase in the existing differential.

Zone 7b – Drums to remote communities from Burgeo: - The recommended differentials for these drum deliveries are calculated in Table H-7b of Appendix H and all cost elements of the supply chain are depicted in Figure H7-b of Appendix K. As was the case described for drum deliveries from the Connaigre Peninsula, here too a significant additional differential of 7.0 cpl is being recommended to cover all costs involved.

Zone 9 - Northern Peninsula North: - The requirement of local area bulk plants for heating fuel supply throughout this Zone and the relatively high local delivery costs account for the recommended increase of 2.2 cpl in the existing differentials.

Zone 11 – Lodge Bay to Cartwright: - The increase in differential of 2.8 cpl for stove oil reflects the recalculated increased operating costs for bulk plants and marine depots in this area.

Zones 11a and 14 – Labrador South and Labrador North – Isolated Communities – The current 18.0 cpl differential allowed for these zones is insufficient to cover the operating costs of these relatively low volume depots. In order to provide a 10.0 cpl dispensing fee to cover the operator's wages, an overall increase in the allowable differential of 7.6 cpl is required.

C. Pricing Differentials for Propane Heating Fuels Zones

A summary of the calculated costs of propane deliveries to each zone was presented in Table 12. These figures are the basis for the various price differentials for propane used for home heating purposes where tank wagon delivery is available throughout the province.

In Table 15 below, these costs are compared with current zone differentials. As indicated, the only significant variance is that for Zone 9, resulting in a recommended increase of 1.0 cpl for that zone. No change in zone boundaries is recommended for propane.

Storage and Distribution Study

Table 15

Recommended Changes to Zone Price Differentials for Propane Heating Fuel

Heating Fuels - Residential Propane		Current Zone Price Differentials from Base Zone 2	Total Estimated Delivered Cost to Households Above Base Zone Delivered Cost	Recommended Revised Zone Price Differentials	Recommended Change From Current Differential
Zone	Zone Geographic Area	CPL	CPL	CPL	CPL
1	St. John's & Avalon	2.0	1.9	**2.0**	**0.0**
1a	Bell Island	3.0	3.0	**3.0**	**0.0**
2	Clarenville/ Burin-Bonavista Peninsulas **(Base Zone)**	**0.0**	**0.0**	**0.0**	**0.0**
3	Central Newfoundland - Glovertown to Buchans	2.5	2.6	**2.5**	**0.0**
3a	St. Brendan's (Island)	N/A	N/A	N/A	N/A
3b	Fogo Island	N/A	N/A	N/A	N/A
3c	Change Islands	N/A	N/A	N/A	N/A
4	Connaigre Peninsula	3.5	3.4	**3.5**	**0.0**
4a	Gaultois to Francois / Rencontre East	N/A	N/A	N/A	N/A
5	Springdale & Baie Verte Peninsula	3.5	3.2	**3.5**	**0.0**
5a	Long Island	N/A	N/A	N/A	N/A
5b	Little Bay Island	N/A	N/A	N/A	N/A
6	Deer Lake - Corner Brook Areas	4.0	4.2	**4.0**	**0.0**
7	Gallants to Port aux Basques / Burgeo	5.0	5.4	**5.0**	**0.0**
7a	Ramea	N/A	N/A	N/A	N/A
7b	Grey River/ Grand Bruit / La Poile	N/A	N/A	N/A	N/A
8	Northern Peninsula - Gros Morne to Belburns	5.0	5.2	**5.0**	**0.0**
9	Northern Peninsula - to Englee and St. Anthony	6.0	7.1	**7.0**	**1.0**
10	Labrador Straits - L'Anse au Clair to Red Bay	N/A	N/A	N/A	N/A
11	Mary's Harbour to Cartwright (Road Access)	N/A	N/A	N/A	N/A
11a	Coastal Labrador – South (Isolated Marine Depots)	N/A	N/A	N/A	N/A
11b	Coastal Labrador – South (No Marine Depots)	N/A	N/A	N/A	N/A
12	Central Labrador - Goose Bay Area	N/A	N/A	N/A	N/A
13	Western Labrador - Labrador City / Wabush	N/A	N/A	N/A	N/A
13a	Churchill Falls	N/A	N/A	N/A	N/A
14	Coastal Labrador – North (Isolated Marine Depots)	N/A	N/A	N/A	N/A

Petroleum Pricing Office

Fuel Pricing Zones
Newfoundland and Labrador

Pricing Zones

1. Avalon Peninsula
1a. Bell Island
2. Burin Peninsula / Bonavista Peninsula / Bonavista Bay
3. Central Newfoundland / Notre Dame Bay East / Fogo
3a. St. Brendan's (Island)
3b. Fogo Island
3c. Change Island
4. Connaigre Peninsula
4a. Gaultois to Francois / Rencontre East
5. Springdale - Green Bay / Triton / Baie Verte Peninsula
5a. Long Island
5b. Little Bay Islands
6. Deer Lake / Corner Brook / Bay of Islands / Gros Morne
7. Stephenville / Port au Port / Codroy Valley / Channel - Port aux Basques
7a. Ramea
7b. Grey River / Grand Bruit / La Poile
8. Northern Peninsula - Gros Morne National Park to Bellburns
9. Northern Peninsula to Englee and St. Anthony
10. Labrador - The Straits to Cartwright
10a. Red Bay to Mary's Harbur to Cartwright*
11. Coastal Labrador South
12. Central Labrador
13. Western Labrador
13a. Churchill Falls
14. Northern Labrador

DEPARTMENT OF FINANCE
ECONOMICS & STATISTICS
BRANCH

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*Communities connecting to the new Labrador Coast road as it progresses North will then become part of sub-zone 10a.

Petroleum Pricing Office

Pricing Zones – Newfoundland and Labrador

(Caution: Zone Map not necessarily current. See zones description below.)

Zone 1 - Avalon Peninsula
West along the Trans Canada Highway to the intersection with Little Harbour. Included are all routes established on the Avalon Peninsula, north and south of the Trans - Canada Highway and all communities and service areas contained therein, including Little Harbour.

Sub-Zone 1a Bell Island
Bell Island

Zone 2 - Burin Peninsula/ Bonavista Peninsula/ Bonavista Bay
Trans Canada Highway from Little Harbour to boundary of Terra Nova National Park, including all communities along the highway, all of Route 210 (Burin Peninsula Highway), and all routes established on the Burin Peninsula, including all communities and service areas. All points west on the TCH to Clarenville, all of the Clarenville-Bonavista Bay area, including all of the Bonavista Peninsula through to Port Blandford and the eastern boundary of Terra Nova National Park.

Zone 3 - Central Newfoundland/ Notre Dame Bay East/ Fogo
All points along the Trans Canada Highway west of Terra Nova National Park from Port Blandford intersection through to Gullbridge access west of Badger. Included are all communities of the Gander Bay Loop from Gambo around to Gander, and all communities established along the Trans Canada Highway. Also included are all communities located on all routes established in Notre Dame Bay East from Lewisporte to Twillingate, and all of Fogo Island; all communities west, including the Exploits Valley from Buchans to Leading Tickles and Fortune Harbour.

Sub-Zone 3a - St. Brendan's (Island)

Sub-Zone 3b - Fogo Island

Sub-Zone 3c - Change Island

Zone 4 - Connaigre Peninsula
All communities along Route 360, through to Harbour Breton in the south, including all communities along Route 361 through to St. Alban's, Route 364 to Seal Cove, Fortune Bay, and Routes 362 and 363 to English Harbour West, Belleoram and to Coomb's Cove. All communities and service areas contained therein.

Sub-Zone 4a - Gaultois to Francois/ Rencontre East
Includes the south coast serviced primarily by marine service from Gaultois and all points west to Francois, and, all points east from Pool's Cove (but not including Pool's Cove) along the marine route which includes Rencontre East

Zone 5 - Springdale - Green Bay/ Triton/ Baie Verte Peninsula
All points along the Trans Canada Highway west of Gullbridge access to Sandy Lake, including Jackson's Arm (route 420) and Hampden Junction (Route 421). Included are all communities in Springdale and the Green Bay area, and Route 380 to Triton, as well as all communities on the Baie Verte Peninsula.

Sub-Zone 5a - Long Island
Sub-Zone of Zone 5

Sub-Zone 5b - Little Bay Islands
Sub-Zone of Zone 5

Zone 6 - Deer Lake/ Corner Brook/ Bay of Islands/ Gros Morne
All points along the TransCanada Highway, from Sandy Lake west to the intersection with Gallants, including Howley, Deer Lake and north along Route 430 to Gros Morne National Park. All of the city of Corner Brook - Bay of Islands region, through to Lark Harbour and Cox's Cove, and all communities and service areas in the region.

Zone 7 - Stephenville/ Port au Port/ Codroy Valley/ Channel Port aux Basques
All points along the Trans Canada Highway west of Gallants intersection to Port aux Basques, including Stephenville, Port au Port Peninsula, all communities in St. George's Bay, Codroy Valley, and along the southwest coast to Rose Blanche/Harbour LeCou, including Burgeo.

Sub-Zone 7a - Ramea
The island of Ramea.

Sub-Zone 7b - Grey River / Grand Bruit / La Poile
Along the South coast, serviced by marine transport (excluding Burgeo and the island of Ramea) from Grey River to Grand Bruit and La Poile, re designated as a sub-zone of Zone 7.

Zone 8 - Northern Peninsula - Gros Morne National Park, to Belburns
Route 430 from Gros Morne National Park, north to Batteau Cove, including all communities north within Gros Morne National Park, and then along the coast north to Bellburns.

Zone 9 - Northern Peninsula to Englee and St. Anthony
Remainder of the Northern Peninsula, from River of Ponds north to St. Anthony along Route 430, including all communities and service areas therein, and along Route 432 to Roddickton and Englee.

Zone 10 - Labrador - The Straits to Cartwright
From the Quebec-Labrador border west of L'Anse-au-Clair to Cartwright, and all points on Route 510 therein

Sub-Zone 10a - Red Bay to Mary's Harbour to Cartwright
East of Red Bay along Route 510, Mary's Harbour to Cartwright is a Sub-Zone of Zone 10. Communities connecting to the new Labrador Coast Highway as it progresses North will then become part of this sub-Zone.

Zone 11 - Coastal Labrador South
All communities along the coast of Labrador South of Groswater Bay which are not connected to the new Labrador Coast Highway and are primarily serviced via marine tanker.

Zone 12 - Central Labrador
Central Labrador including Happy Valley-Goose Bay, Mud Lake and North West River and Sheshatsheits.

Zone 13 - Western Labrador
Western Labrador including Labrador City / Wabush.

Sub-Zone 13a - Churchill Falls
Churchill Falls.

Zone 14 - Northern Labrador
All Northern Labrador coastal communities including Rigolet and all those North of Groswater Bay to Nain which are currently serviced by marine tanker.

APPENDIX B

Table B-1

Cost Estimate - Bulk Plants - Distillate Storage Only

Case A.

Intermediate Bulk Plant drop-off storage for subsequent delivery to local area home heat customers. Construction on Island portion of province.

	Thruput up to **3,500,000** Litres per year			Thruput **>3,500,000 to 5,000,000** Litres per year			Thruput **>5,000,000 to 7,500,000** Litres per year		
Item Description	Qty	Unit Price	Amount	Qty	Unit Price	Amount	Qty	Unit Price	Amount
Land Purchase - 1 Acre	1	$30,000	$30,000	1	$30,000	$30,000	1	$30,000	$30,000
Site preparation	1	$15,000	$15,000	1	$15,000	$15,000	1	$15,000	$15,000
Concrete Load Pad with drain to Oil/Water Separator	1	$6,000	$6,000	1	$6,000	$6,000	1	$6,000	$6,000
Chain Link Fencing c/w with 2- double gates installed (Lineal Feet)	800	$15	$12,000	800	$15	$12,000	800	$15	$12,000
10000 imperial gallon (45,461 litre) capacity GEEP* Units for Furnace Oil	1	$32,800	$32,800	2	$32,800	$65,600	3	$32,800	$98,400
5000 imperial gallon (22,730 litre) capacity GEEP Units for Furnace Oil	1	$15,600	$15,600	0	$15,600	$15,600	0	$15,600	$15,600
10000 imperial gallon (45,461 litre) capacity GEEP Units for Stove Oil	0	$32,800	$0	0	$32,800	$0	1	$32,800	$32,800
5000 Imperial gallon (22,730 litre) capacity GEEP Unit for Stove Oil	1	$15,600	$15,600	1	$15,600	$15,600	0	$15,600	$15,600
Load - Transport and Place GEEP Units on Site	3	$1,000	$3,000	3	$1,000	$3,000	4	$1,000	$4,000
2 - 5 HP Centrifugal Pumps c/w base	2	$3,800	$7,600	2	$3,800	$7,600	2	$3,800	$7,600
3" Meters with air eliminator and strainers	2	$6,200	$12,400	2	$6,200	$12,400	2	$6,200	$12,400
3" Loading Arms complete	2	$4,300	$8,600	2	$4,300	$8,600	2	$4,300	$8,600
3" Flanged steel Gate Valves	6	$260	$1,560	6	$260	$1,560	8	$260	$2,080
3" Flanged steel Check Valves	2	$260	$520	2	$260	$520	3	$260	$780
Oil Water Separator (5000 Litre)	1	$7,200	$7,200	1	$7,200	$7,200	1	$7,200	$7,200
Structural Steel Loading System c/w, loading arm supports, ramp, catwalk, stairs, railings etc. installed.	1	$18,000	$18,000	1	$18,000	$18,000	1	$18,000	$18,000
Mechanical hook-up c/w all associated piping and other materials and Labour	1	$25,000	$25,000	1	$25,000	$25,000	1	$25,000	$25,000
Electrical hook-up c/w all necessary wiring, circuit breakers, poles etc.	1	$18,000	$18,000	1	$18,000	$18,000	1	$18,000	$18,000
Oil spill response drum	1	$650	$650	1	$650	$650	1	$650	$650
Over fill Alarm Systems	3	$1,000	$3,000	3	$1,000	$3,000	3	$1,000	$3,000
Emergency Eye wash Kit	1	$100	$100	1	$100	$100	1	$100	$100
20 lb ABC Fire Extinguishers	2	$500	$1,000	2	$500	$1,000	2	$500	$1,000
6 ft by 8 ft Utility Shed c/w concrete floor, insulated walls, wiring, electric baseboard heat and lockable steel door.	1	$5,200	$5,200	1	$5,200	$5,200	1	$5,200	$5,200
Total Cost - Identified Items			$238,830			$271,630			$339,010
Provision for contingencies		15%	$36,170		15%	$40,370		15%	$50,990
Total Bulk Plant Cost Estimate			**$275,000**			**$312,000**			**$390,000**

*GEEP Units are portable self-dyked storage tanks complete with vents, piping connections and other appurtenances.

APPENDIX B

Table B-2

Cost Estimate - Bulk Plants - Gasoline and Distillate Storage
(Small nominal sized Plant only)

Case B. Intermediate Bulk Plant drop-off storage for subsequent delivery to local area home heat customers and Gasoline& Diesel storage for local Tank Wagon deliveries to small retail outlets. Construction on Island portion of province.

Qty	Item Description	Unit Price	Amount
1	Land Purchase - 1 Acre	$30,000	$30,000
1	Site preparation	$15,000	$15,000
1	Concrete Load Pad with drain to Oil/Water Separator	$6,000	$6,000
800	Feet - Chain Link Fencing c/w with 2- double gates installed	$15	$12,000
2	10000 Imperial gallon (45,461 litre) capacity GEEP Units for Gasoline	$32,800	$65,600
1	10000 Imperial gallon (45,461 litre) capacity GEEP Units for Furnace Oil	$32,800	$32,800
1	5000 Imperial gallon (22,730 litre) capacity GEEP Units for Furnace Oil/ Diesel	$15,600	$15,600
1	5000 Imperial gallon (22,730 litre) capacity GEEP Unit for Stove Oil	$15,600	$15,600
5	Load - Transport and Place GEEP Units on Site	$1,000	$5,000
3	2 - 5 HP Centrifugal Pumps c/w base	$3,800	$11,400
3	3" Meters with air eliminator and strainers	$6,200	$18,600
3	3" Loading Arms complete	$4,300	$12,900
10	3" Flanged steel Gate Valves	$260	$2,600
5	3" Flanged steel Check Valves	$260	$1,300
1	Oil Water Separator (5000 Litre)	$7,200	$7,200
1	Structural Steel Loading System c/w, loading arm supports, ramp, catwalk, stairs, railings etc. all installed	$26,000	$26,000
1	Mechanical hook-up c/w all associated piping and other materials and Labour	$32,000	$32,000
1	Electrical hook-up c/w all necessary wiring, circuit breakers, poles etc.	$22,000	$22,000
2	Oil spill response drum	$650	$1,300
5	Over fill Alarm Systems	$1,000	$5,000
1	Emergency Eye wash Kit	$100	$100
3	20 lb ABC Fire Extinguishers	$500	$1,500
1	6 ft by 8 ft Utility Shed c/w concrete floor, insulated walls, wiring, electric baseboard heat and steel door.	$5,200	$5,200
	Total Cost - Identified Items		$344,700
	Provision for contingencies	15%	$51,705
	Total Bulk Plant Cost Estimate		**$396,000**

APPENDIX B

Table B-3

Cost Estimate - Bulk Plants - Labrador South Coast

Case C.

Bulk Plant - South Labrador Coast supplied via Tank Wagon

(Supply from Labrador Straits Storage)

Stove oil storage for subsequent delivery to local area home heat customers.
Storage for gasoline and diesel for local delivery via Tank Wagon to retail outlets.
Includes provision for one onsite dispensing pump.

	Supply via Tank Wagon from L'Anse au Loup	
	Charlottetown	
Estimated Annual Consumer Gasoline Consumer Consumption/ demand (Litres)	864,800	Gasoline
Estimated Annual Home Heat Product Consumer Consumption/ demand (Litres)	187,375	Stove Oil
	Volumes are Approximate Deliveries via Tank-Wagon	

Item Description	Qty	Unit Price	Amount
Land Purchase - 1 Acre	1	$20,000	$20,000
Site preparation	1	$18,000	$18,000
Concrete Load Pad with drain to Oil/Water Separator	1	$7,200	$7,200
Feet - Chain Link Fencing c/w with 2- double gates installed	800	$18	$14,400
15000 imperial gallon (68,190 litre) capacity GEEP Units for Gasoline	6	$53,000	$318,000
10000 imperial gallon (45,461 litre) capacity GEEP Units for Gasoline	0	$0	$0
15000 imperial gallon (68,190 litre) capacity GEEP Units for Stove Oil / Diesel	2	$53,000	$106,000
10000 imperial gallon (45,461 litre) capacity GEEP Units for Stove Oil/ Diesel	0	$0	$0
5000 Imperial gallon (22,730 litre) capacity GEEP Unit for Stove Oil /Diesel	0	$0	$0
Load - Transport and Place GEEP Units on Site	8	$2,000	$16,000
2 - 5 HP Centrifugal Pumps c/w base	2	$3,800	$7,600
3" Meters with air eliminator and strainers	3	$6,200	$18,600
Retail Dispensing Pump with hose reel and auto-shut-off nozzles	1	$7,500	$7,500
3" Loading Arms complete	2	$4,300	$8,600
3" Flanged steel Gate Valves	16	$260	$4,160
3" Flanged steel Check Valves	8	$260	$2,080
Oil Water Separator (5000 Litre)	1	$7,200	$7,200
Transport materials other than GEEP Units to site	1	$1,000	$1,000
Structural Steel Loading System c/w, loading arm supports, ramp, catwalk, stairs, railings etc. (installed)	1	$30,000	$30,000
Mechanical Hook-up c/w all associated piping and other materials and Labour	1	$38,400	$38,400
Electrical hook-up c/w all necessary wiring, circuit breakers, poles etc.	1	$26,400	$26,400
Oil spill response drum	2	$780	$1,560
Over fill Alarm Systems	8	$1,200	$9,600
Emergency Eye wash Kit	1	$120	$120
20 lb ABC Fire Extinguishers	3	$600	$1,800
6 ft by 8 ft Utility Shed c/w concrete floor, insulated walls, wiring, electric baseboard heat and steel door.	1	$6,240	$6,240

Total Cost - Identified Items		$670,460
Provision for contingencies	15%	$100,540
Total Cost Estimate		**$771,000**

APPENDIX B

Table B-4

Cost Estimate - Marine Storage Depots - Labrador South Coast

Case D.

Marine Depots - Labrador South Coast supplied via Coastal Tanker

Stove oil storage for subsequent delivery to local area home heat customers. Storage for gasoline and diesel for local delivery via Tank Wagon to retail outlets. Includes provision for one onsite dispensing pump.

	Supply via Coastal Marine Tanker	
	Combined Cartwright & Port Hope Simpson	
Estimated Annual Consumer Gasoline Consumer Consumption/ demand (Litres)	1,193,000	Gasoline
Estimated Annual Home Heat Product Consumer Consumption/ demand (Litres)	256,000	Stove Oil
	Approximate Deliveries via	

Item Description	Qty	Unit Price	Amount
Land Purchase - 1 Acre	1	$20,000	$20,000
Site preparation	1	$18,000	$18,000
Concrete Load Pad with drain to Oil/Water Separator	1	$7,200	$7,200
Feet - Chain Link Fencing c/w with 2- double gates installed	800	$18	$14,400
15000 imperial gallon (68,190 litre) capacity GEEP Units for Gasoline	13	$53,000	$689,000
10000 imperial gallon (45,461 litre) capacity GEEP Units for Gasoline	0	$32,800	$0
15000 imperial gallon (68,190 litre) capacity GEEP Units for Stove / Diesel	3	$53,000	$159,000
10000 imperial gallon (45,461 litre) capacity GEEP Units for Stove / Diesel	0	$32,800	$0
5000 Imperial gallon (22,730 litre) capacity GEEP Unit for Stove / Diesel	0	$15,600	$0
Load - Transport and Place GEEP Units on Site	16	$2,000	$32,000
2 - 5 HP Centrifugal Pumps c/w base	2	$3,800	$7,600
3" Meters with air eliminator and strainers	3	$6,200	$18,600
Retail Dispensing Pumps with hose reel and auto-shut-off nozzles	1	$7,500	$7,500
3" Loading Arms complete	2	$4,300	$8,600
3" Flanged steel Gate Valves	32	$260	$8,320
3" Flanged steel Check Valves	16	$260	$4,160
Oil Water Separator (5000 Litre)	1	$7,200	$7,200
Transport materials other than GEEP Units to site	1	$1,000	$1,000
Structural Steel Loading System c/w, loading arm supports, ramp, catwalk, stairs, railings etc. (installed)	1	$30,000	$30,000
Mechanical Hook-up c/w all associated piping and other materials and Labour	1	$38,400	$38,400
Electrical hook-up c/w all necessary wiring, circuit breakers, poles etc.	1	$26,400	$26,400
Oil spill response drum	2	$780	$1,560
Over fill Alarm Systems	16	$1,200	$19,200
Emergency Eye wash Kit	1	$120	$120
20 lb ABC Fire Extinguishers	3	$600	$1,800
6 ft by 8 ft Utility Shed c/w concrete floor, insulated walls, wiring, electric baseboard heat and steel door.	1	$6,240	$6,240
Total Cost - Identified Items			$1,126,300
Provision for contingencies		15%	$168,700
Total Cost Estimate			**$1,295,000**

APPENDIX B

Table B-5

Cost Estimate - Specific Marine Storage Depots - Labrador Coast

Case E.

Marine Depots - Labrador Coast supplied via Coastal Tanker

Gasoline and Stove oil and Diesel storage for dispensing to customers at Depot into drums and / or other containers.

		Rigolet	
Estimated Annual Consumer Gasoline Consumer Consumption/ demand (Litres)		210,508	Gasoline
Estimated Annual Home Heat Product Consumer Consumption/ demand (Litres)		83,047	Stove Oil
Item Description	Qty	Unit Price	Amount
Land Purchase - 1 Acre	1	$20,000	$20,000
Site preparation	1	$22,500	$22,500
Concrete Load Pad with drain to Oil/Water Separator	1	$9,000	$9,000
Feet - Chain Link Fencing c/w with 2- double gates installed	800	$23	$18,000
15000 imperial gallon (68,190 litre) capacity GEEP Units for Gasoline	2	$53,000	$106,000
10000 imperial gallon (45,461 litre) capacity GEEP Units for Gasoline	2	$32,800	$65,600
15000 imperial gallon (68,190 litre) capacity GEEP Units for Stove / Diesel	0	$0	$0
10000 imperial gallon (45,461 litre) capacity GEEP Units for Stove / Diesel	2	$32,800	$65,600
5000 Imperial gallon (22,730 litre) capacity GEEP Unit for Stove / Diesel	0	$0	$0
Load - Transport and Place GEEP Units on Site	6	$2,500	$15,000
2 - 5 HP Centrifugal product transfer pumps c/w base	2	$3,800	$7,600
3" Flanged steel Gate Valves	12	$260	$3,120
3" Flanged steel Check Valves	6	$260	$1,560
Retail Dispensing Pumps with hose reel and auto-shut-off nozzles	3	$7,500	$22,500
Oil Water Separator (5000 Litre)	1	$7,200	$7,200
Transport materials other than GEEP Units to site	1	$1,250	$1,250
Mechanical Hook-up c/w all associated piping and other materials and Labour	1	$48,000	$48,000
Electrical hook-up c/w all necessary wiring, circuit breakers, poles etc.	1	$33,000	$33,000
Oil spill response drum	2	$975	$1,950
Over fill Alarm Systems	6	$1,500	$9,000
Emergency Eye wash Kit	1	$150	$150
20 lb ABC Fire Extinguishers	3	$750	$2,250
6 ft by 8 ft Utility Shed c/w concrete floor, insulated walls, wiring, electric baseboard heat and steel door.	1	$7,800	$7,800
Total Cost - Identified Items			$467,080
Provision for contingencies		15%	$69,920
Total Cost Estimate			**$537,000**

APPENDIX B

Table B-6

Cost Estimate - Specific Marine Storage Depots - Labrador Coast

Case E.

Marine Depots - Labrador Coast supplied via Coastal Tanker

Gasoline and Stove oil and Diesel storage for dispensing to customers at Depot into drums and / or other containers.

		Makkovik	
Estimated Annual Consumer Gasoline Consumer Consumption/ demand (Litres)		237,933	Gasoline
Estimated Annual Home Heat Product Consumer Consumption/ demand (Litres)		118,275	Stove Oil
Item Description	Qty	Unit Price	Amount
Land Purchase - 1 Acre	1	$20,000	$20,000
Site preparation	1	$22,500	$22,500
Concrete Load Pad with drain to Oil/Water Separator	1	$9,000	$9,000
Feet - Chain Link Fencing c/w with 2- double gates installed	800	$23	$18,000
15000 imperial gallon (68,190 litre) capacity GEEP Units for Gasoline	3	$53,000	$159,000
10000 imperial gallon (45,461 litre) capacity GEEP Units for Gasoline	1	$32,800	$32,800
15000 imperial gallon (68,190 litre) capacity GEEP Units for Stove / Diesel	2	$53,000	$106,000
10000 imperial gallon (45,461 litre) capacity GEEP Units for Stove / Diesel	0	$0	$0
5000 Imperial gallon (22,730 litre) capacity GEEP Unit for Stove / Diesel	0	$0	$0
Load - Transport and Place GEEP Units on Site	6	$2,500	$15,000
2 - 5 HP Centrifugal product transfer pumps c/w base	2	$3,800	$7,600
3" Flanged steel Gate Valves	12	$260	$3,120
3" Flanged steel Check Valves	6	$260	$1,560
Retail Dispensing Pumps with hose reel and auto-shut-off nozzles	3	$7,500	$22,500
Oil Water Separator (5000 Litre)	1	$7,200	$7,200
Transport materials other than GEEP Units to site	1	$1,250	$1,250
Mechanical Hook-up c/w all associated piping and other materials and Labour	1	$48,000	$48,000
Electrical hook-up c/w all necessary wiring, circuit breakers, poles etc.	1	$33,000	$33,000
Oil spill response drum	2	$975	$1,950
Over fill Alarm Systems	6	$1,500	$9,000
Emergency Eye wash Kit	1	$150	$150
20 lb ABC Fire Extinguishers	3	$750	$2,250
6 ft by 8 ft Utility Shed c/w concrete floor, insulated walls, wiring, electric baseboard heat and steel door.	1	$7,800	$7,800
Total Cost - Identified Items			$527,680
Provision for contingencies		15%	$79,320
Total Cost Estimate			**$607,000**

APPENDIX B

Table B-7

Cost Estimate - Specific Marine Storage Depots - Labrador Coast

Case E.

Marine Depots - Labrador Coast supplied via Coastal Tanker

Gasoline and Stove oil and Diesel storage for dispensing to customers at Depot into drums and / or other containers.

		Postville	
Estimated Annual Consumer Gasoline Consumer Consumption/ demand (Litres)		179,759	Gasoline
Estimated Annual Home Heat Product Consumer Consumption/ demand (Litres)		69,825	Stove Oil
Item Description	Qty	Unit Price	Amount
Land Purchase - 1 Acre	1	$20,000	$20,000
Site preparation	1	$22,500	$22,500
Concrete Load Pad with drain to Oil/Water Separator	1	$9,000	$9,000
Feet - Chain Link Fencing c/w with 2- double gates installed	800	$23	$18,000
15000 imperial gallon (68,190 litre) capacity GEEP Units for Gasoline	2	$53,000	$106,000
10000 imperial gallon (45,461 litre) capacity GEEP Units for Gasoline	1	$32,800	$32,800
15000 imperial gallon (68,190 litre) capacity GEEP Units for Stove / Diesel	1	$53,000	$53,000
10000 imperial gallon (45,461 litre) capacity GEEP Units for Stove / Diesel	0	$0	$0
5000 Imperial gallon (22,730 litre) capacity GEEP Unit for Stove / Diesel	1	$15,600	$15,600
Load - Transport and Place GEEP Units on Site	5	$2,500	$12,500
2 - 5 HP Centrifugal product transfer pumps c/w base	2	$3,800	$7,600
3" Flanged steel Gate Valves	10	$260	$2,600
3" Flanged steel Check Valves	5	$260	$1,300
Retail Dispensing Pumps with hose reel and auto-shut-off nozzles	3	$7,500	$22,500
Oil Water Separator (5000 Litre)	1	$7,200	$7,200
Transport materials other than GEEP Units to site	1	$1,250	$1,250
Mechanical Hook-up c/w all associated piping and other materials and Labour	1	$48,000	$48,000
Electrical hook-up c/w all necessary wiring, circuit breakers, poles etc.	1	$33,000	$33,000
Oil spill response drum	2	$975	$1,950
Over fill Alarm Systems	5	$1,500	$7,500
Emergency Eye wash Kit	1	$150	$150
20 lb ABC Fire Extinguishers	3	$750	$2,250
6 ft by 8 ft Utility Shed c/w concrete floor, insulated walls, wiring, electric baseboard heat and steel door.	1	$7,800	$7,800
Total Cost - Identified Items			$432,500
Provision for contingencies		15%	$64,500
Total Cost Estimate			**$497,000**

APPENDIX B

Table B-8

Cost Estimate - Specific Marine Storage Depots - Labrador Coast

Case E.

Marine Depots - Labrador Coast supplied via Coastal Tanker

Gasoline and Stove oil and Diesel storage for dispensing to customers at Depot into drums and / or other containers.

		Hopedale	
Estimated Annual Consumer Gasoline Consumer Consumption/ demand (Litres)		250,000	Gasoline
Estimated Annual Home Heat Product Consumer Consumption/ demand (Litres)		161,154	Stove Oil
Item Description	Qty	Unit Price	Amount
Land Purchase - 1 Acre	1	$20,000	$20,000
Site preparation	1	$30,000	$30,000
Concrete Load Pad with drain to Oil/Water Separator	1	$12,000	$12,000
Feet - Chain Link Fencing c/w with 2- double gates installed	800	$30	$24,000
15000 imperial gallon (68,190 litre) capacity GEEP Units for Gasoline	4	$53,000	$212,000
10000 imperial gallon (45,461 litre) capacity GEEP Units for Gasoline	0	$0	$0
15000 imperial gallon (68,190 litre) capacity GEEP Units for Stove / Diesel	2	$53,000	$106,000
10000 imperial gallon (45,461 litre) capacity GEEP Units for Stove / Diesel	1	$32,800	$32,800
5000 Imperial gallon (22,730 litre) capacity GEEP Unit for Stove / Diesel	0	$0	$0
Load - Transport and Place GEEP Units on Site	7	$2,500	$17,500
2 - 5 HP Centrifugal product transfer pumps c/w base	2	$3,800	$7,600
3" Flanged steel Gate Valves	14	$260	$3,640
3" Flanged steel Check Valves	7	$260	$1,820
Retail Dispensing Pumps with hose reel and auto-shut-off nozzles	3	$7,500	$22,500
Oil Water Separator (5000 Litre)	1	$7,200	$7,200
Transport materials other than GEEP Units to site	1	$1,250	$1,250
Mechanical Hook-up c/w all associated piping and other materials and Labour	1	$48,000	$48,000
Electrical hook-up c/w all necessary wiring, circuit breakers, poles etc.	1	$33,000	$33,000
Oil spill response drum	2	$975	$1,950
Over fill Alarm Systems	7	$1,500	$10,500
Emergency Eye wash Kit	1	$150	$150
20 lb ABC Fire Extinguishers	3	$750	$2,250
6 ft by 8 ft Utility Shed c/w concrete floor, insulated walls, wiring, electric baseboard heat and steel door.	1	$7,800	$7,800
Total Cost - Identified Items			$601,960
Provision for contingencies		15%	$90,040
Total Cost Estimate			**$692,000**

APPENDIX B

Table B-9

Cost Estimate - Specific Marine Storage Depots - Labrador Coast

Case E.

Marine Depots - Labrador Coast supplied via Coastal Tanker

Gasoline and Stove oil and Diesel storage for dispensing to customers at Depot into drums and / or other containers.

		Nain	
Estimated Annual Consumer Gasoline Consumer Consumption/ demand (Litres)		436,603	Gasoline
Estimated Annual Home Heat Product Consumer Consumption/ demand (Litres)		330,600	Stove Oil
Item Description	**Qty**	**Unit Price**	**Amount**
Land Purchase - 1 Acre	1	$20,000	$20,000
Site preparation	1	$30,000	$30,000
Concrete Load Pad with drain to Oil/Water Separator	1	$12,000	$12,000
Feet - Chain Link Fencing c/w with 2- double gates installed	800	$30	$24,000
15000 imperial gallon (68,190 litre) capacity GEEP Units for Gasoline	6	$53,000	$318,000
10000 imperial gallon (45,461 litre) capacity GEEP Units for Gasoline	1	$32,800	$32,800
15000 imperial gallon (68,190 litre) capacity GEEP Units for Stove / Diesel	5	$53,000	$265,000
10000 imperial gallon (45,461 litre) capacity GEEP Units for Stove / Diesel	0	$0	$0
5000 Imperial gallon (22,730 litre) capacity GEEP Unit for Stove / Diesel	0	$0	$0
Load - Transport and Place GEEP Units on Site	12	$2,500	$30,000
2 - 5 HP Centrifugal product transfer pumps c/w base	2	$3,800	$7,600
3" Flanged steel Gate Valves	24	$260	$6,240
3" Flanged steel Check Valves	12	$260	$3,120
Retail Dispensing Pumps with hose reel and auto-shut-off nozzles	3	$7,500	$22,500
Oil Water Separator (5000 Litre)	1	$7,200	$7,200
Transport materials other than GEEP Units to site	1	$1,250	$1,250
Mechanical Hook-up c/w all associated piping and other materials and Labour	1	$48,000	$48,000
Electrical hook-up c/w all necessary wiring, circuit breakers, poles etc.	1	$33,000	$33,000
Oil spill response drum	2	$975	$1,950
Over fill Alarm Systems	12	$1,500	$18,000
Emergency Eye wash Kit	1	$150	$150
20 lb ABC Fire Extinguishers	3	$750	$2,250
6 ft by 8 ft Utility Shed c/w concrete floor, insulated walls, wiring, electric baseboard heat and steel door.	1	$7,800	$7,800
Total Cost - Identified Items			$890,860
Provision for contingencies		15%	$133,140
Total Cost Estimate			**$1,024,000**

APPENDIX B

Table B-10

Estimated Annual Operating Cost of Typical 'Drop-Off' Bulk Plant for Distillates per Study Model

Nominal Storage Capacity (Litres)	90,922	90,922	90,922	90,922	90,922	90,922	136,383
Capital Cost Estimate[1]	$275,000	$275,000	$275,000	$275,000	$275,000	$275,000	$312,000
Straight Line Depreciation - 20 Years	$13,750	$13,750	$13,750	$13,750	$13,750	$13,750	$15,600
Annual Thruput (Litres)	**1,000,000**	**1,500,000**	**2,000,000**	**2,500,000**	**3,000,000**	**3,500,000**	**4,000,000**
Estimated Annual Costs							
Part-time Salary for Plant Operation[2]	$10,000	$10,500	$11,000	$11,500	$12,000	$12,500	$13,000
Electrical Power	$1,000	$1,050	$1,100	$1,150	$1,200	$1,250	$1,300
Maintenance	$1,500	$2,250	$3,000	$3,750	$4,500	$5,250	$6,000
Insurance[3]	$10,489	$10,489	$10,489	$10,489	$10,489	$10,489	$10,730
Municipal Taxes[4]	$2,750	$2,750	$2,750	$2,750	$2,750	$2,750	$3,120
Stock Losses at 0.25% of thruput @ 50 cpl	$1,250	$1,875	$2,500	$3,125	$3,750	$4,375	$5,000
Sub-Total	$26,989	$28,914	$30,839	$32,764	$34,689	$36,614	$39,150
Direct Operating Costs CPL	**2.70**	**1.93**	**1.54**	**1.31**	**1.16**	**1.05**	**0.98**
(All Stock valued at 50 cpl)							
Add Depreciation	$13,750	$13,750	$13,750	$13,750	$13,750	$13,750	$15,600
Total Annual Cost	$40,739	$42,664	$44,589	$46,514	$48,439	$50,364	$54,750
Operating Cost CPL	**4.07**	**2.84**	**2.23**	**1.86**	**1.61**	**1.44**	**1.37**

Nominal Storage Capacity (Litres)	136,383	136,383	181,844	181,844	181,844	181,844	181,844
Capital Cost Estimate[1]	$312,000	$312,000	$390,000	$390,000	$390,000	$390,000	$390,000
Straight Line Depreciation - 20 Years	$15,600	$15,600	$19,500	$19,500	$19,500	$19,500	$19,500
Annual Thruput (Litres)	**4,500,000**	**5,000,000**	**5,500,000**	**6,000,000**	**6,500,000**	**7,000,000**	**7,500,000**
Estimated Annual Costs							
Part-time Salary for Plant Operation[2]	$13,500	$14,000	$14,500	$15,000	$15,500	$16,000	$16,500
Electrical Power	$1,350	$1,400	$1,450	$1,500	$1,550	$1,600	$1,650
Maintenance	$6,750	$7,500	$8,250	$9,000	$9,750	$10,500	$11,250
Insurance[3]	$10,730	$10,730	$11,177	$11,177	$11,177	$11,177	$11,177
Municipal Taxes[4]	$3,120	$3,120	$3,900	$3,900	$3,900	$3,900	$3,900
Stock Losses at 0.25% of thruput @ 50 cpl	$5,625	$6,250	$6,875	$7,500	$8,125	$8,750	$9,375
Sub-Total	$41,075	$43,000	$46,152	$48,077	$50,002	$51,927	$53,852
Direct Operating Costs CPL	**0.91**	**0.86**	**0.84**	**0.80**	**0.77**	**0.74**	**0.72**
(All Stock valued at 50 cpl)							
Add Depreciation	$15,600	$15,600	$19,500	$19,500	$19,500	$19,500	$19,500
Total Annual Cost	$56,675	$58,600	$65,652	$67,577	$69,502	$71,427	$73,352
Operating Cost CPL	**1.26**	**1.17**	**1.19**	**1.13**	**1.07**	**1.02**	**0.98**

Notes:

[1] Based on the use of self dyked GEEP Units - for Furnace Oil and one for Stove Oil with 2 pumps, meters, 2 loading arms, land, fencing, dykes, water separator and other required equipment for current standards. (Distillate storage only as required for thruput)

[2] Balance of salary provided for by commercial volumes handled through bulk plant and/ or tank wagon

[3] Insurance cost estimate would be $0.50 per $100 for physical property and inventory. First and Third party Liability premiums assuming the Plant meets all environmental and safety standards would be $9000 + HST. (Inventory valued at 50 cpl and insured at 50% of storage capacity)

[4] Municipal Taxes assumed to be 1% of capital value per annum (I.e. 10 mils)

APPENDIX B

Table B-11

Estimated Annual Costs for Specific Bulk Plants and Marine Depots Labrador - Using Study Model

Nominal Storage Capacity (Litres)	545,520	409,140	136,380	1,159,230	954,660	204,570
Capital Cost Estimate[1]	$771,000	$771,000	$771,000	$1,295,000	$1,295,000	$1,295,000
Straight Line Depreciation - 20 Years	$38,550	$38,550	$38,550	$64,750	$64,750	$64,750
	(Storage for 50% of annual Volume)			(Storage for 70% of annual Volume)		
Location	**Charlottetown, Labrador**			**Port Hope Simpson, Labrador**		
	All Product	**Gasoline**	**Distillate**	**All Product**	**Gasoline**	**Distillate**
Gasolines Thruput	864,800	864,800		1,193,325	1,193,325	
Distillates Thruput	187,375		187,375	255,713		255,713
Total Annual Thruput (Litres)	1,052,175	864,800	187,375	1,449,038	1,193,325	255,713
Estimated Annual Costs	Totals	Prorate on Thruput		Totals	Prorate on Thruput	
Part-time Salary for Plant Operation[2]	$11,000	$9,041	$1,959	$11,000	$9,059	$1,941
Electrical Power[5]	$1,905	$1,566	$339	$1,945	$1,602	$343
Maintenance	$1,578	$1,297	$281	$2,174	$1,790	$384
Insurance[3]	$13,537	$11,126	$2,411	$13,537	$11,148	$2,389
Municipal Taxes[4]	$7,710	$6,337	$1,373	$7,710	$6,349	$1,361
Stock Losses for gasoline 1.5 % of thruput @ 50 cpl	$6,486	$6,486		$8,950	$8,950	
Stock Losses for distillate 0.75 % of thruput @ 50 cpl	$703		$703	$959		$959
Sub-Total	$42,919	$35,853	$7,066	$46,274	$38,898	$7,376
Direct Operating Costs CPL	**4.08**	**4.15**	**3.77**	**3.19**	**3.26**	**2.88**
Add Depreciation	$38,550	$31,685	$6,865	$64,750	$53,324	$11,426
Total Annual Cost	$81,469	$67,538	$13,931	$111,024	$92,221	$18,803
Annual Operating Cost CPL	**7.74**	**7.81**	**7.43**	**7.66**	**7.73**	**7.35**

Average annual cost for Gasoline **7.77** **CPL**
Average annual cost for Stove Oil Heating Fuel and Diesel Fuel **7.39** **CPL**

[1] Storage based on tankage and equipment per Tables B-3 and B-4 of Appendix B. Labour for construction assumed at 120% of rates on Island of Newfoundland.

[2] Balance of salary provided for by commercial volumes handled through bulk plant and/ or tank wagon deliveries.

[3] Insurance cost estimated at $0.50 per $100 of physical property and inventory. First and Third party Liability assuming the plant meets all environmental and safety standards would be $9000 + HST. Inventory valued at 50 cpl and insured at 50% of capacity.

[4] Municipal Taxes assumed to be 1% of capital value per annum (I.e. 10 mils)

[5] Electricity costs assumed to double that on Island portion of province.

APPENDIX B

Table B-12

Estimated Annual Costs for Specific Marine Depots Labrador Coast - Using Study Estimate Model

	All Product	Gasoline	Distillate	All Product	Gasoline	Distillate
Nominal Storage Capacity (Litres)	318,224	90,922	227,302	386,411	250,031	136,380
Capital Cost Estimate[1]	$537,000	$537,000	$537,000	$607,000	$607,000	$607,000
Straight Line Depreciation - 20 Years	$26,850	$26,850	$26,850	$30,350	$30,350	$30,350
Location	**Rigolet, Labrador**			**Makkovik, Labrador**		
Population 2001 Census	**317**			**384**		
Gasolines Thruput	210,508	210,508		237,933	237,933	
Distillates Thruput	83,047		83,047	118,275		118,275
Total Annual Thruput (Litres)	293,555	210,508	83,047	356,208	237,933	118,275
Estimated Annual Costs	Totals	Prorate on Thruput		Totals	Prorate on Thruput	
Part-time Salary for Plant Operation[2]	$11,000	$7,888	$3,112	$11,000	$7,348	$3,652
Electrical Power[5]	$1,829	$1,312	$518	$1,836	$1,226	$609
Maintenance	$440	$316	$125	$534	$357	$177
Insurance[3]	$12,083	$8,665	$3,418	$12,518	$8,362	$4,156
Municipal Taxes[4]	$2,685	$1,925	$760	$3,035	$2,027	$1,008
Stock Losses for gasoline 5 % of thruput	$5,263	$5,263		$5,948	$5,948	
Stock Losses for distillate 2 % of thruput	$830		$830	$1,183		$1,183
Sub-Total	$34,131	$25,368	$8,762	$36,054	$25,268	$10,786
Direct Operating Costs CPL	**11.63**	**12.05**	**10.55**	**10.12**	**10.62**	**9.12**
Add Depreciation	$26,850	$19,254	$7,596	$30,350	$20,273	$10,077
Total Annual Cost	$60,981	$44,622	$16,358	$66,404	$45,540	$20,864
Operating Cost CPL	**20.77**	**21.20**	**19.70**	**18.64**	**19.14**	**17.64**

[1] Storage based on tankage and equipment per Tables B-5 and B-6 of Appendix B. Labour for construction assumed at 150% of rates on Island of Newfoundland.

[2] Balance of salary provided for by dispensing fuel to customers - (provided for in retail margin)

[3] Insurance cost estimated at $0.50 per $100 of physical property and inventory. First and Third party Liability assuming the plant meets all environmental and safety standards would be $9000 + HST. Inventory valued at 50 cpl and insured at 50% of capacity.

[4] Municipal Taxes Labrador Communities assumed to be 0.5% of capital value per annum (I.e. 5 mils)

[5] Electricity costs assumed to double that on Island portion of province.

APPENDIX B

Table B-13

Estimated Annual Costs for Specific Marine Depots Labrador North - Using Study Estimate Model

	All Product	Gasoline	Distillate	All Product	Gasoline	Distillate
Nominal Storage Capacity (Litres)	250,031	181,841	68,190	454,601	272,760	181,841
Capital Cost Estimate[1]	$497,000	$497,000	$497,000	$692,000	$692,000	$692,000
Straight Line Depreciation - 20 Years	$24,850	$24,850	$24,850	$34,600	$34,600	$34,600
Location	**Postville, Labrador**			**Hopedale, Labrador**		
Population 2001 Census	**215**			**559**		
Gasolines Thruput	179,759	179,759		250,000	250,000	
Distillates Thruput	69,825		69,825	161,154		161,154
Total Annual Thruput (Litres)	249,584	179,759	69,825	411,154	250,000	161,154
Estimated Annual Costs	Totals	Prorate on Thruput		Totals	Prorate on Thruput	
Part-time Salary for Plant Operation[2]	$11,000	$7,923	$3,077	$11,000	$6,688	$4,312
Electrical Power[5]	$1,825	$1,314	$511	$1,841	$1,119	$722
Maintenance	$374	$270	$105	$617	$375	$242
Insurance[3]	$11,798	$8,497	$3,301	$13,028	$7,922	$5,106
Municipal Taxes[4]	$2,485	$1,790	$695	$3,460	$2,104	$1,356
Stock Losses for gasoline 5 % of thruput	$4,494	$4,494		$6,250	$6,250	
Stock Losses for distillate 2 % of thruput	$698		$698	$1,612		$1,612
Sub-Total	$32,674	$24,287	$8,387	$37,808	$24,459	$13,349
Direct Operating Costs CPL	**13.09**	**13.51**	**12.01**	**9.20**	**9.78**	**8.28**
Add Depreciation	$24,850	$17,898	$6,952	$34,600	$21,038	$13,562
Total Annual Cost	$57,524	$42,185	$15,339	$72,408	$45,497	$26,911
Operating Cost CPL	**23.05**	**23.47**	**21.97**	**17.61**	**18.20**	**16.70**

[1] Storage based on tankage and equipment per Tables B-7 and B-8 of Appendix B. Labour for construction assumed at 150% of rates on Island of Newfoundland.

[2] Balance of salary provided for by dispensing fuel to customers - (provided for in retail margin)

[3] Insurance cost estimated at $0.50 per $100 of physical property and inventory. First and Third party Liability assuming the plant meets all environmental and safety standards would be $9000 + HST. Inventory valued at 50 cpl and insured at 50% of capacity.

[4] Municipal Taxes Labrador Communities assumed to be 0.5% of capital value per annum (I.e. 5 mils)

[5] Electricity costs assumed to double that on Island portion of province.

APPENDIX B

Table B-14

Estimated Annual Costs for Specific Marine Depots Labrador North - Using Study Estimate Model

	All Product	Gasoline	Distillate
Nominal Storage Capacity (Litres)	795,551	454,601	340,950
Capital Cost Estimate[1]	$1,024,000	$1,024,000	$1,024,000
Straight Line Depreciation - 20 Years	$51,200	$51,200	$51,200
Location	**Nain, Labrador**		
Population 2001 Census	**1,159**		
Gasolines Thruput	436,603	436,603	
Distillates Thruput	330,600		330,600
Total Annual Thruput (Litres)	767,203	436,603	330,600
Estimated Annual Costs	Totals	Prorate on Thruput	
Part-time Salary for Plant Operation[2]	$22,000	$12,520	$9,480
Electrical Power[5]	$1,877	$1,068	$809
Maintenance	$1,151	$655	$496
Insurance[3]	$15,114	$8,601	$6,513
Municipal Taxes[4]	$5,120	$2,914	$2,206
Stock Losses for gasoline 5 % of thruput	$10,915	$10,915	
Stock Losses for distillate 2 % of thruput	$3,306		$3,306
Sub-Total	$59,483	$36,673	$22,810
Direct Operating Costs CPL	**7.75**	**8.40**	**6.90**
Add Depreciation	$51,200	$29,137	$22,063
Total Annual Cost	$110,683	$65,810	$44,873
Operating Cost CPL	**14.43**	**15.07**	**13.57**

[1] Storage based on tankage and equipment per Table B-9 of Appendix B. Labour for construction assumed at 150% of rates on Island of Newfoundland.

[2] Balance of salary provided for by dispensing fuel to customers - (provided for in retail margin)

[3] Insurance cost estimated at $0.50 per $100 of physical property and inventory. First and Third party Liability assuming the plant meets all environmental and safety standards would be $9000 + HST. Inventory valued at 50 cpl and insured at 50% of capacity.

[4] Municipal Taxes Labrador Communities assumed to be 0.5% of capital value per annum (I.e. 5 mils)

[5] Electricity costs assumed to double that on Island portion of province.

APPENDIX B

Table B-15

Estimated Annual Costs for Specific Marine Depots Labrador North - Using Study Estimate Model

Average of 5 North Coast Marine Depots	All Product	Gasoline	Distillate
Nominal Storage Capacity (Litres)	440,964	250,031	190,933
Capital Cost Estimate[1]	$671,400	$671,400	$671,400
Straight Line Depreciation - 20 Years	$33,570	$33,850	$33,850
Location - All five Communities	**North Labrador Coast**		
Total Population 2001 Census	**2,634**		
Average Population - Five Communities	**527**		
	AVERAGES		
Gasolines Thruputs (Average)	262,961	262,961	
Distillates Thruputs (Average)	152,580		152,580
Total Annual Thruputs- Litres (Average)	415,541	262,961	152,580
Estimated Annual Costs	Totals	rate on Thruput	
Part-time Salary for Plant Operation[2]	$13,200	$8,473	$4,727
Electrical Power[5]	$1,842	$1,208	$634
Maintenance	$623	$394	$229
Insurance[3]	$12,908	$8,409	$4,499
Municipal Taxes[4]	$3,357	$2,152	$1,205
Stock Losses for gasoline 5 % of thruput	$6,574	$6,574	$0
Stock Losses for distillate 2 % of thruput	$1,526	$0	$1,526
Sub-Total	$40,030	$27,211	$12,819
Direct Operating Costs CPL	**9.63**	**10.35**	**8.40**
(For Stock Losses Product valued at 50 cpl)			
Add Depreciation	$33,570	$21,520	$12,050
Total Annual Cost	$73,600	$48,731	$24,869
Total operating Cost CPL	**17.39**	**17.98**	**16.48**
Less allowance for portion of retail margin included in plant operation- cents per litre		**2.39**	**2.39**
Net Average Marine Depot Operating Cost CPL		**15.59**	**14.09**

[1] Average Capital Cost of all Five North Labrador Coast Communities

[2] Balance of salary provided for by dispensing fuel to customers - (provided for in retail margin)

[3] Insurance cost estimated at $0.50 per $100 of physical property and inventory. First and Third party Liability assuming the plant meets all environmental and safety standards would be $9000 + HST. Inventory valued at 50 cpl and insured at 50% of capacity.

[4] Municipal Taxes Labrador Communities assumed to be 0.5% of capital value per annum (I.e. 5 mils)

[5] Electricity costs assumed to double that on Island portion of province.

APPENDIX C

Table C-1

Storage and Distribution Study

Full Load Tractor Trailer Gasoline Deliveries to Bulk Plants

Source Terminal	Bulk Plant Location	43,000 Litres Full Trailer Loads PPPC Zone	Distance One Way Kms	Calculated T/T Rate To Bulk Plant CPL	Add Diesel Fuel Surcharge (See Note 1) at Rate 7.00%	Total Calculated Delivery Rates Including DFS CPL
Holyrood	Marystown	2	256	***1.921***	7.00%	**2.06**
Holyrood	Gander	*3*	286	***1.847***	7.00%	**1.98**
Holyrood	Fogo Including Ferry at Farewel	*3*	414	***4.308***	7.00%	**4.61**
Holyrood	Pool's Cove Crossroads	4	533	***3.327***	7.00%	**3.56**
Come By Chance	Fogo via Ferry from Farewel	3b	297	***3.765***	7.00%	**4.03**
Come By Chance	Long Pond Terminal	N/A	121	***1.040***	7.00%	**1.11**
Lewisporte	Fogo Island	3b	98	***1.975***	7.00%	**2.11**
Lewisporte	Pool's Cove Crossroads	4	212	***1.679***	7.00%	**1.80**
Corner Brook	Springdale	5	180	***1.345***	7.00%	**1.44**

Note 1:
The Diesel Fuel Surcharge (DFS) was introduced several years ago to provide a mechanism for truckers to automatically adjust their contracted haulage or cartage rates due to significant increases or decreases in diesel fuel prices. The price for diesel fuel on which the DFS is based is cited as 39 or 40 cents per litre excluding taxes[1]

As an example, if the truckers' cost of diesel fuel (excluding taxes) rose to 50 cents per litre from the base of 40 cp the percent increase would equate to (50-40/40)= 25% above the base price. This figure would then be multiplied by the percentage that the fuel cost made up total rate charged by the trucker. Assuming that fuel costs a nominal 20% of the charged rate, then in this case the Diesel Fuel Surcharge would represent a 25% times 20% = 5% increase in the charged haulage rate.

Hence, if the above situation were applied in a case where a trucker charged 2.00 cpl for product haulage then his contract rate would increase by 5% or to 2.10 cpl.

The Diesel Fuel Surcharge for the purposes of this Study was taken to be 7.0% for local contract tractor-traile operators. The exact mechanism by which truckers change the DFS depends on the price of diesel fuel as well as other factors, including his particular fuel cost as a percent of revenue, and the specific contractual arrangement he may have with the customer. It is necessary to periodically update DFSs and tractor-trailer rates in accordance with increases in diesel fuel prices.

[1]Freight Carriers Association of Canada (FCA)

APPENDIX C

Table C-2

Full Load T/T Gasoline Deliveries - 2004

Rate based on Full Load to Gander Bulk Plant

43000	Litres per Load		
PPPC Zone 3	Source Terminal	Units	Amounts
3 - Gander Bulk Plant	**Holyrood**		
Distance One Way		kms	286
Additional kms to reach edge of Supplying Terminal City/Town		kms	5
Equivalent Distance One-Way on TCH Class A Paved Roads		kms	281
Equivalent Distance One-Way on Good Quality Class B Paved Roads		kms	0
Equivalent Distance One-Way on other Local Class C Road Systems		kms	0
Equivalent Distance One-Way in City/Town Road Systems		kms	10
Check Distance		#	0
Assumed Number of Drops		#	1
Loading Time (Full Load)		hrs	1.0
Total Drop Time - Bulk Plant Pumping - 1 hour		hrs	1.0
Ferry Loading-Crossing-Return Trip Time		hrs	N/A
Overnight Trip due Ferry Crossing		hrs	N/A
Driver Break Times and Other Delays		hrs	1.0
Total Non Travel Time with Vehicle		hrs	3.00
Total Non Travel Time with OR Without Vehicle		hrs	3.00
Class A Road Travel @ 90 kms/hr		hrs	3.1
Class B Road Travel @ 65 kms/hr		hrs	0.0
Class C Road Travel @ 40 kms/hr		hrs	0.0
City/Town C Road Travel @ 30 kms/hr		hrs	0.3
Trip Travel Time each way		hrs	3.5
Total travel Time Return Trip		hrs	6.9
Total Trip Hours Return		hrs	**9.9**
Tractor Trailer Positioning Cost $		$	$50.00
Non-Travel Cost @ $50.00 per hour		$	$150.00
Non-Travel Cost Overnight at Motel for Driver $20 / Hr + $100		$	N/A
Return Trip on Good TCH Class A Highway @ $1.00 per km		$	$562.00
Return Trip on Class B Paved Highway @ $1.20 per km		$	$0.00
Return Trip on Class C Highway Roads @ $1.40 per km		$	$0.00
Return Trip on City/Town Roads @ $ 1.60 per km		$	$32.00
Trip Travel Cost		$	$594.00
Ferry Crossing Cost - Return Trip*(see Note)		$	N/A
Total Trip Cost to Bulk Plant and Return		$	$794.00
Calculated Total Trip Cost (Cents per Litre)		CPL	***1.8465***
Diesel Fuel Surcharge at March 2004 Rate		%	7.00%
Total Calculated part Load Delivery Rates Including DFS		CPL	**1.976**

APPENDIX C

Table C-3

Full Load T/T Gasoline Deliveries to Bulk Plants - 2004

Rate based on Full Load to Bulk Plant

43000	Litres per Load		
PPPC Zone	Source Terminal	Units	Load on Ferry at
3b - Fogo Island (Bulk Plant)	**Holyrood**		**Farewell**
Distance One Way		kms	414
Additional kms to reach edge of Supplying Terminal City/Town		kms	5
Equivalent Distance One-Way on TCH Class A Paved Roads		kms	281
Equivalent Distance One-Way on Good Quality Class B Paved Roads		kms	44
Equivalent Distance One-Way on other Local Class C Road Systems		kms	60
Equivalent Distance One-Way in City/Town Road Systems		kms	34
Check Distance		#	0
Assumed Number of Drops		#	1
Loading Time (Full Load)		hrs	1.0
Total Drop Time - Bulk Plant Pump off (1 Hour)		hrs	1.0
Ferry Loading-Crossing-Return Trip Time		hrs	1.5
Overnight Trip due Ferry Crossing at 7:45 am Sunday Morning		hrs	***9.0***
Driver Break Times and Other Delays		hrs	2.0
Total Non Travel Time with Vehicle		hrs	5.5
Total Non Travel Time with and without Vehicle		hrs	14.50
Class A Road Travel @ 90 kms/hr		hrs	3.1
Class B Road Travel @ 65 kms/hr		hrs	0.7
Class C Road Travel @ 40 kms/hr		hrs	1.5
City/Town C Road Travel @ 30 kms/hr		hrs	1.1
Trip Travel Time each way		hrs	6.4
Total travel Time Return Trip		hrs	12.9
Total Trip Hours Return		hrs	**36.4**
Tractor Trailer Positioning Cost $		$	$50.00
Non-Travel Cost @ $50.00 per hour		$	$275.00
Non-Travel Cost Overnight at Motel for Driver $20 / Hr + $100		$	$280.00
Return Trip on Good TCH Class A Highway @ $1.00 per km		$	$562.00
Return Trip on Class B Paved Highway @ $1.20 per km		$	$105.60
Return Trip on Class C Highway Roads @ $1.40 per km		$	$168.00
Return Trip on City/Town Roads @ $ 1.60 per km		$	$108.80
Total Trip Travel Costs		$	$944.40
Ferry Crossing Cost - Return Trip*(see Note)		$	$303.00
Overall Total Trip Cost		$	$1,852.40
Calculated Total Trip Cost (Cents per Litre)		CPL	4.308
Diesel Fuel Surcharge at March 2004 Rate		7%	0.302
Total Calculated part Load Delivery Rates Including DFS		CPL	**4.609**

* Ferry for dangerous goods trip leaves Farewell on 2nd and 4th Sunday of Month at 7:45 am. Hence TT has to be at Farwell ready to load at 7:00 am on the particular Sunday chosen. This means overnighting for driver at Lewisporte or some other local community.

APPENDIX D

Table D-1

Zone 6 - Retail Outlets

PPPC Zone	Sub	Community	Distance From Corner Brook Terminal Kms	Number of Outlets	Area Pop	Pop Per Outlet	Name of Business	Supplier
6	1	Corner Brook	7				Corner Brook Esso Self Serve	Imperial Oil
6	1	Corner Brook	7				Riverside Esso	Imperial Oil
6	1	Corner Brook	7				Country Road Esso	Imperial Oil
6	1	Corner Brook	7				Reid Street Irving	Irving Oil Ltd.
6	1	Corner Brook	7				Mill Road Irving	Irving Oil
6	1	Corner Brook	7				Confederation Drive Irving	Irving
6	1	Corner Brook	7				Corner Brook Co-Op	Irving/Ultramar/Esso
6	1	Corner Brook	7				Veitch's Ultramar	Ultramar Ltd.
6	1	Corner Brook	7				Windsor Street Irving	Irving Oil Ltd.
6	1	Corner Brook	7				Curling One Stop	North Atlantic
6	1	Corner Brook	7				Mister Quik Lube "Plus" Inc.	North Atlantic
6	1	Corner Brook	7				Andy's Auto Centre	North Atlantic
6	1	Corner Brook	7				Corner Brook Tire Ltd.	North Atlantic
6	1	Corner Brook	7				Plaza Self Serve	Ultramar
6	1	Corner Brook	7				Pinchgut Ultramar	Ultramar
6	1	Corner Brook	7				Pennell's Ultramar	Ultramar
6	1	Corner Brook	7				Corner Brook Pipeline	Ultramar
6	1	Corner Brook	7				Canadian Tire Gas Bar	Imperial Oil
6	1	Corner Brook	7				O'Connell Ultramar	Ultramar
6	1	Corner Brook	7				Esso Home Heat	Imperial Oil
6	1	Halfway Point	14				South Shore Irving	Irving
6	1	Halfway Point	14				Dennis' Store	Petro Canada
6	1	Lark Harbour	42				Sheppard Grocery & Convenience	Western Petroleum
6	1	Mount Moriah	5				Edmond's Service Centre	Western Petroleum
6	1	Mount Moriah	5				Robbie Butt Ltd.	Ultramar Ltd.
6	1	York Harbour	32				Byrne's Store	North Atlantic
6	1	York Harbour, Bay of Islands	32				Child's Convenience	Western Petroleum
	Avg	**Corner Brook- Bay of Islands**	**11**	**27**	**24,483**	**907**		
6	2	Cox's Cove	44				Wells and Park	Western Petroleum
6	2	Cox's Cove	44				White's Store	Imperial Oil
6	2	Gillams	29				Bayview Ltd.	Western Petroleum
6	2	Meadows	26				Brake's Gas Bay & Convenience	North Atlantic
6	2	Summerside	17				North Shore Video	Irving
6	2	Summerside	17				Summerside Garage Inc.	Ultramar
	Avg	**North Side - Humber Arm**	**30**	**6**	**3,874**	**646**		
6	3	Pasadena	29				Pasadena Irving	Irving
6	3	Pasedena	29				Glen's Gas Bar	Western Petroleum
6	3	Steady Brook	9				George's Mountainside Village	North Atlantic
6	3	Steady Brook	9				Golden G Enterprises	Western Petroleum
	Avg	**Steady Brook-Pasadena**	**19**	**4**	**3,983**	**996**		
6	4	Bonne Bay Pond	57				Bauld Enterprises Ltd.	Imperial Oil
6	4	Bonne Bay Pond	57				Binnie's Lodge	Imperial Oil
6	4	Cormack	71				Cormack /Beverley Enterprises	North Atlantic
6	4	Deer Lake	55				Butt's Sales and Service Ltd.	Ultramar
6	4	Deer Lake	55				Premium Enterprises Ltd.	Western Petroleum
6	4	Deer Lake	55				Butler's Self Serve Ltd.	Imperial Oil
6	4	Deer Lake	55				Sparkes Distributors Ltd.	Ultramar Ltd.
6	4	Deer Lake	55				D.L. Irving Big Stop	Irving
6	4	Deer Lake	55				Deer Lake Ultramar	Ultramar
6	4	Deer Lake	55				Deer Lake Petro Can	North Atlantic
	Avg	**Deer Lake Area**	**57**	**10**	**6,121**	**612**		
6	4	Wiltondale	77	**1**	**30**	**30**	Coyley's One Stop/Endicott Enteprises	North Atlantic
6	5	Howley	95				Leo's General Store	Imperial Oil
6	5	Howley	95				Howley Shopping Centre/Western Petroleum	Western Petroleum
	Avg	**Howley**	**95**	**2**	**271**	**136**		
		Totals Zone 6		**48**	**38,762**	**808**		

APPENDIX D

Table D-2

Full Load T/T Gasoline Deliveries - Zone 6

Rates based on All Part Load Drops

43,000 Litres per Load

Location of Retail Outlets by Sub-Zone Area

PPPC Zone	Source Terminal	Units	Corner Brook/Bay of Islands	North Side - Humber Arm	Steady Brook/ Pasadena	Deer Lake Area	Howley	Wiltondale
6 - Corner Brook, Bay of Islands, Deer Lake Areas including Howley and Wiltondale.	**Corner Brook**							
Distance One Way		kms	11	30	19	57	95	77
Additional kms to reach edge of Supplying Terminal City/Town		kms	7	7	7	7	7	7
Equivalent Distance One-Way on TCH Class A Paved Roads		kms	0	0	19	46	73	47
Equivalent Distance One-Way on Good Quality Class B Paved Roads		kms	6	6	0	0	0	30
Equivalent Distance One-Way on other Local Class C Road Systems		kms	5	24	0	11	22	0
Equivalent Distance One-Way in City/Town Road Systems		kms	7	7	7	7	7	7
Check Distance		#	0	0	0	0	0	0
Assumed Number of Drops		#	2	2	2	2	2	3
Loading Time (Full Load)		hrs	1.0	1.0	1.0	1.0	1.0	1.0
Total Drop Time - All Destination Outlets (30 min per drop)		hrs	1.0	1.0	1.0	1.0	1.0	1.5
Driver Break Times and Other Delays		hrs	0.00	0.00	0.00	0.25	0.25	0.25
Total Non Travel Time		hrs	2.0	2.0	2.0	2.3	2.3	2.8
Class A Road Travel @ kms/hr		90	0.0	0.0	0.2	0.5	0.8	0.5
Class B Road Travel @ kms/hr		65	0.1	0.1	0.0	0.0	0.0	0.5
Class C Road Travel @ kms/hr		40	0.1	0.6	0.0	0.3	0.6	0.0
City/Town C Road Travel @ kms/hr		30	0.2	0.2	0.2	0.2	0.2	0.2
Trip Travel Time each way		hrs	0.5	0.9	0.4	1.0	1.6	1.2
Total travel Time Return Trip		hrs	0.9	1.9	0.9	2.0	3.2	2.4
Total Trip Hours Return		hrs	2.9	3.9	2.9	4.3	5.4	5.2
Tractor Trailer Positioning Cost $		$	$50.00	$50.00	$50.00	$50.00	$50.00	$50.00
Non-Travel Cost @ $50.00 per hour		$	$100.00	$100.00	$100.00	$112.50	$112.50	$137.50
Return Trip on Good TCH Class A Highway @ $1.00 per km		$	$0.00	$0.00	$38.00	$92.00	$146.00	$94.00
Return Trip on Class B Paved Highway @ $1.20 per km		$	$14.40	$14.40	$0.00	$0.00	$0.00	$72.00
Return Trip on Class C Highway Roads @ $1.40 per km		$	$14.00	$67.20	$0.00	$30.80	$61.60	$0.00
Return Trip on City/Town Roads @ $ 1.60 per km		$	$22.40	$22.40	$22.40	$22.40	$22.40	$22.40
Trip Travel Cost		$	$50.80	$104.00	$60.40	$145.20	$230.00	$188.40
Total Trip Cost		$	$200.80	$254.00	$210.40	$307.70	$392.50	$375.90
Calculated Total Trip Cost		CPL	0.467	0.591	0.489	0.716	0.913	0.874
Diesel Fuel Surcharge at Rate		%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%
Total Calculated part Load Delivery Rates Including DFS		CPL	**0.500**	**0.632**	**0.524**	**0.766**	**0.977**	**0.935**
Adjusted Population Spread Census 2001		Pop	24,483	3,874	3,983	6,121	271	30
% of Population of each Sub-Zone area		%	63.2%	10.0%	10.3%	15.8%	0.7%	0.1%
Portion of Rate per Sub-Zone area		CPL	0.316	0.063	0.054	0.121	0.007	0.001

Total Zone Population 38,762

Average T/T Delivery Rate for Zone - CPL **0.561**

APPENDIX D

TABLE D-3

Storage and Distribution Study

Gasoline Deliveries to Retail Outlets

Existing PPPC Zone and Supply Source Locations	43000 Litres Rates based on Full Tractor Trailer loads and All Part Load Drops unless otherwise indicated	PPPC Zone	Dist-ance One Way	Calculated part Load Rates	Add Diesel Fuel Surcharge at Rate	Total Calculated part Load Rates Including DFS	Adjusted Popul-ation Spread Census 2001	% of Total Pop	Weighted Average Calculation
	Destination Area		**Kms**	**CPL**	**7.00%**	**CPL**	**Pop**	**%**	**CPL Rate**
PPPC - Zone 1									
St. John's	St. John's Area	1	15	**0.460**	**0.032**	**0.493**	124,146	52.3%	0.258
St. John's	CBS & Holyrood	1	30	**0.591**	**0.041**	**0.632**	31,276	13.2%	0.083
St. John's	Torbay-Pouch Cove-St. Phillips Areas	1	16	**0.513**	**0.036**	**0.548**	16,383	6.9%	0.038
St. John's	Southern Shore to Cappahayden	1	60	**0.806**	**0.056**	**0.862**	6,703	2.8%	0.024
St. John's	St. Mary's & Area	1	115	**1.201**	**0.084**	**1.285**	4,811	2.0%	0.026
St. John's	Avondale & Conception Harbour	1	57	**0.787**	**0.055**	**0.842**	4,024	1.7%	0.014
St. John's	South River to Victoria, Carbonear	1	93	**0.925**	**0.065**	**0.990**	26,859	11.3%	0.112
St. John's	Baie de Verde Peninsula Area	1	124	**1.219**	**0.085**	**1.304**	11,990	5.1%	0.066
St. John's	Dunville-Cape Shore Areas	1	137	**1.270**	**0.089**	**1.359**	6,388	2.7%	0.037
St. John's	Whitbourne TCH -Chance Cove Areas	1	100	**0.964**	**0.067**	**1.031**	4,660	2.0%	0.020
	Totals Zone 1						**237,240**	100.0%	**0.68**
PPPC - Zone 1a - Bell Island									
St. John's	Bell Island via Ferry	1a	17	**1.324**	**0.093**	**1.416**	3,078	100.0%	**1.42**
PPPC - Zone 2 Burin - Bonavista Peninsulas from Avalon Terminals									
St. John's	Southern Harbour	2	136	**1.219**	**0.085**	**1.304**	635	1.2%	0.016
St. John's	Arnolds Cove/Goobies Area	2	152	**1.202**	**0.084**	**1.286**	1,872	3.5%	0.046
St. John's	Little Hearts Ease Area	2	186	**1.449**	**0.101**	**1.551**	1,750	3.3%	0.051
St. John's	Clarenville Area	2	186	**1.369**	**0.096**	**1.465**	5,111	9.7%	0.142
St. John's	Random Island	2	220	**1.707**	**0.119**	**1.826**	852	1.6%	0.029
St. John's	Clifton-Harcourt Area	2	215	**1.674**	**0.117**	**1.791**	579	1.1%	0.020
St. John's	Port Blandford	2	215	**1.553**	**0.109**	**1.662**	580	1.1%	0.018
St. John's	Musgravetown & Area	2	219	**1.642**	**0.115**	**1.757**	3,484	6.6%	0.116
St. John's	Princeton & Southern Bay Area	2	240	**1.799**	**0.126**	**1.925**	3,416	6.5%	0.124
St. John's	Trinity-Port Rexton Area	2	255	**1.896**	**0.133**	**2.029**	3,810	7.2%	0.146
St. John's	Bonavista & Area	2	296	**2.105**	**0.147**	**2.252**	6,384	12.1%	0.272
St. John's	Terrenceville & Area	2	260	**1.917**	**0.134**	**2.051**	3,136	5.9%	0.122
St. John's	Boat Harbour (Burin Pen) & Area	2	263	**1.990**	**0.139**	**2.130**	1,857	3.5%	0.075
St. John's	Marystown & Burin Areas	2	310	**2.231**	**0.156**	**2.387**	10,459	19.8%	0.472
St. John's	Garnish Area	2	322	**2.367**	**0.166**	**2.533**	860	1.6%	0.041
St. John's	St. Lawrence-Lawn-Lamaline	2	354	**2.575**	**0.180**	**2.756**	3,483	6.6%	0.182
St. John's	Grand Bank & Fortune	2	360	**2.558**	**0.179**	**2.737**	4,576	8.7%	0.237
	Totals Zone 2						**52,844**	100.0%	**2.11**
PPPC - Zone 3 - Central Newfoundland from Lewisporte Terminal									
Lewisporte	Millertown	3	143	**1.298**	**0.091**	**1.389**	228	0.3%	0.004
Lewisporte	Badger	3	93	**0.885**	**0.062**	**0.947**	906	1.3%	0.012
Lewisporte	Grand Falls-Windsor-Bishops Falls	3	61	**0.736**	**0.052**	**0.788**	17,028	24.0%	0.189
Lewisporte	Botwood & Area	3	63	**0.755**	**0.053**	**0.807**	4,735	6.7%	0.054
Lewisporte	Pt Leamington-Leading Tickles	3	97	**1.034**	**0.072**	**1.107**	1,999	2.8%	0.031
Lewisporte	Norris Arm Area	3	28	**0.553**	**0.039**	**0.592**	1,180	1.7%	0.010
Lewisporte	Lewisporte & Embree Area	3	6	**0.393**	**0.028**	**0.421**	5,342	7.5%	0.032
Lewisporte	Campbellton & Area	3	33	**0.654**	**0.046**	**0.700**	2,530	3.6%	0.025
Lewisporte	New World Island-Twillingate	3	78	**0.981**	**0.069**	**1.050**	6,782	9.5%	0.100
Lewisporte	Glenwood	3	40	**0.609**	**0.043**	**0.652**	1,603	2.3%	0.015
Lewisporte	Gander	3	60	**0.731**	**0.051**	**0.783**	9,651	13.6%	0.106
Lewisporte	Gander Bay Area	3	104	**1.006**	**0.070**	**1.076**	6,370	9.0%	0.097
Lewisporte	Gambo	3	106	**0.974**	**0.068**	**1.043**	2,099	3.0%	0.031
Lewisporte	Hare Bay-New-Wes-Valley Area	3	165	**1.380**	**0.097**	**1.476**	6,536	9.2%	0.136
Lewisporte	Glovertown & Eastport Pen Area	3	128	**1.080**	**0.076**	**1.156**	4,060	5.7%	0.066
	Totals Zone 3						**71,049**	100.0%	**0.91**

APPENDIX D

TABLE D-3

Storage and Distribution Study

Gasoline Deliveries to Retail Outlets

Existing PPPC Zone and Supply Source Locations	43000 Litres Rates based on Full Tractor Trailer loads and All Part Load Drops unless otherwise indicated	PPPC Zone	Dist-ance One Way	Calculated part Load Rates	Add Diesel Fuel Surcharge at Rate	Total Calculated part Load Rates Including DFS	Adjusted Popul-ation Spread Census 2001	% of Total Pop	Weighted Average Calculation
	Destination Area		**Kms**	**CPL**	**7.00%**	**CPL**	**Pop**	**%**	**CPL Rate**
PPPC - Zone 3 - Central Newfoundland from Avalon Terminals									
St. John's/ Holyrood	Millertown	3	503	**3.143**	**0.220**	**3.363**	228	0.3%	0.011
St. John's/ Holyrood	Badger	3	454	**2.767**	**0.194**	**2.961**	906	1.3%	0.038
St. John's/ Holyrood	Grand Falls-Windsor-Bishops Falls	3	425	**2.633**	**0.184**	**2.817**	17,028	24.0%	0.675
St. John's/ Holyrood	Botwood & Area	3	423	**2.670**	**0.187**	**2.857**	4,735	6.7%	0.190
St. John's/ Holyrood	Pt Leamington-Leading Tickles	3	463	**2.977**	**0.208**	**3.186**	1,999	2.8%	0.090
St. John's/ Holyrood	Norris Arm Area	3	388	**2.353**	**0.165**	**2.518**	1,180	1.7%	0.042
St. John's/ Holyrood	Lewisporte & Embree Area	3	340	**2.140**	**0.150**	**2.289**	5,342	7.5%	0.172
St. John's/ Holyrood	Campbellton & Area	3	401	**2.711**	**0.190**	**2.901**	2,530	3.6%	0.103
St. John's/ Holyrood	New World Island-Twillingate	3	430	**2.889**	**0.202**	**3.091**	6,782	9.5%	0.295
St. John's/ Holyrood	Glenwood	3	355	**2.200**	**0.154**	**2.354**	1,603	2.3%	0.053
St. John's/ Holyrood	Gander	3	330	**2.074**	**0.145**	**2.220**	9,651	13.6%	0.302
St. John's/ Holyrood	Gander Bay Area	3	394	**2.450**	**0.172**	**2.622**	6,370	9.0%	0.235
St. John's/ Holyrood	Gambo	3	294	**1.916**	**0.134**	**2.050**	2,099	3.0%	0.061
St. John's/ Holyrood	Hare Bay-New-Wes-Valley Area	3	368	**2.419**	**0.169**	**2.588**	6,536	9.2%	0.238
St. John's/ Holyrood	Glovertown & Eastport Pen Area	3	276	**1.867**	**0.131**	**1.998**	4,060	5.7%	0.114
	Totals Zone 3						**71,049**	100.0%	**2.62**
PPPC-Zone 3a - Central - St. Brendan's Island	See Rate Calculation Sheet for Tank Wagon Delivery-Appendix E								**3.80**
PPPC-Zone 3b - Central - Fogo Island	See Rate Calculation Sheet for Tank Wagon Delivery-Appendix E								**0.92**
PPPC-Zone 3c - Central - Change Islands	See Rate Calculation Sheet for Tank Wagon Delivery-Appendix E								**4.96**
PPPC - Zone 4									
Lewisporte	St Albans-Conne River Area	4	201	**1.676**	**0.117**	**1.793**	3,729	42.9%	0.769
Lewisporte	English Hr West Area	4	238	**1.929**	**0.135**	**2.064**	1,599	18.4%	0.379
Lewisporte	Harbour Breton	4	249	**1.990**	**0.139**	**2.130**	2,079	23.9%	0.509
Lewisporte	Hermitage Area	4	248	**1.985**	**0.139**	**2.124**	1,293	14.9%	0.316
	Totals Zone 4						**8,700**	100.0%	**1.97**
PPPC - Zone 4	**Connaigre Peninsula via T/W**	See Rate Calculation Sheet for Tank Wagon Delivery-Appendix E							**0.81**
PPPC - Zone 5									
Corner Brook	Baie Verte Peninsula	5	224	**1.700**	**0.119**	**1.819**	6,888	42.0%	0.764
Corner Brook	Springdale Area	5	184	**1.365**	**0.096**	**1.461**	4,543	27.7%	0.405
Corner Brook	South Brook	5	182	**1.306**	**0.091**	**1.397**	578	3.5%	0.049
Corner Brook	Triton-Roberts Arm Area	5	219	**1.663**	**0.116**	**1.779**	3,294	20.1%	0.357
	Totals Zone 5						**16,401**	100.0%	**1.66**
PPPC - Zone 5	**Springdale Area via T/W**	See Rate Calculation Sheet for Tank Wagon Delivery-Appendix E							**1.05**
PPPC - Zone 5a									
Springdale Bulk Plant	**Long Island via T/W**	See Rate Calculation Sheet for Tank Wagon Delivery-Appendix E							**4.69**
PPPC - Zone 5b									
Springdale Bulk Plant	**Little Bay Islands via T/W**	See Rate Calculation Sheet for Tank Wagon Delivery-Appendix E							**5.04**

APPENDIX D

TABLE D-3

Storage and Distribution Study

Gasoline Deliveries to Retail Outlets

Existing PPPC Zone and Supply Source Locations	43000 Litres Rates based on Full Tractor Trailer loads and All Part Load Drops unless otherwise indicated Destination Area	PPPC Zone	Dist-ance One Way Kms	Calculated part Load Rates CPL	Add Diesel Fuel Surcharge at Rate 7.00%	Total Calculated part Load Rates Including DFS CPL	Adjusted Popul-ation Spread Census 2001 Pop	% of Total Pop %	Weighted Average Calculation CPL Rate
PPPC - Zone 6 - Corner Brook & Area									
Corner Brook	Corner Brook/Bay of Islands	6	11	**0.467**	**0.033**	**0.500**	24,483	63.2%	0.316
Corner Brook	North Side - Humber Arm	6	30	**0.591**	**0.041**	**0.632**	3,874	10.0%	0.063
Corner Brook	Steady Brook/ Pasadena	6	19	**0.489**	**0.034**	**0.524**	3,983	10.3%	0.054
Corner Brook	Deer Lake Area	6	57	**0.716**	**0.050**	**0.766**	6,121	15.8%	0.121
Corner Brook	Wiltondale	6	77	**0.874**	**0.061**	**0.935**	30	0.1%	0.001
Corner Brook	Howley	6	95	**0.913**	**0.064**	**0.977**	271	0.7%	0.007
	Totals Zone 6						**38,762**	100.0%	**0.56**
PPPC - Zone 7 - Stephenville-Port aux Basques-Burgeo									
Corner Brook	Stephenville/St. George's Area	7	82	**0.829**	**0.058**	**0.887**	13818	43.6%	0.387
Corner Brook	Port au Port Peninsula	7	130	**1.171**	**0.082**	**1.253**	5098	16.1%	0.202
Corner Brook	Robinsons- Codroy Area	7	129	**1.167**	**0.082**	**1.249**	1472	4.6%	0.058
Corner Brook	Doyles/Codroy Area	7	181	**1.413**	**0.099**	**1.512**	1708	5.4%	0.082
Corner Brook	Post aux Basque Area	7	229	**1.590**	**0.111**	**1.701**	7779	24.6%	0.418
Corner Brook	Burgeo	7	213	**1.653**	**0.116**	**1.769**	1782	5.6%	0.100
							17,839	100.0%	**1.25**
PPPC - Zone 7a									
Corner Brook	Ramea	See Rate Calculation Sheet for partial TT Delivery via Burgeo Table D-4							**4.05**
PPPC - Zone 8 - Southern Portion of Northern Peninsula									
Corner Brook	Woody Point & Area	8	116	**1.148**	**0.080**	**1.228**	391	8.2%	0.101
Corner Brook	Trout River & Area	8	134	**1.265**	**0.089**	**1.354**	636	13.3%	0.180
Corner Brook	Norris Point	8	120	**1.143**	**0.080**	**1.223**	806	16.9%	0.207
Corner Brook	Rocky Harbour & Area	8	122	**1.154**	**0.081**	**1.235**	1039	21.8%	0.269
Corner Brook	St. Paul's & Area	8	157	**1.350**	**0.094**	**1.444**	395	8.3%	0.120
Corner Brook	Cow Head & Area	8	168	**1.411**	**0.099**	**1.510**	561	11.8%	0.178
Corner Brook	Parsons Pond	8	180	**1.478**	**0.103**	**1.582**	492	10.3%	0.163
Corner Brook	Daniel's Harbour & Area	8	206	**1.681**	**0.118**	**1.799**	451	9.5%	0.170
	Totals Zone 8						**4,771**	100.0%	**1.39**
PPPC - Zone 9 - Northern Portion of Northern Peninsula									
Corner Brook	Hawkes Bay/Port Au Choix Area	9	271	**1.993**	**0.140**	**2.133**	2627	17.6%	0.376
Corner Brook	Bartlett's Hr to Green Island Brook	9	350	**2.445**	**0.171**	**2.616**	4201	28.2%	0.737
Corner Brook	Roddicton/ Main Brook Areas	9	407	**2.932**	**0.205**	**3.137**	2699	18.1%	0.568
Corner Brook	St. Anthony Area	9	472	**3.233**	**0.226**	**3.460**	5381	36.1%	1.249
	Totals Zone 9						**14,908**	100.0%	**2.93**
PPPC - Zone 10	**Labrador Straits via T/W**	See Rate Calculation Sheet for Tank Wagon Delivery-Appendix E							**2.18**
PPPC - Zone 11	**Labrador South via T/W**	See Rate Calculation Sheet for Tank Wagon Delivery-Appendix E							**2.49**
PPPC - Zone 12	**Central Labrador via T/W**	See Rate Calculation Sheet for Tank Wagon Delivery-Appendix E							**0.98**
PPPC - Zone 13	**Western Labrador via T/W**	See Rate Calculation Sheet for Tank Wagon Delivery-Appendix E							**0.63**
PPPC - Zone 13a	**Churchill Falls via T/W**	See Rate Calculation Sheet for Tank Wagon Delivery-Appendix E							**2.72**
PPPC - Zone 14	**Labrador Coast North**	No Retail Outlets Identified - Customers serviced directly at Storage Depots							**N/A**

APPENDIX D

TABLE D-4

Gasoline Deliveries to Retail Outlets
Rate based on Partial Load to one Retail Outlet

			Cost CPL	**4.05**
43,000	Litres per Full Load		13,000	30,000
PPPC Zone	Source Terminal	Units	Assumes part load drops at Burgeo.	Litres for Ramea Portion
7a - Ramea Island (Retail Outlet)	**Corner Brook**		**Burgeo Portion**	**Ramea Portion***
Distance One Way		kms	213	213
Additional kms to reach edge of Supplying Terminal City/Town		kms	7	7
Equivalent Distance One-Way on TCH Class A Paved Roads		kms	60	60
Equivalent Distance One-Way on Good Quality Class B Paved Roads		kms	150	150
Equivalent Distance One-Way on other Local Class C Road Systems		kms	3	3
Equivalent Distance One-Way in City/Town Road Systems		kms	7	7
Check Distance		#	0	0
Assumed Number of Drops		#	2	1
Loading Time (Full Load)		hrs	1.0	1.0
Total Drop Time - All Destination Outlets (30 min per drop)		hrs	1.0	0.5
Ferry Loading-Crossing-Return Trip Time		hrs	N/A	5.0
Overnight Trip due Ferry Crossing at 7:45 am Sunday Morning		hrs	N/A	N/A
Driver Break Times and Other Delays		hrs	1.00	0.5
Total Non Travel Time with Vehicle		hrs	**3.0**	**7.0**
Class A Road Travel @ 90 kms/hr		hrs	0.7	0.7
Class B Road Travel @ 65 kms/hr		hrs	2.3	2.3
Class C Road Travel @ 40 kms/hr		hrs	0.1	0.1
City/Town C Road Travel @ 30 kms/hr (Including on Island)		hrs	0.2	0.2
Trip Travel Time each way		hrs	3.3	3.3
Total travel Time Return Trip		hrs	**6.6**	**6.6**
Total Trip Hours Return		hrs	**9.6**	**13.6**
Tractor Trailer Positioning Cost $		$	$50.00	$50.00
Non-Travel Cost @ $50.00 per hour		$	$150.00	$350.00
Non-Travel Cost Overnight at Motel for Driver $20 / Hr + $100		$	N/A	N/A
Return Trip on Good TCH Class A Highway @ $1.00 per km		$	$120.00	$120.00
Return Trip on Class B Paved Highway @ $1.20 per km		$	$360.00	$360.00
Return Trip on Class C Highway Roads @ $1.40 per km		$	$8.40	$8.40
Return Trip on City/Town Roads @ $ 1.60 per km		$	$22.40	$22.40
Trip Travel Cost		$	$510.80	$510.80
Ferry Crossing Cost - Return Trip*(see Note)		$	N/A	$225.00
Total Trip Cost to Retail Outlets at designated location		$	$710.80	$1,135.80
Calculated Total Trip Cost (Cents per Litre)		CPL	1.653	3.786
Diesel Fuel Surcharge at Rate		%	7.00%	7.00%
Total Calculated part Load Delivery Rates Including DFS		CPL	**1.769**	**4.051**

* Ferry leaves Burgeo at 9:30 am Wednesday mornings and returns to Burgeo loading at 1:00 pm the same day. Total time for delivery ex Burgeo is 5.0 hrs. Cost of Ferry for TT is $108 each way + $4.50 each way for driver. 13,000 litres dropped at Burgeo retail outlets.

APPENDIX-E

TABLE E-1

Tank Wagon Delivery based on 300 days per year operation

Tandem Axle Tank Wagon - 20,000 Litres Capacity
Delivery Cost Per Annum and per Day

Direct Operating Expenses	**$/Year**	Assumed Operating Days Per Year **Days**	Cost per Average Operating Day **$/Day**	Estimated Cost Per day when Idle with Driver **$/Day**	Estimated Cost Per day when Idle without Driver **$/Day**
Driver salary and benefits	$44,200	300	$147	$147	$0
Interest- Vehicle financing	19,500	300	$65	$65	$65
Depreciation- Vehicle*	34,000	300	$113	$113	$113
Fuel consumed	12,000	300	$40	$0	$0
Repairs and maintenance	12,000	300	$40	$8	$2
Insurance	5,000	300	$17	$16	$16
Licence	1,000	300	$3	$3	$3
Miscellaneous	300	300	$1	$1	$1
Annual Operating Cost	**$128,000**	**300**	**$427**	**$354**	**$200**
Equivalent Cost per Hour - 8 hour working day		$/Hour	**$53.33**	**$44.21**	**$25.00**

*Based on a

ık Wagon - 11,500 Litres Capacity
Cost Per Annum and per Day

Direct Operating Expenses	$/Annum	Assumed **Days**	Cost per **$/Day**	Estimated **$/Day**	Estimated **$/Day**
Driver salary and benefits	$44,200	300	$147	$147	$0
Interest- Vehicle financing	16,000	300	$53	$53	$53
Depreciation- Vehicle**	28,000	300	$93	$93	$93
Fuel consumed	11,500	300	$38	$0	$0
Repairs and maintenance	12,000	300	$40	$5	$1
Insurance	5,000	300	$17	$17	$17
Licence	1,000	300	$3	$3	$3
Miscellaneous	300	300	$1	$1	$1
Annual Operating Cost	**$118,000**	**300**	**$393**	**$320**	**$168**
Equivalent Cost per Hour - 8 hour working day		$/Hour	**$49.17**	**$40.00**	**$21.00**

**Based on a single-axle at a cost of $160,000 less an estimated residual value of $20,000 after 5 years with straight line depreciation..

APPENDIX-E

TABLE E-2

Tank Wagon Delivery - Automotive Fuels			Volume	
Full time vehicle operating cost calculation	**Tandem**	**Single Axle**	**Tandem**	**Single Axle**
Volume delivered per load	20,000	11,500	16,000	9,000
Annual Operating cost of Vehicle	$128,000	$118,000	$128,000	$118,000
Assumed operating days per year	300	300	300	300
Vehicle Operating Cost per day	$427	$393	$427	$393
Standard Operating Hours per day	8.0	8.0	8.0	8.0
Vehicle cost per hr	$53.33	$49.17	$53.33	$49.17
Idle Time Vehicle Cost	$25.00	$21.00	$25.00	$21.00
Idle Time Vehicle Cost with Driver	$44.21	$40.00	$44.21	$40.00

Zone 3a - St. Brendan's Island - Population 251 (2001 Census)

Delivery From Bulk Plant at Gander (Reduced Load Tandem)	Delivery to Nearest Community to Ferry	Return Ferry Crossing Cost	Deliveries on St. Brendan's Island	Total Trip Cost
Community	**Burnside**	**St. Brendan's**	**All**	**St. Brendan's**
Outlet Locations	On Island	On Island	On Island	All
Supplier	Reseller	Reseller	Reseller	Reseller
Distance one way (kms)	102	N/A	20	
Tank Wagon	**Tandem**	**Tandem**	**Tandem**	**Tandem**
Capacity (litres)	16,000	16,000	16,000	16,000
Avg Speed of TW (kms/hr)	70	N/A	30	30
Load Time at Gander Bulk Plant @ 500 litre/min	32	N/A	N/A	32
Discharge time on St. Brendan's	N/A	N/A	90	90
Total Travel Time (Minutes)	175	160	60	395
Allowance for delays	30	30	30	90
Total time for return trip (hours)	3.95	3.17	3.00	10.11
Costs:				
Ferry Crossing Cost Return		$97.50		$97.50
Average Operating cost $/hr	$53.33	$44.21	$53.33	$50.47
Total load delivered cost	$210.53	$237.50	$159.99	$608.01
Delivered cost in cents per litre	**1.32**	**1.48**	**1.00**	**3.80**

Average TW Delivery Cost for St. Brendan's Island **3.80** **CPL**

APPENDIX-E

TABLE E-3

Tank Wagon Delivery - Automotive Fuels			Volume	
Full time vehicle Operating Cost	**Tandem**	**Single Axle**	**Tandem**	**Single Axle**
Volume delivered per load	20,000	11,500	16,000	9,000
Annual Operating cost of Vehicle	$128,000	$118,000	$128,000	$118,000
Assumed operating days per year	300	300	300	300
Vehicle Operating Cost per day	$427	$393	$427	$393
Standard Operating Hours per day	8.0	8.0	8.0	8.0
Vehicle cost per hour	$53.33	$49.17	$53.33	$49.17
Idle Time Vehicle Operating Cost	$25.00	$21.00	$25.00	$21.00
Idle Time Vehicle Operating Cost with Driver	$44.21	$40.00	$44.21	$40.00

Zone 3b -Fogo Island - Population 2256 (2001 Census)

From Bulk Plants on Fogo Island (Full Load single Axle)	Fogo Island	Fogo Island	Fogo Island	Fogo Island	Fogo Island	Fogo Island	Fogo Island
To: Outlet	Chester Fried Super Stop	Newman's Gas and Diesel	P & J Auto Repairs	Hancock's Auto Supplies/ Emberley's Ultramar	Vanessa's Takeout and Convenience	Linda's Convenience	Hurley's Ultramar
Location	Island Central	Island Central	Fogo Town	Joe Batts Arm	Seldom	Stag Harbour	Tilting
Supplier / Brand	Ultramar	Ultramar	Imperial Oil	Ultramar	North Atlantic	Ultramar	Ultramar
Distance one way (kms)	10	10	2	2	17	26	10
Tank Wagon	**Single Axle**	**Single Axle**	**Single Axle**	**Single Axle**	**Single Axle**	**Single Axle**	**Single Axle**
Capacity (litres)	11,000	11,000	11,000	11,000	11,000	11,000	11,000
Avg Speed of TW (kms/hr)	30	30	30	30	30	30	30
Load Time at Bulk Plant @ 400 litre/min	28	28	28	28	28	28	28
Discharge time @ 500 litres/Min	22	22	22	22	22	22	22
Round trip Driving time (Minutes)	40	40	8	8	68	104	40
Allowance for delays	30	30	30	30	30	30	30
Total time for return trip (hours)	1.99	1.99	1.46	1.46	2.46	3.06	1.99
Operating cost $/hr	$49.17	$49.17	$49.17	$49.17	$49.17	$49.17	$49.17
Total load delivered cost	$97.92	$97.92	$71.70	$71.70	$120.87	$150.37	$97.92
Delivered cost in cents per litre	**0.89**	**0.89**	**0.65**	**0.65**	**1.10**	**1.37**	**0.89**

Average TW Delivery Cost for Zone **0.92** **CPL**

APPENDIX-E

TABLE E-4

Tank Wagon Delivery - Automotive Fuels			Volume Limitations on Ferries	
Full time vehicle operating cost calculation	**Tandem**	**Single Axle**	**Tandem**	**Single Axle**
Volume delivered per load	20,000	11,500	16,000	9,000
Annual Operating cost of Vehicle	$128,000	$118,000	$128,000	$118,000
Assumed operating days per year	300	300	300	300
Vehicle Operating Cost per day	$427	$393	$427	$393
Standard Operating Hours per day	8.0	8.0	8.0	8.0
Vehicle cost per hr	$53.33	$49.17	$53.33	$49.17
Idle Time Vehicle Operating Cost	$25.00	$21.00	$25.00	$21.00
Idle Time Vehicle Operating Cost with Driver	$44.21	$40.00	$44.21	$40.00

Zone 3c - Change Islands - Population 360 (2001 Census)

From Bulk Plant on Fogo Island (Reduced Load Single Axle)	To Ferry and Return	Return Ferry Crossing Cost	Deliveries on Change Islands	Total Trip
To: Outlet	D&E Vardy		GEEP Unit and Drums	
Location	Change Islands	Change Islands	Change Islands	Change Islands
Supplier	Ultramar Agent	Agent	Agent	Agent
Distance one way (kms)	26	N/A	12	38
Tank Wagon	**Single Axle**	**Single Axle**	**Single Axle**	**Single Axle**
Capacity (litres)	9,000	9,000	9,000	9,000
Avg Speed of TW (kms/hr)	30	N/A	30	30
Load Time at Bulk Plant @ 400 litre/min	23	N/A	N/A	23
Discharge time	N/A	N/A	90	90
Total Travel Time (Minutes)	104	80	60	244
Allowance for delays	20	30	30	80
Total time for return trip (hours)	2.44	1.83	3.00	7.28
Ferry Crossing Cost Return		$105.50		$105.50
Average Operating cost $/hr	$49.17	$40.00	$49.17	$46.86
Total load delivered cost	$120.06	$178.83	$147.51	$446.40
Delivered cost in cents per litre	**1.33**	**1.99**	**1.64**	**4.96**

Average TW Delivery Cost for Change Islands **4.96** **CPL**

APPENDIX-E

TABLE E-5

Tank Wagon Delivery - Automotive Fuels			Volume Limitations on Ferries	
Full time vehicle operating cost calculation	Tandem	Single Axle	Tandem	Single Axle
Volume delivered per load	20,000	11,500	16,000	9,000
Annual Operating cost of Vehicle	$128,000	$118,000	$128,000	$118,000
Assumed operating days per year	300	300	300	300
Vehicle Operating Cost per day	$427	$393	$427	$393
Standard Operating Hours per day	8.0	8.0	8.0	8.0
Vehicle cost per hr	$53.33	$49.17	$53.33	$49.17
Idle Time Vehicle Operating Cost	$25.00	$21.00	$25.00	$21.00
Idle Time Vehicle Operating Cost with Driver	$44.21	$40.00	$44.21	$40.00

Zone 4 - Connaigre Peninsula Using Tandem TW

From Bulk Plant at Pool's Cove Crossroads:	Pool's Cove Crossroads	Pool's Cove Crossroads	Pool's Cove Crossroads	Pool's Cove Crossroads	Pool's Cove Crossroads	Pool's Cove Crossroads	Pool's Cove Crossroads
To:Outlet	A & D Service Station Ltd.	Jeddore's Store	Evan's Ultramar	Yarns Store Ltd.	Ultramar Service Station	C. Crewe General Store	Max Loveless' General Store
Location	Milltown, Bay D'Espoir	SAMIAJIJ MIAWPUKEK	English Harbour West	Mose Ambrose	St. Jacques	Sandyville	Seal Cove, Fortune Bay
Supplier	Ultramar	Ultramar	Ultramar	Ultramar	Ultramar	Ultramar	Ultramar
Distance one way (kms)	56	60	23	26	24	32	55
Tank Wagon	**Tandem**	**Tandem**	**Tandem**	**Tandem**	**Tandem**	**Tandem**	**Tandem**
Capacity (litres)	20,000	20,000	20,000	20,000	20,000	20,000	20,000
Avg Speed of TW (kms/hr)	65	65	65	65	65	65	65
Load Time at Bulk Plant @ 500 litre/min	40	40	40	40	40	40	40
Discharge time @ 500 litres/Min	40	40	40	40	40	40	40
Round trip Drivning time (Minutes)	103	111	42	48	44	59	102
Allowance for delays	30	30	30	30	30	30	30
Total time for return trip (hours)	3.56	3.68	2.54	2.63	2.57	2.82	3.53
Operating cost $/hr	$53.33	$53.33	$53.33	$53.33	$53.33	$53.33	$53.33
Total load delivered cost	$189.66	$196.23	$135.51	$140.44	$137.15	$150.28	$188.02
Delivered cost in cents per litre	**0.95**	**0.98**	**0.68**	**0.70**	**0.69**	**0.75**	**0.94**

Average Delivery cost for Zone CPL **0.81**

APPENDIX-E

TABLE E-6

Tank Wagon Delivery - Automotive Fuels			Volume Limitations on Ferries	
Full time vehicle operating cost calculation	**Tandem**	**Single Axle**	**Tandem**	**Single Axle**
Volume delivered per load	20,000	11,500	16,000	9,000
Annual Operating cost of Vehicle	$128,000	$118,000	$128,000	$118,000
Assumed operating days per year	300	300	300	300
Vehicle Operating Cost per day	$427	$393	$427	$393
Standard Operating Hours per day	8.0	8.0	8.0	8.0
Vehicle cost per hr	$53.33	$49.17	$53.33	$49.17
Idle Time Vehicle Operating Cost	$25.00	$21.00	$25.00	$21.00
Idle Time Vehicle Operating Cost with Driver	$44.21	$40.00	$44.21	$40.00

Zone 5 - Springdale - Baie Verte - Jackson's Arm - Triton Area - Population 17,000
Deliveries from Springdale Bulk Plant via Tank Wagon needed to about 40% ot the outlets in the area.
These outlets would be the smaller ones in the more remote communities

From Bulk Plant at Springdate to area:	Hampden-Jackson's Arm	Baie Verte Peninsula	Springdale Area	South Brook	Triton-Roberts Arm Area
Population	1,098	6,888	4,543	578	3,294
Number of outlets with less than 500,000 litres per year	2	8	4	1	5
Average distance from Springdale Bulk Plant (one way)	140	100	20	23	62
Tank Wagon	**Tandem**	**Tandem**	**Tandem**	**Tandem**	**Tandem**
Capacity (litres)	20,000	20,000	20,000	20,000	20,000
Avg Speed of TW (kms/hr)	65	65	65	65	65
Load Time at Bulk Plant @ 500 litre/min	40	40	40	40	40
Discharge time @ 500 litres/Min	40	40	40	40	40
Round trip Drivning time (Minutes)	258	185	37	42	114
Allowance for delays	30	30	30	30	30
Total time for return trip (hours)	6.14	4.91	2.45	2.54	3.74
Operating cost $/hr	$53.33	$53.33	$53.33	$53.33	$53.33
Total load delivered cost	$327.50	$261.86	$130.59	$135.51	$199.51
Delivered cost in cents per litre	**1.64**	**1.31**	**0.65**	**0.68**	**1.00**

Average Delivery cost for Zone **1.05** **CPL**

APPENDIX-E

TABLE E-7

Tank Wagon Delivery - Automotive Fuels			Volume Limitations on Ferries	
Full time vehicle operating cost calculation	**Tandem**	**Single Axle**	**Tandem**	**Single Axle**
Volume delivered per load	20,000	11,500	16,000	9,000
Annual Operating cost of Vehicle	$128,000	$118,000	$128,000	$118,000
Assumed operating days per year	300	300	300	300
Vehicle Operating Cost per day	$427	$393	$427	$393
Standard Operating Hours per day	8.0	8.0	8.0	8.0
Vehicle cost per hr	$53.33	$49.17	$53.33	$49.17
Idle Time Vehicle Operating Cost	$25.00	$21.00	$25.00	$21.00
Idle Time Vehicle Operating Cost with Driver	$44.21	$40.00	$44.21	$40.00

Zone 5a - Long Island - Population 308

Deliveries to Long Island from Springdale Bulk Plant via Tank Wagon

From Springdale Bulk Plant (Reduced Load Single Axle)	To Ferry at Pilley's Island and Return	Return Ferry Crossing Cost	Deliveries on Long Island	Deliveries on Long Island	Total Trip Times and Cost
To: Outlet			Long Island Co-op	**Drums**	
Location	Dockside	Ferry	Long Island	Long Island	
Supplier	Any	Any	Closed!	Any	Any
Distance one way (kms)	56	N/A		6	62
Tank Wagon	**Single Axle**	**Single Axle**	**Single Axle**	**Single Axle**	**Single Axle**
Capacity (litres)	9,000	9,000	9,000	9,000	9,000
Avg Speed of TW (kms/hr)	60	N/A	30	30	30
Load Time at Terminal (400 litres/min)	23	N/A	N/A	N/A	23
Discharge time @ 205 litres/4 Mins	N/A	N/A		176	176
Total Travel Time Return (Minutes)	112	10	0	24	146
Allowance for delays	30	30		60	120
Total time for return trip (hours)	2.74	0.67	0.00	4.33	7.74
Ferry Crossing Cost Return		$48.00			$48.00
Average Operating cost $/hr	$49.17	$40.00	$49.17	$49.17	$48.38
Total load delivered cost	$134.80	$74.67	$0.00	$212.74	$422.20
Delivered cost in cents per litre	**1.50**	**0.83**	**0.00**	**2.36**	**4.69**

Average TW Delivery Cost for Long Island **4.69** **CPL**

APPENDIX-E

TABLE E-8

Tank Wagon Delivery - Automotive Fuels			Volume Limitations on Ferries	
Full time vehicle operating cost calculation	**Tandem**	**Single Axle**	**Tandem**	**Single Axle**
Volume delivered per load	20,000	11,500	16,000	9,000
Annual Operating cost of Vehicle	$128,000	$118,000	$128,000	$118,000
Assumed operating days per year	300	300	300	300
Vehicle Operating Cost per day	$427	$393	$427	$393
Standard Operating Hours per day	8.0	8.0	8.0	8.0
Vehicle cost per hr	$53.33	$49.17	$53.33	$49.17
Idle Time Vehicle Operating Cost	$25.00	$21.00	$25.00	$21.00
Idle Time Vehicle Operating Cost with Driver	$44.21	$40.00	$44.21	$40.00

Zone 5b - Little Bay Islands - Population 176
Deliveries from Springdale Bulk Plant via Tank Wagon

From Springdale Bulk Plant (Reduced Load Single Axle)	To Ferry at Shoal Arm and Return	Return Ferry Crossing Cost	Deliveries on Long Island	Total Trip Times and Cost
To: Outlet			**Drums**	
Location	Dockside	Ferry	Long Island	
Supplier	Any	Any	Any	Any
Distance one way (kms)	20	N/A	3	23
Tank Wagon	Single Axle	Single Axle	Single Axle	Single Axle
Capacity (litres)	9,000	9,000	9,000	9,000
Avg Speed of TW (kms/hr)	40	N/A	30	30
Load Time at Terminal (400 litres/min)	23	N/A	N/A	23
Discharge time @ 205 litres/4 Mins	N/A	N/A	176	176
Total Travel Time Return (Minutes)	60	90	12	162
Allowance for delays	20	30	60	110
Total time for return trip (hours)	1.71	2.00	4.13	7.84
Ferry Crossing Cost Return		$86.50		$86.50
Average Operating cost $/hr	$49.17	$40.00	$49.17	$46.83
Total load delivered cost	$83.99	$166.50	$202.90	$453.40
Delivered cost in cents per litre	**0.93**	**1.85**	**2.25**	**5.04**

Average TW Delivery Cost for Little Bay Islands **5.04** **CPL**

APPENDIX-E

TABLE E- 9

Tank Wagon Delivery - Automotive Fuels

Full time vehicle operating cost calculation	Tandem	Single Axle
Volume delivered per load	20,000	11,500
Annual Operating cost of Vehicle	$128,000	$118,000
Assumed operating days per year	300	300
Vehicle Operating Cost per day	$427	$393
Standard Operating Hours per day	8.0	8.0
Vehicle cost per hr	$53.33	$49.17
Idle Time Vehicle Operating Cost	$25.00	$21.00
Idle Time Vehicle Operating Cost with Driver	$44.21	$40.00

Zone 10 - Labrador Straits

From Marine Depot at L'Anse au Loup To:	L'Anse au Clair	Forteau, LA	L'Anse au Loup	West St. Modeste/ Capstan Island	Pinware	Red Bay
To: Outlet	Sample Outlet	Sample Outlet	Sample Outlet	Sample Outlet	Sample Outlet	Sample Outlet
Assumed Supplier	Normore	Normore	Normore	Normore	Normore	Normore
Distance one way (kms)	26	15	4	15	20	48
Tank Wagon	**Single**	**Single**	**Single**	**Single**	**Single**	**Single**
Capacity (litres)	11,500	11,500	11,500	11,500	11,500	11,500
Avg Speed of TW (kms/hr)	65	65	65	65	65	65
Load Time at Depot @ 500 litre/min	23	23	23	23	23	23
Discharge time @ 300 litres/Min	38	38	38	38	38	38
Round trip Driving time (Minutes)	48	28	7	28	37	89
Allowance for delays	30	30	30	30	30	30
Total time for return trip (hours)	2.32	1.98	1.65	1.98	2.14	3.00
Operating cost $/hr	$49.17	$49.17	$49.17	$49.17	$49.17	$49.17
Total load - delivered cost	$114.18	$97.53	$80.89	$97.53	$105.10	$147.46
Delivered cost in cents per litre	**0.99**	**0.85**	**0.70**	**0.85**	**0.91**	**1.28**
Estimated Total Litres per year	300,000	600,000	800,000	290,000	175,000	330,000
Population (2001 Census)	241	477	635	231	140	264
% of Population	12.1%	24.0%	31.9%	11.6%	7.0%	13.3%
Rate component weighted by population	**0.120**	**0.203**	**0.225**	**0.099**	**0.064**	**0.170**

Average TW Delivery Cost for Zone* **0.88** **CPL**

*(Assuming operation 8 hours per day 300 days per year)

Labrador Straits-Zone 10 - Adjustment for Vehicle Idle Time for Gasoline Only

Population (2001)	1,988
Estimated Total Litres per Year Consumption	2,495,000
Estimated Litres delivered per working day	8,317
Truck Loads required delivered per working day	0.72
Average Time required to deliver one load (Hrs)	2.18
Average Time required to deliver required loads (Hrs)	1.58
Estimated equivalent Idle Vehicle Hours per working day	6.42
Estimated equivalent Idle Vehicle Days per year	241
Cost of Idle Time for dedicated vehicle ($/Hr)	$21.00
Cost of Idle Time for dedicated vehicle ($/Day)	$134.91
Total cost of Idle Time per year	$32,503
Cost of Idle time for dedicated vehicle per litre (CPL)	**1.30**

Total Average T/W Delivery Cost of Gasoline to Retail Outlets in Zone 10** **2.18** **CPL**

** Assuming one Dedicated Single Axle Vehicle for all Retail Gasoline Deliveries
but not considering any commercial gasoline deliveries by tank wagon

APPENDIX-E

TABLE E-10

Tank Wagon Delivery - Automotive Fuels

Full time vehicle operating cost calculation	**Tandem**	**Single Axle**
Volume delivered per load	20,000	11,500
Annual Operating cost of Vehicle	$128,000	$118,000
Assumed operating days per year	300	300
Vehicle Operating Cost per day	$427	$393
Standard Operating Hours per day	8.0	8.0
Vehicle cost per hr	$53.33	$49.17
Idle Time Vehicle Operating Cost	$25.00	$21.00
Idle Time Vehicle Operating Cost with Driver	$44.21	$40.00

Zone 11 - Labrador South (Lodge Bay to Cartwright) from Local Depots

From Marine Depot at Port Hope Simpson To:	Lodge Bay Mary's Harbour St. Lewis	Port Hope Simpson	Charlottetown/ Pinsent Arm	Cartwright/ Paradise River
To: Outlet	Sample Outlet	Sample Outlet	Sample Outlet	Sample Outlet
Assumed Supplier	Woodward or Normore	Woodward or Normore	Woodward or Normore	Woodward or Normore
Average Distance one way (kms)	47	5	45	186
Tank Wagon Single Axle Assumed)	**Single**	**Single**	**Single**	**Single**
Capacity (litres)	11,500	11,500	11,500	11,500
Avg Speed of TW (kms/hr)	65	65	65	65
Load Time at Bulk Plant @ 500 litre/min	23	23	23	23
Discharge time @ 300 litres/Min	38	38	38	38
Round trip Driving time (Minutes)	86	9	83	343
Allowance for delays	30	30	30	30
Total time for return trip (hours) - Full Load	2.96	1.68	2.91	7.25
Litres per hour	3,888	6,861	3,956	1,587
Total hours per year required	231.51	80.16	104.90	441.02
Operating cost $/hr	$49.17	$49.17	$49.17	$49.17
Total load delivered cost	$145.45	$82.41	$142.93	$356.25
Delivered cost in cents per litre	**1.26**	**0.72**	**1.24**	**3.10**
Estimated Total Litres per year	900,000	550,000	415,000	700,000
Population (2001)	829	509	386	651
% of Population	34.9%	21.4%	16.3%	27.4%
Rate component weighted by population	**0.441**	**0.154**	**0.202**	**0.849**

Average TW Delivery Cost for Zone* **1.65** **CPL**

*(Assuming operation 8 hours per day 300 days per year)

Labrador South -Zone 11 - Adjustment for Vehicle Idle Time for Gasoline Only

Population (2001)	2,375
Estimated Total Litres per Year Consumption	2,565,000
Estimated Litres delivered per working day	8,550
Truck Loads required delivered per working day	0.74
Average Time required to deliver one load (Hrs)	3.70
Average Time required to deliver required loads (Hrs)	2.75
Estimated equivalent Idle Vehicle Hours per working day	5.25
Estimated equivalent Idle Vehicle Days per year	197
Cost of Idle Time for dedicated vehicle ($/Hr)	$21.00
Cost of Idle Time for dedicated vehicle ($/Day)	$110.29
Total cost of Idle Time per year	$21,719
Cost of Idle time for dedicated vehicle per litre (CPL)	**0.85**

Total Average T/W Delivery Cost of Gasoline to Retail Outlets in Zone 11** **2.49** **CPL**

** Assuming one Dedicated Single Axle Vehicle for all Retail Gasoline Deliveries
but not considering any commercial gasoline deliveries by tank wagon

APPENDIX-E

TABLE E- 11

Tank Wagon Delivery - Automotive Fuels

Full time vehicle operating cost calculation	**Tandem**	**Single Axle**
Volume delivered per load	20,000	11,500
Annual Operating cost of Vehicle	$128,000	$118,000
Assumed operating days per year	300	300
Vehicle Operating Cost per day	$427	$393
Standard Operating Hours per day	8.0	8.0
Vehicle cost per hr	$53.33	$49.17
Idle Time Vehicle Operating Cost	$25.00	$21.00
Idle Time Vehicle Operating Cost with Driver	$44.21	$40.00

Zone 12 - Central Labrador - Goose Bay / Happy Valley Area

From Marine Terminal - Goose Bay	Goose Bay	Goose Bay	Goose Bay
To: Outlet	Sample Outlet	Sample Outlet	Sample Outlet
Location	Happy Valley Goose Bay Area	North West River / Sheshatshui	All Areas
Supplier	Ultramar/ Woodward	Ultramar/ Woodward	Ultramar/ Woodward
Distance one way (Average) kms	10	41	
Tank Wagon	Single Axle	Single Axle	Single Axle
Capacity (litres)	11,500	11,500	11,500
Avg Speed of TW (kms/hr)	65	65	65
Load Time at Bulk Plant @ 500 litre/min	23	23	
Discharge time @ 300 litres/Min	38	38	
Round trip Driving time (Minutes)	18	76	
Allowance for delays	30	30	
Total time for return trip (hours)	1.83	2.78	
Operating cost $/hr	$49.17	$49.17	
Total load delivered cost	$89.97	$136.87	
Delivered cost in cents per litre	0.78	1.19	
Population (2001-Census)	8,055	1,590	9,645
% of Population	83.5%	16.5%	100.0%
Rate component weighted by population	0.65	0.20	0.85

Average Delivery Cost - Goose Bay/ Happy Valley **0.85** **CPL**

*(Assuming operation 8 hours per day 300 days per year)

Zone 12 - Central Labrador Area - Adjusted for Dedicated T/W for Gasoline Deliveries

Population (2001) Estimated	9,645
Estimated Total Litres per Year Consumption	9,162,750
Estimated Litres delivered per working day	30,543
Truck Loads required delivered per working day	2.66
Average Time required to deliver one load (Hrs)	1.57
Average Time required to deliver required loads per working day (Hrs)	4.17
Estimated equivalent Idle Vehicle Hours per working day	3.83
Estimated equivalent Idle Vehicle Days per year	144
Cost of Idle Time for dedicated vehicle ($/Hr)	$21.00
Cost of Idle Time for dedicated vehicle ($/Day)	$80.44
Total cost of Idle Time per year	$11,553
Estimated Total Litres per Year Consumption	9,162,750
Cost of Idle time for dedicated vehicle per litre (CPL)	**0.13**

Total Average T/W Delivery Cost of Gasoline to Retail Outlets in Zone 12** **0.98**

** Assuming one Dedicated Single Axle Vehicle for all Retail Gasoline Deliveries
but not considering any commercial gasoline deliveries by tank wagon

APPENDIX-E

TABLE E- 12

Tank Wagon Delivery - Automotive Fuels

Full time vehicle operating cost calculation	**Tandem**	**Single Axle**
Volume delivered per load	18,000	11,500
Annual Operating cost of Vehicle	$128,000	$118,000
Assumed operating days per year	300	300
Vehicle Operating Cost per day	$427	$393
Standard Operating Hours per day	8.0	8.0
Vehicle cost per hr	$53.33	$49.17
Idle Time Vehicle Operating Cost	$25.00	$21.00
Idle Time Vehicle Operating Cost with Driver	$44.21	$40.00

Zone 13 - West Labrador - Labrador City - Wabush - Churchill Falls

From Bulk Plant	Rail Car Bulk Plant Labrador City	Rail Car Bulk Plant Labrador City	Rail Car Bulk Plant Labrador City	Rail Car Bulk Plant Labrador City	Rail Car Bulk Plant Labrador City	Rail Car Bulk Plant Labrador City	Rail Car Bulk Plant Labrador City
To:Outlet	Esso Service Station	Carol Automobile Ltd.	Whitten's Fuel Oil Service	R & H Ultramar	Grenfell Esso	Wabush Gas Bar Ltd.	George Strickland
Location	Labrador City	Labrador City	Labrador City	Labrador City	Wabush	Wabush	**Churchill Falls**
Supplier	Imperial Oil	Shell Canada	Shell Canada	Ultramar	Imperial Oil	Ultramar	Ultramar
Distance one way (Average) kms	5	5	5	5	10	10	243
Tank Wagon	Single Axle	Single Axle	Single Axle	Single Axle	Single Axle	Single Axle	**Tandem**
Capacity (litres)	18,000	18,000	18,000	18,000	18,000	18,000	18,000
Avg Speed of TW (kms/hr)	50	50	50	50	50	50	65
Load Time at Bulk Plant @ 500 litre/min	36	36	36	36	36	36	36
Discharge time @ 400 litres/Min	45	45	45	45	45	45	36
Round trip Drivning time (Minutes)	12	12	12	12	24	24	449
Allowance for delays	30	30	30	30	30	30	30
Total time for return trip (hours)	2.05	2.05	2.05	2.05	2.25	2.25	9.18
Operating cost $/hr	$53.33	$53.33	$53.33	$53.33	$53.33	$53.33	$53.33
Total load delivered cost	$109.33	$109.33	$109.33	$109.33	$119.99	$119.99	$489.41
Delivered cost in cents per litre	**0.61**	**0.61**	**0.61**	**0.61**	**0.67**	**0.67**	**2.72**

Average Delivery cost Labrador City / Wabush **0.63** **CPL** **Average Delivery cost to Churchill Falls -CPL** **2.72**

APPENDIX E

Table E-13

Drum deliveries of GASOLINE & DIESEL to Coastal Communities of McCallum, Gaultois, Rencontre East

Pricing Zone 4a - Gaultois / McCallum / Rencontre East	Gaultois	McCallum	Rencontre East	Totals
Census Population -1991	516	147	212	875
Census Population -1996	423	138	215	776
Census Population -2001	321	128	202	**651**
Estimated Gasoline demand per Population (Litres per year)	500	500	500	500
Total Demand per year gasoline (litres) per 2001 Census	160,500	64,000	101,000	325,500
Total Demand per year of drums (205 Litres per Drum)	783	312	493	1,588
Destination Communities CPL				**3.94**

Tank-Wagon delivery for drum filling at dockside from bulk plant at Pool's Cove Crossroads:	Pool's Cove Crossroads	Pool's Cove Crossroads	Pool's Cove Crossroads	
For drums for shipment to:	**Gaultois**	**McCallum**	**Rencontre East**	
Location	Hermitage Dockside	Hermitage Dockside	Pool's Cove Dockside	Totals
Supplier	Agent	Agent	Agent	
Distance one way (kms)	41	41	8	
Tank Wagon	Tandem	Single	Single	
Capacity (litres)	20,000	11,500	11,500	
Avg Speed of TW (kms/hr)	65	65	65	
Litres Delivered	13,375	5,333	8,417	27,125
Mins to Load	27	11	17	
Mins driving (Return Trip)	76	76	15	
# Drums per shipment (Once per month)	65	26	41	132.3171
Litres per Drum	205	205	205	
Total Drum Filling Time at 5 minutes per drum	326	130	205	
Allowance for Delays (Mins)	30	30	30	
Total Time return Trip Minutes	459	236	250	
Total Trip Hrs	7.6	3.9	4.2	
Operating cost $/hr	$53.33	$49.17	$49.17	
Total load delivered cost	$407.67	$193.20	$204.91	$805.78
Delivered cost to fill drums at dockside- CPL (Weighted Average)				**2.97**

Shipping Drums via Freight Ferry	**Gaultois**	**McCallum**	**Rencontre East**	**Totals / Averages**
Total Number of Drums required for year.	783	312	493	1,588
Number of months during Period	12	12	12	12
Average Number of Drums shipped per month in Period	65	27	42	133
Weight of Empty Drum (Kgs)	23	23	23	23
Weight of Drum full of Gasoline (Kgs)	173	173	173	173
Coastal Freight For Drum Shipments:				
Coastal Freight Shipping Full Drums Cost (Maximum per shipment)	$50.00	$50.00	$50.00	$150.00
Coastal Freight Shipping all Full Drums for period	$50.00	$50.00	$50.00	$150.00
Cost of Shippment per Drum during period	$0.77	$1.85	$1.19	$1.13
Coastal Freight Shipping Empty Drums back to Burgeo for period	$50.00	$24.84	$38.64	$113.48
Cost of Shipping each Drum Empty (Return to Supply Point each month)	$0.77	$0.92	$0.92	$0.85
Total Return Coastal Freight Shipping Cost per Drum	$1.53	$2.77	$2.11	$1.98
Total Return Coastal Freight Shipping Cost (Cents per Litre)	**0.75**	**1.35**	**1.03**	**0.97**

(Wholesale Point of Sale)	**3.94**

APPENDIX E

Table E-14

Drum deliveries of GASOLINE from Burgeo to Coastal Communities of La Poile, Grand Bruit, and Grey River & Francois
Note: For drum deliveries of **Diesel** see Table H-23 Appendix H for Furnace Oil.

Pricing Zone 7b - Lapoile /Grand Bruit / Grey River /Francois	La Poile	Grand Bruit	Grey River	Francois	Totals
Census Population -1991	168	64	181	187	600
Census Population -1996	148	57	188	175	568
Census Population -2001	131	50	174	162	517
Estimated Gasoline demand per Population (Litres per year)	500	500	500	500	500
Total Demand per year gasoline (litres)	65,500	25,000	87,000	81,000	258,500
Litres per drum	205	205	205	205	205
Total Demand per year of drums (205 Litres per Drum)	320	122	424	395	1,261
Average demand - Drums per month	27	10	35	33	105
Destination Community Dockside CPL					**10.35**

Filling Drums at Burgeo Service Station via Cargo Truck					
Drums filled per shipment month	**27**	**10**	**35**	**33**	**105**
Litres Delivered per shipment month	5,535	2,050	7,250	6,765	21,600
Drums per truckload to Service Station	12	10	12	12	12
Loading rate of service station pump and nozzle (Litres/Min)	35	35	35	35	35
Mins to Load each 205 litre drum from Service Station Nozzle	6	6	6	6	6
Mins to Load each Truck load of 12 drums +10 min delay allowance	80	69	80	80	80
Number of truck loads for average monthly shipment	2.3	1.0	2.9	2.8	8.8
Number of truck trips for average monthly shipment	3	1	3	3	9
Mins per trip to load empties, travel to Station and unload full drums dockside	50	50	50	50	50
Total cargo truck time per Shipment - Minutes	293	119	384	358	1144
Total cargo truck time per Shipment - Hours	5	2	6	6	19
Rate $/hr truck and 2 men	$45.00	$45.00	$45.00	$45.00	$45.00
Cost of each shipment of drums filled at dockside	$219.86	$88.93	$287.98	$268.71	$857.98
Cost per drum	$8.14	$8.89	$8.14	$8.14	$8.14
Delivered cost to fill drums at dockside- CPL (Weighted Average)					**3.98**
Add self serve price differential at Burgeo Service Station CPL (Retail Margin)					**5.00**
Total Cost of Handling and Filling Drums at Loading Port					**8.98**

Drums Shipped from Burgeo via Coastal Boat to Destination Dockside (Dangerous Goods Shipment 3rd Tuesday of month)					
Coastal Freight Shipping Full Drums Cost (Maximum per shipment)	$50.00	$50.00	$50.00	$50.00	$200.00
Coastal Freight Shipping all Full Drums for period	$50.00	$50.00	$50.00	$50.00	$200.00
Cost of Shipment per Drum during period	$1.85	$5.00	$1.41	$1.52	$1.90
Coastal Freight Shipping Empty Drums back to Burgeo for period	$24.84	$9.20	$32.54	$30.36	$96.94
Cost of Shipping each Drum Empty (Return to Supply Point each month)	$0.92	$0.92	$0.92	$0.92	$0.92
Total Return Coastal Freight Shipping Cost per Drum	$2.77	$5.92	$2.33	$2.44	$2.82
Total Return Coastal Freight Shipping Cost per Shipment	$74.84	$59.20	$82.54	$80.36	$296.94
Total Return Coastal Freight Shipping Cost - Weighted Average - CPL					**1.37**

(Wholesale Point of Sale)	**10.35**

Notes:
1. Since there is no T/W delivery for gasoline in Burgeo, the above scenario assumes that wholesaler would purchase gasoline at retail service station outlet in Burgeo and fill his own drums at self serve prices established for Burgeo. (Actual price paid may be lower depending on negotiated transaction with retail outlet owner/ operator). For the purpose of this Study the delivered wholesale 'on-dock' price for drums to the destination communities would

Retailer Margin - Proposed and existing margin from dockside at destination communities:	**10.00**	**CPL**	**$20.50**	**per Drum**

APPENDIX E

Table E-15 - Gasoline

Gasoline - Drum deliveries to Coastal Communities of Norman Bay and Williams Harbour (If Service Applicable)

Pricing Zone 11c - Williams Harbour & Norman Bay	Williams Harbour	Norman Bay	Totals
Census Population -1991	77	58	135
Census Population -1996	71	52	123
Census Population -2001	60	50	110
Estimated Gasoline demand per Population (Litres per year)	500	500	500
Total Demand per year gasoline (litres)	30,000	25,000	55,000
Total Demand per year of drums (205 Litres per Drum)	146	122	268
Weight of each drum Empty (Kg)	23	23	23
Weight of each drum Filled with Gasoline (Kg)	173	173	173

Zone 11c - Average cost drum delivery to destination communities - CPL **13.86**

Pricing Zone 11c - Williams Harbour & Norman Bay	**Williams Harbour**	**Norman Bay**	**Totals / Averages**
Total Number of Drums required for year.	146	122	268
Number of shipping season months during Period	5	5	5
Average Number of Drums shipped per month during shipping season	29	24	54

Tank-Wagon delivery for drum filling at dockside from Bulk Plant / Marine Depot	Port Hope Simpson or Charlottetown	Charlottetown or Port Hope Simpson	**Totals / Averages**
For drums for shipment to:	Williams Harbour	Norman Bay	**Both**
Location	Dockside	Dockside	Dockside
Supplier	Agent	Agent	Agent
Distance one way (kms)	43	43	43
Tank Wagon	Single	Single	Single
Capacity (litres)	11,500	11,500	11,500
Avg Speed of TW (kms/hr)	50	50	50
Litres Delivered	6,000	5,000	11,000
Mins to Load	17	14	31
Mins driving (Return Trip)	103	103	103
# Drums per shipment	29	24	54
Litres per Drum	205	205	205
Total Drum Filling Time at 5 minutes per drum	146	122	268
Allowance for Delays (Mins)	20	20	40
Total Time return Trip Minutes	270	245	411
Total Trip Hrs	4.5	4.1	6.9
Operating cost $/hr	$49.17	$49.17	$49.17
Total load delivered cost	$220.89	$200.89	$337.03
Filling Cost per Drum	$7.55	$8.24	$6.28
Delivered cost to fill drums at dockside- CPL (Weighted Average)	3.68	4.02	**3.06**

Shipping Drums and Returning Empties (See attached Table E-15 Supplement-Gasoline for detailed calculation)

Coastal Freight Shipping Full Drums Cost per Drum	$18.10	$18.10	$18.10
Coastal Freight Shipping Full Drums Cost per Litre	**8.83**	**8.83**	**8.83**
Total Return Coastal Freight Shipping Cost per Drum	$4.04	$4.04	$4.04
Total Return Coastal Freight Shipping Cost (Cents per Litre)	**1.97**	**1.97**	**1.97**
Total Return Coastal Freight Shipping Cost per Drum	$22.14	$22.14	$22.14
Total Return Coastal Freight Shipping Cost (Cents per Litre)	**10.80**	**10.80**	**10.80**

Total Landed Cost of Drums at Destination Community (Wholesale Point of Sale) **13.86**

APPENDIX E

Table E-15 Supplement-Gasoline

Zone 11c - Drum deliveries of Gasoline - Calculations Freight Ferry to Williams Harbour and Norman Bay

Ferry Freight Rates to Williams Harbour and Norman Bay	Units	Williams Harbour	Norman Bay	Totals / Averages
Shipping Costs - Full Drums Gasoline:				
Weight of empty 45 imperial gallon oil drum is 23 Kgs or	lbs	50.7	50.7	50.7
Weight of 205 litres of gasoline at 7.31 lbs / gallon =	lbs	329.6	329.6	329.6
Total weight full drum gasoline	lbs	**380.3**	**380.3**	**380.3**
Cubic Weight of 1 drum gasoline per Ferry Rates Schedule				
Volume of 45 gallon drum at 6.228 gallons per cu. Ft.=	Cu. Ft.	7.23	7.23	7.23
Cubic Weight of 1 Drum per Ferry Rate Calculations @ 10lbs/cu ft=	**lbs**	**72.3**	**72.3**	**72.3**
Assume 4 drums are strapped to one 4' by 4' pallet				
Weight of pallet approx =	lbs	22	22	22
Cubic weight of one drum shipment + 1/4 pallet=	lbs	77.8	77.8	77.8
Weight of full drum gasoline on pallet (Including 25% of pallet wt)	**lbs**	**385.8**	**385.8**	**385.8**
For a 15 drum shipment (Norman Bay) Rate would be based on actual weight since it is greater than cubic weight:				
Number of drums per shipment		28	24	52
Actual weight drum shipment palletized=	lbs	10803	9260	20063
Number of hundred weights	lbs/100	108	93	201
Rate $/cwt =		$4.36	$4.36	$4.36
Rate per hundred weight $/100 lbs		$4.36	$4.36	$4.36
Rate per shipment =		$471.03	$403.74	$874.76
Add Top Wharfage at Load Port @ $0.165 per hundred weight	$	$17.83	$15.28	$33.10
Add Top Wharfage at Discharge @ $0.165 per hundred weight	$	$17.83	$15.28	$33.10
Total cost per shipment =		$506.68	$434.30	$940.97
Rate for 1 drum =	$/Drum	$18.10	$18.10	$18.10
Rate per Litre	**CPL**	**8.83**	**8.83**	**8.83**
Shipping Costs - Return Empty Drums:				
Weight of empty 45 imperial gallon oil drum is 23 Kgs or	lbs	50.7	50.7	50.7
Use Cubic Weight per empty drum since it is greater	lbs	**72.3**	**72.3**	**72.3**
Number of drums per shipment		28	24	52
Cubic weight empty drum shipment + 1/4 pallet=	lbs	77.8	77.8	77.8
Total weight of shipment	lbs	2177	1866	4043
Rate $/cwt =	$/lb	$4.87	$4.87	$4.87
Rate per shipment =		$106.03	$90.88	$196.91
Add Top Wharfage at Load Port @ $0.165 per cwt	$	$3.59	$3.08	$6.67
Add Top Wharfage at Discharge Port @ $0.165 per cwt	$	$3.59	$3.08	$6.67
Total cost per shipment =		$113.21	$97.04	$210.25
Rate for 1 drum =	$/Drum	$4.04	$4.04	$4.04
Equivalent Rate per Litre	**CPL**	**1.97**	**1.97**	**1.97**
Total Shipping Costs Empties Returned - Drums of Gasoline:				
Total cost drum shipments	$/Drum	$22.14	$22.14	$22.14
	CPL	**10.80**	**10.80**	**10.80**

APPENDIX E

Table E-15 - Diesel

Diesel - Drum deliveries* to Coastal Communities of Norman Bay and Williams Harbour (If Service Applicable)

* Same quantity as gasoline assumed

Pricing Zone 11c - Williams Harbour & Norman Bay	Williams Harbour	Norman Bay	Totals
Census Population -1991	77	58	135
Census Population -1996	71	52	123
Census Population -2001	60	50	110
Estimated Diesel demand per Population (Litres per year)	500	500	500
Total Demand per year gasoline (litres)	30,000	25,000	55,000
Total Demand per year of drums (205 Litres per Drum)	146	122	268
Weight of each drum Empty (Kg)	23	23	23
Weight of each drum Filled with Gasoline (Kg)	173	173	173

Zone 11c - Average cost drum delivery to destination communities - CPL **14.54**

Pricing Zone 11c - Williams Harbour & Norman Bay	**Williams Harbour**	**Norman Bay**	**Totals / Averages**
Total Number of Drums required for year.	146	122	268
Number of shipping season months during Period	5	5	5
Average Number of Drums shipped per month during shipping season	29	24	54

Tank-Wagon delivery for drum filling at dockside from Bulk Plant / Marine Depot	Port Hope Simpson or Charlottetown	Charlottetown or Port Hope Simpson	**Totals / Averages**
For drums for shipment to:	Williams Harbour	Norman Bay	**Both**
Location	Dockside	Dockside	Dockside
Supplier	Agent	Agent	Agent
Distance one way (kms)	43	43	43
Tank Wagon	Single	Single	Single
Capacity (litres)	11,500	11,500	11,500
Avg Speed of TW (kms/hr)	50	50	50
Litres Delivered	6,000	5,000	11,000
Mins to Load	17	14	31
Mins driving (Return Trip)	103	103	103
# Drums per shipment	29	24	54
Litres per Drum	205	205	205
Total Drum Filling Time at 5 minutes per drum	146	122	268
Allowance for Delays (Mins)	20	20	40
Total Time return Trip Minutes	270	245	411
Total Trip Hrs	4.5	4.1	6.9
Operating cost $/hr	$49.17	$49.17	$49.17
Total load delivered cost	$220.89	$200.89	$337.03
Filling Cost per Drum	$7.55	$8.24	$6.28
Delivered cost to fill drums at dockside- CPL (Weighted Average)	3.68	4.02	**3.06**

Shipping Drums and Returning Empties (See attached Table E-15 Supplement-Diesel for detailed calculation)

Coastal Freight Shipping Full Drums Cost per Drum	$19.49	$19.49	$19.49
Coastal Freight Shipping Full Drums Cost per Litre	**9.51**	**9.51**	**9.51**
Total Return Coastal Freight Shipping Cost per Drum	$4.04	$4.04	$4.04
Total Return Coastal Freight Shipping Cost (Cents per Litre)	**1.97**	**1.97**	**1.97**
Total Return Coastal Freight Shipping Cost per Drum	$23.53	$23.53	$23.53
Total Return Coastal Freight Shipping Cost (Cents per Litre)	**11.48**	**11.48**	**11.48**

Total Landed Cost of Drums at Destination Community (Wholesale Point of Sale) **14.54**

APPENDIX E

Table E-15 Supplement-Diesel

Zone 11c - Drum deliveries of Diesel - Calculations Freight Ferry to Williams Harbour and Norman Bay

Ferry Freight Rates to Williams Harbour and Norman Bay	Units	Williams Harbour	Norman Bay	Totals / Averages
Shipping Costs - Full Drums Diesel Fuel:				
Weight of empty 45 imperial gallon oil drum is 23 Kgs or	lbs	50.7	50.7	50.7
Weight of 205 litres of Artic Diesel at 7.97 lbs / gallon =	lbs	359.4	359.4	359.4
Total weight full drum gasoline	lbs	**410.1**	**410.1**	**410.1**
Cubic Weight of 1 drum gasoline per Ferry Rates Schedule				
Volume of 45 gallon drum at 6.228 gallons per cu. Ft.=	Cu. Ft.	7.23	7.23	7.23
Cubic Weight of 1 Drum per Ferry Rate Calculations @ 10lbs/cu ft=	**lbs**	**72.3**	**72.3**	**72.3**
Assume 4 drums are strapped to one 4' by 4' pallet				
Weight of pallet approx =	lbs	22	22	22
Cubic weight of one drum shipment + 1/4 pallet=	lbs	77.8	77.8	77.8
Weight of full drum gasoline on pallet (Including 25% of pallet wt)	**lbs**	**415.6**	**415.6**	**415.6**
For a 15 drum shipment (Norman Bay) Rate would be based on actual weight since it is greater than cubic weight:				
Number of drums per shipment		28	24	52
Actual weight drum shipment palletized=	lbs	11637	9974	21611
Number of hundred weights	lbs/100	116	100	216
Rate $/cwt =		$4.36	$4.36	$4.36
Rate per hundred weight $/100 lbs		$4.36	$4.36	$4.36
Rate per shipment =		$507.36	$434.88	$942.24
Add Top Wharfage at Load Port @ $0.165 per hundred weight	$	$19.20	$16.46	$35.66
Add Top Wharfage at Discharge @ $0.165 per hundred weight	$	$19.20	$16.46	$35.66
Total cost per shipment =		$545.76	$467.80	$1,013.56
Rate for 1 drum =	$/Drum	$19.49	$19.49	$19.49
Rate per Litre	**CPL**	**9.51**	**9.51**	**9.51**
Shipping Costs - Return Empty Drums:				
Weight of empty 45 imperial gallon oil drum is 23 Kgs or	lbs	50.7	50.7	50.7
Use Cubic Weight per empty drum since it is greater	lbs	**72.3**	**72.3**	**72.3**
Number of drums per shipment		28	24	52
Cubic weight empty drum shipment + 1/4 pallet=	lbs	77.8	77.8	77.8
Total weight of shipment	lbs	2177	1866	4043
Rate $/cwt =	$/lb	$4.87	$4.87	$4.87
Rate per shipment =		$106.03	$90.88	$196.91
Add Top Wharfage at Load Port @ $0.165 per cwt	$	$3.59	$3.08	$6.67
Add Top Wharfage at Discharge Port @ $0.165 per cwt	$	$3.59	$3.08	$6.67
Total cost per shipment =		$113.21	$97.04	$210.25
Rate for 1 drum =	$/Drum	$4.04	$4.04	$4.04
Equivalent Rate per Litre	**CPL**	**1.97**	**1.97**	**1.97**
Total Shipping Costs Empties Returned - Drums of Diesel:				
Total cost drum shipments	$/Drum	$23.53	$23.53	$23.53
	CPL	**11.48**	**11.48**	**11.48**

APPENDIX F

Figure 1

SUPPLY CHAIN COST DIAGRAM

Retail Automotive Fuels

Zone 1 - Avalon Peninsula

Product from Avalon Terminals

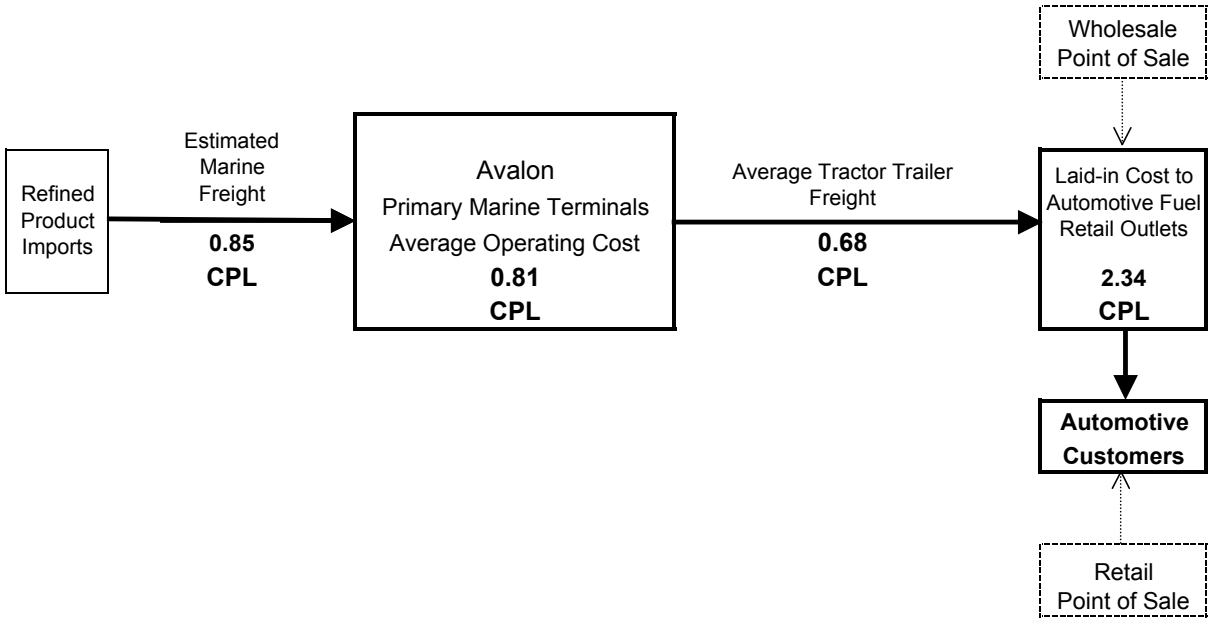


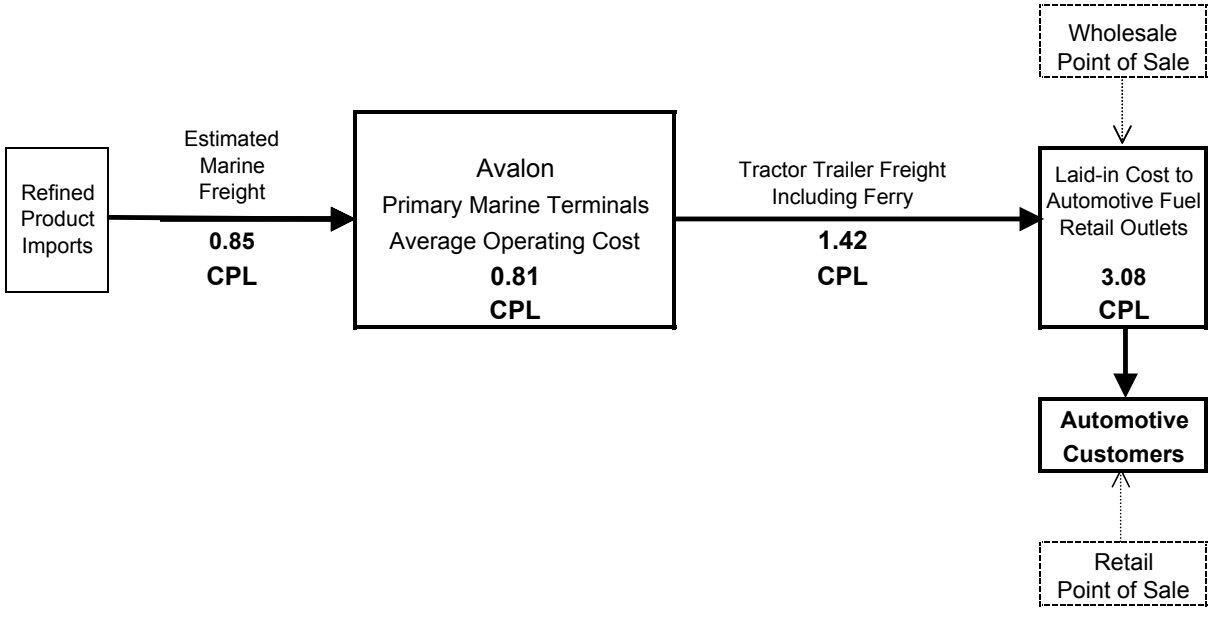
Figure 1a

SUPPLY CHAIN COST DIAGRAM

Retail Automotive Fuels

Zone 1a - Bell Island

Product from Avalon Terminals



APPENDIX F

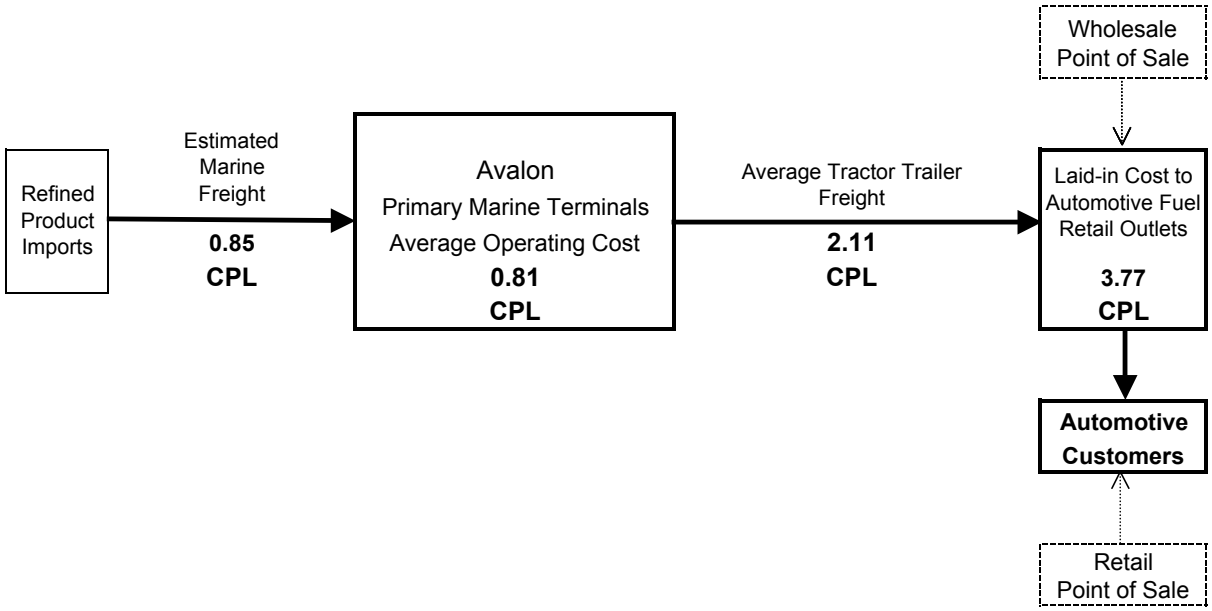
Figure 2

SUPPLY CHAIN COST DIAGRAM

Retail Automotive Fuels

Zone 2 - Burin-Bonavista Peninsulas

Product from Avalon Terminals



APPENDIX F

Figure 3

SUPPLY CHAIN COST DIAGRAM

Retail Automotive Fuels

Zone 3 - Central Newfoundland

Product from Avalon Terminals

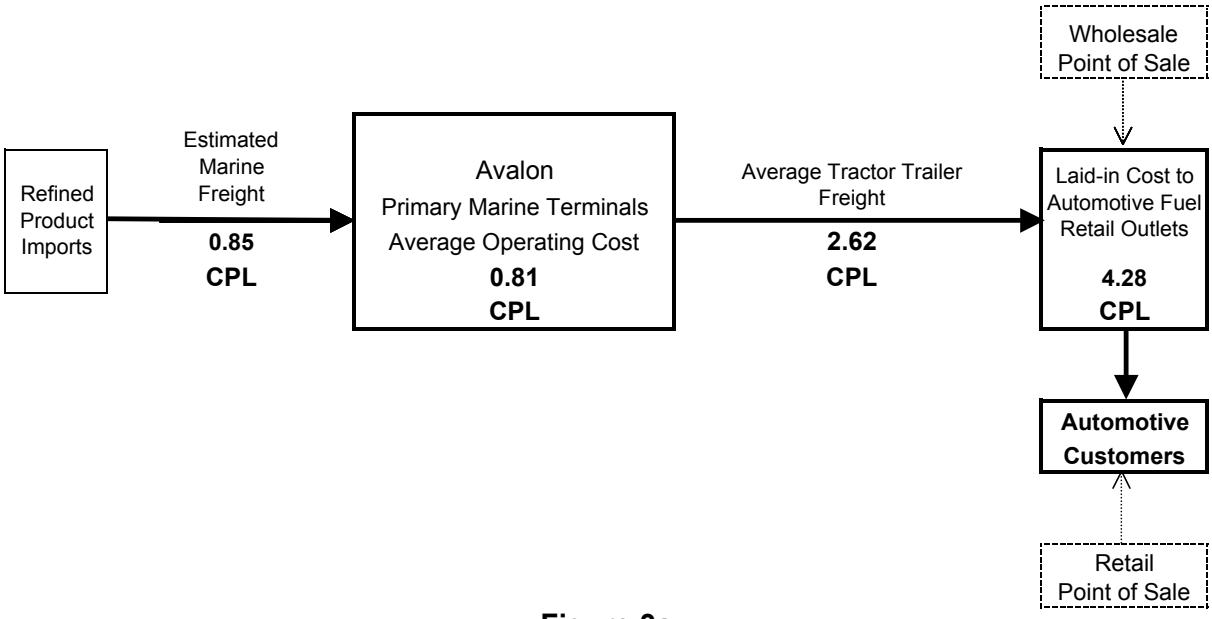


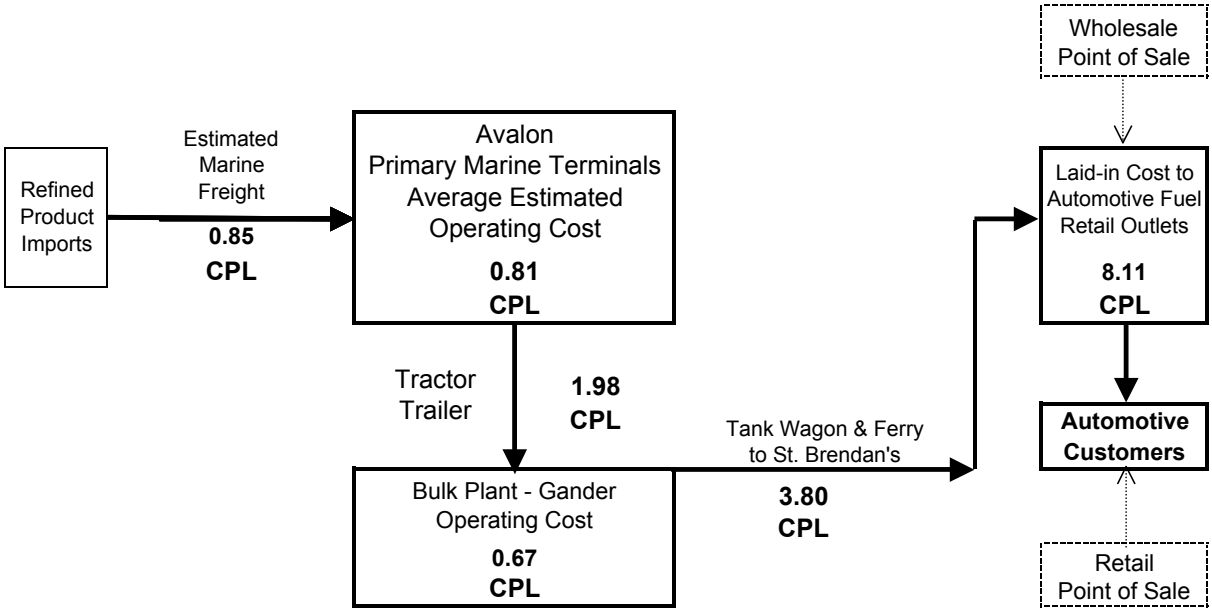
Figure 3a

SUPPLY CHAIN COST DIAGRAM

Retail Automotive Fuels

Zone 3a - St. Brendan's (Island)

Product from Avalon Terminals



APPENDIX F

Figure 3b

SUPPLY CHAIN COST DIAGRAM

Retail Automotive Fuels

Zone 3b - Fogo Island

Product from Avalon Terminals

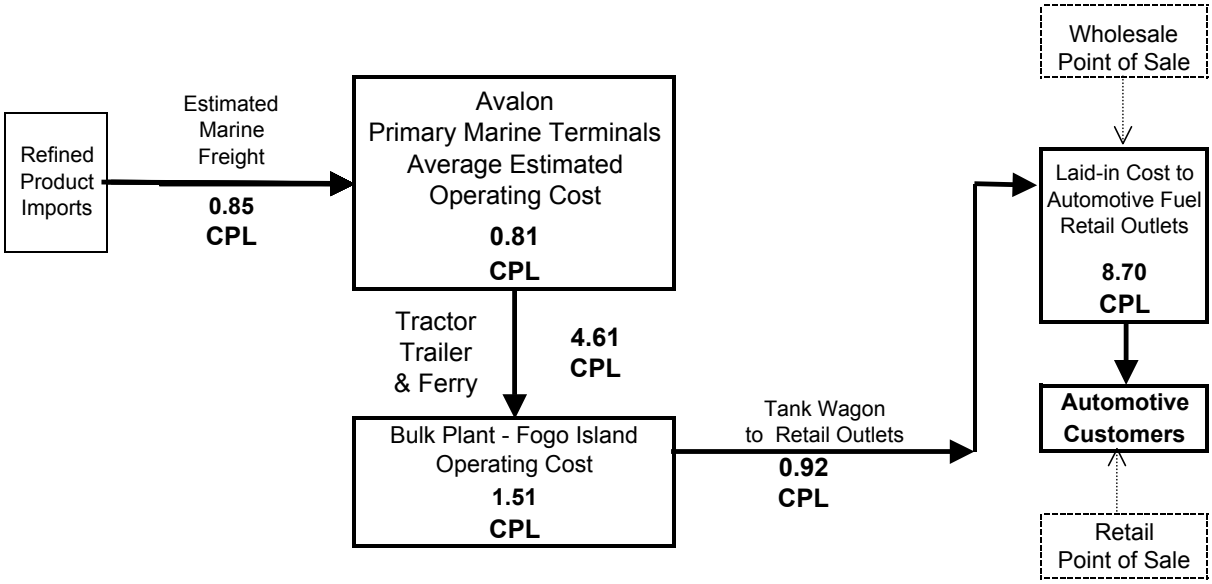


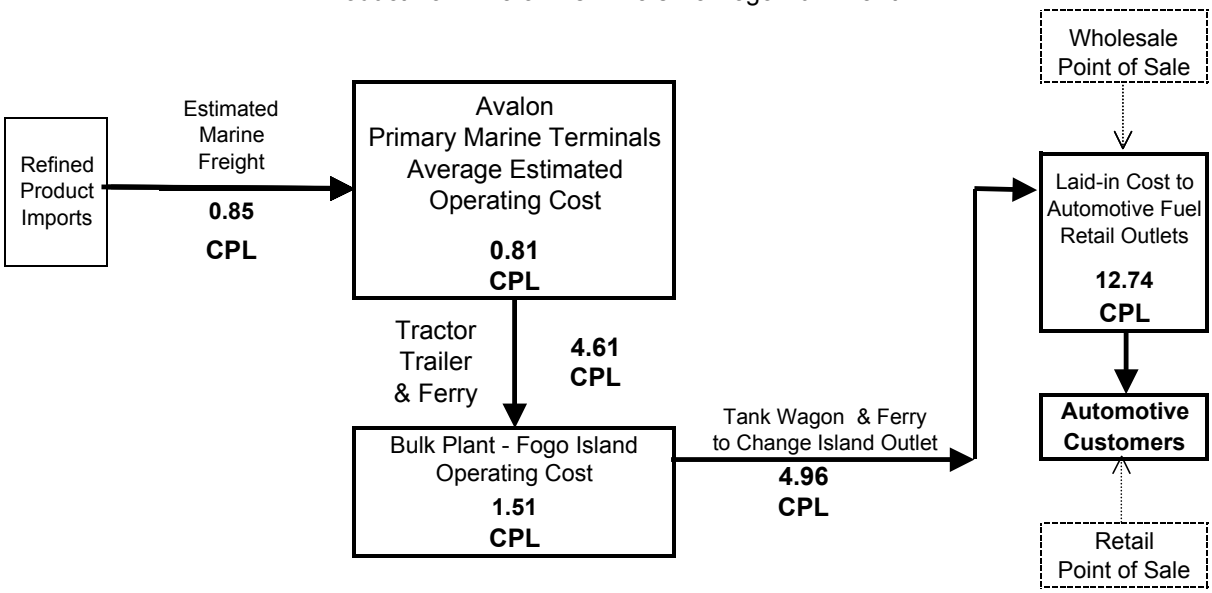
Figure 3c

SUPPLY CHAIN COST DIAGRAM

Retail Automotive Fuels

Zone 3c - Change Islands

Product from Avalon Terminals via Fogo Bulk Plant



APPENDIX F

Figure 4

SUPPLY CHAIN COST DIAGRAM

Retail Automotive Fuels

Zone 4 - Connaigre Peninsula

Product from Avalon Terminals

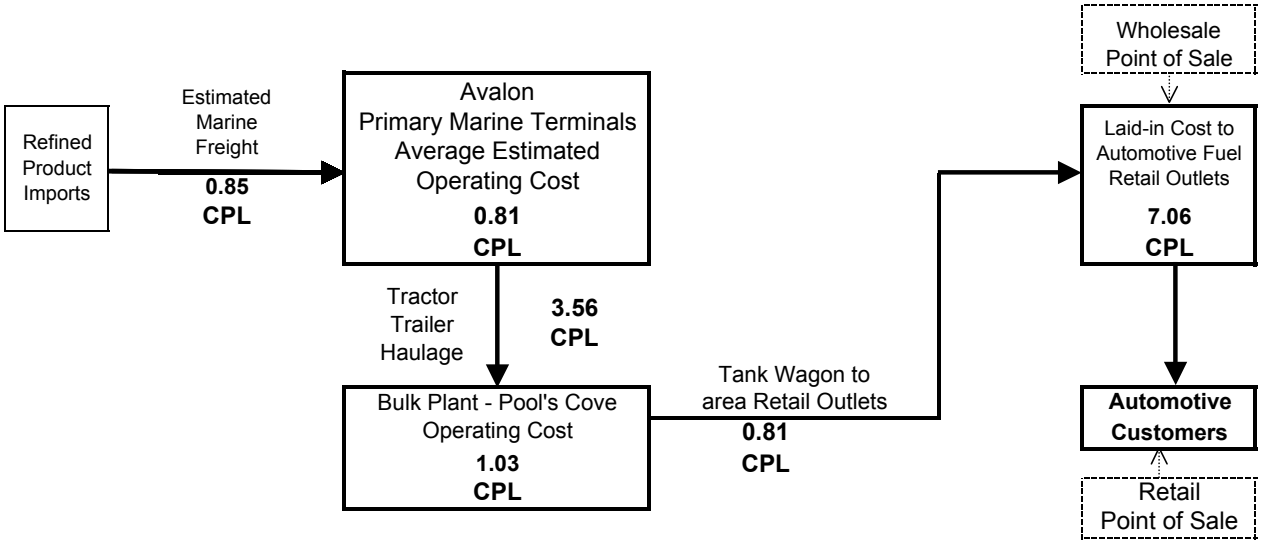


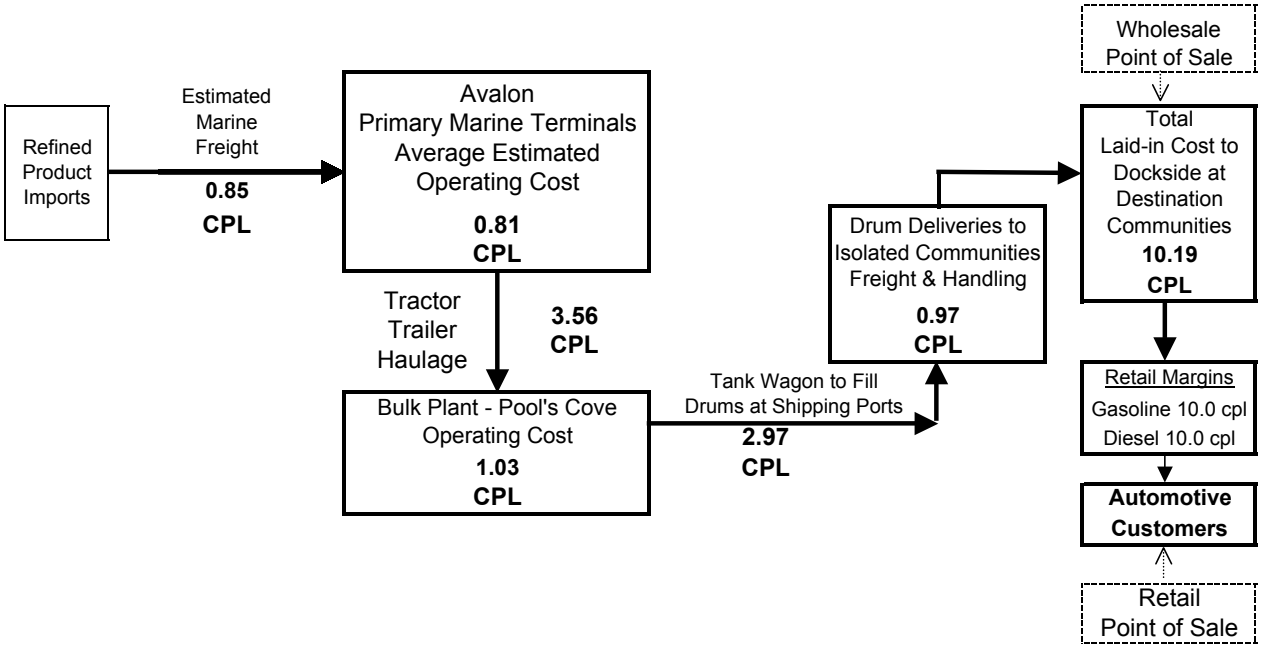
Figure 4a

SUPPLY CHAIN COST DIAGRAM

Retail Automotive Fuels

Zone 4a - Gaultois-McCallum / Rencontre East

(Drums from Hermitage and Pool's Cove - Connaigre Peninsula)



APPENDIX F

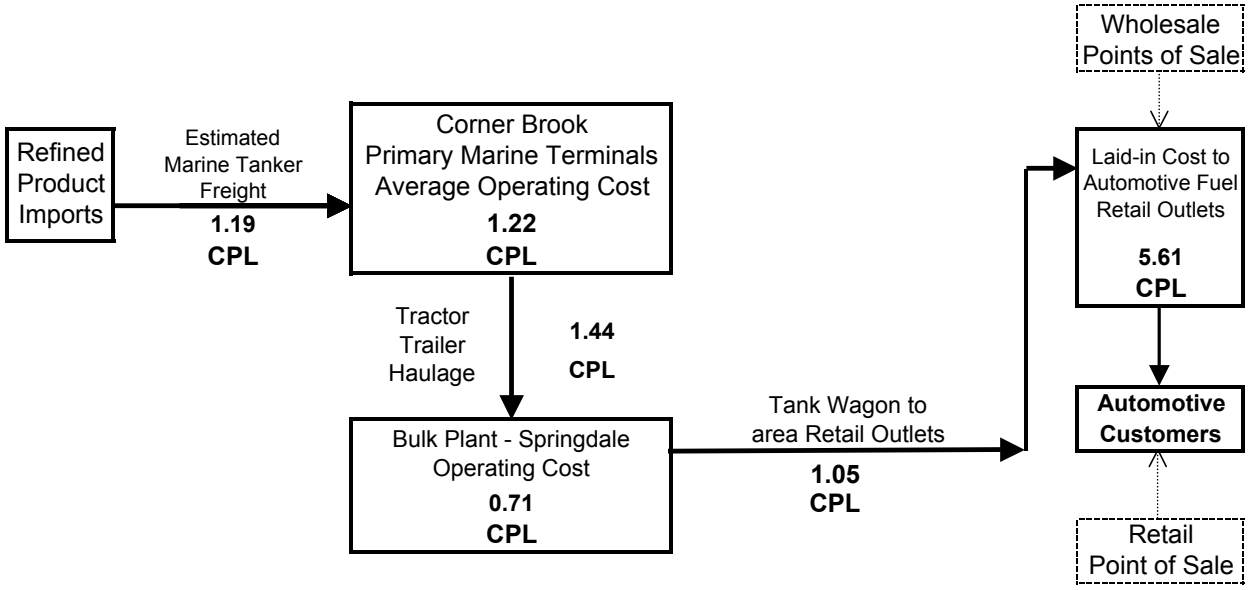
Figure 5

SUPPLY CHAIN COST DIAGRAM

Retail Automotive Fuels

Zone 5 - Springdale and Baie Verte areas via Bulk Plant at Springdale

Product from Corner Brook Terminals



APPENDIX F

Figure 5a

SUPPLY CHAIN COST DIAGRAM

Retail Automotive Fuels

Zone 5a - Long Island via T/W from Springdale Bulk Plant

Product from Corner Brook Terminals

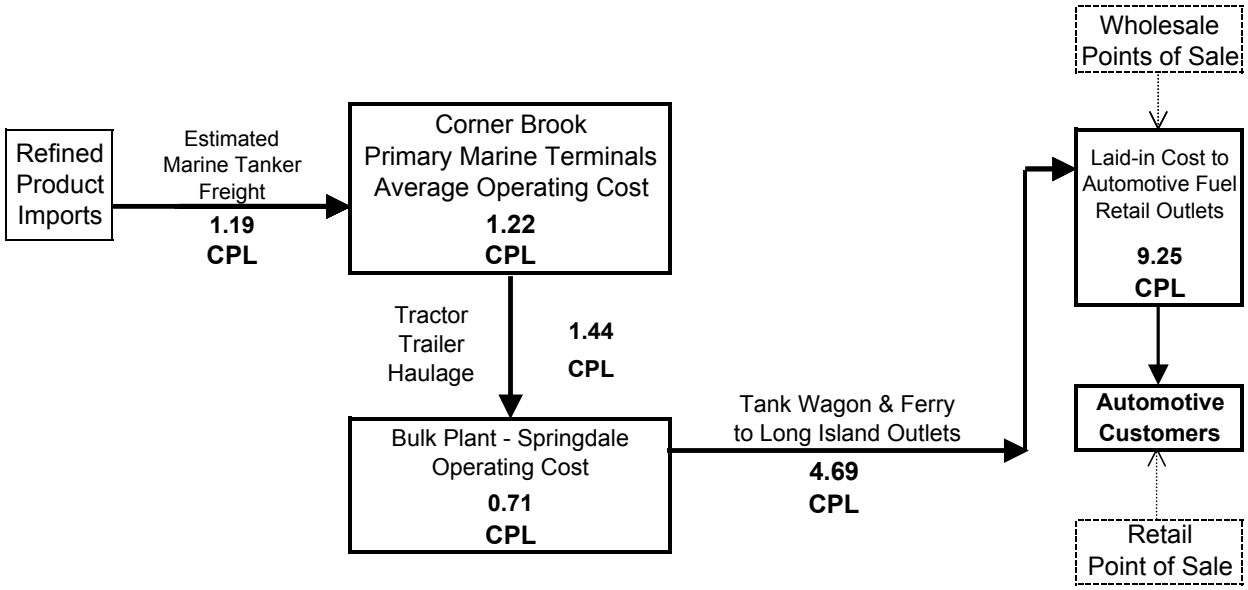


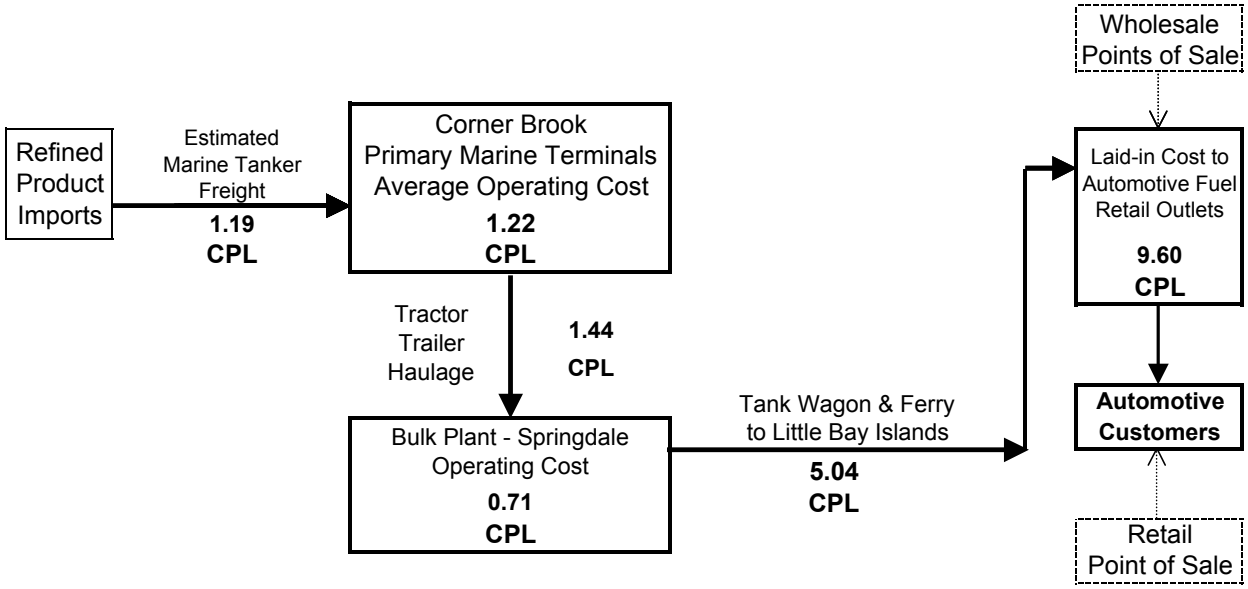
Figure 5b

SUPPLY CHAIN COST DIAGRAM

Retail Automotive Fuels

Zone 5b - Little Bay Islands via T/W from Springdale Bulk Plant

Product from Corner Brook Terminals



APPENDIX F

Figure 6

SUPPLY CHAIN COST DIAGRAM

Retail Automotive Fuels

Zone 6 - Corner Brook and Area

Product from Corner Brook Terminals

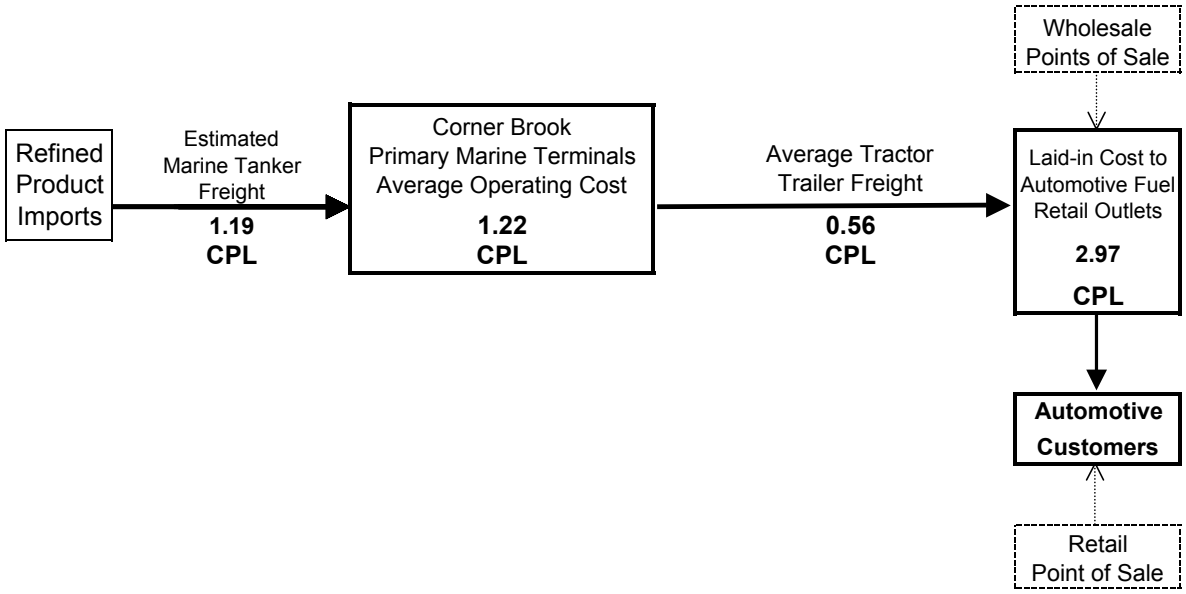


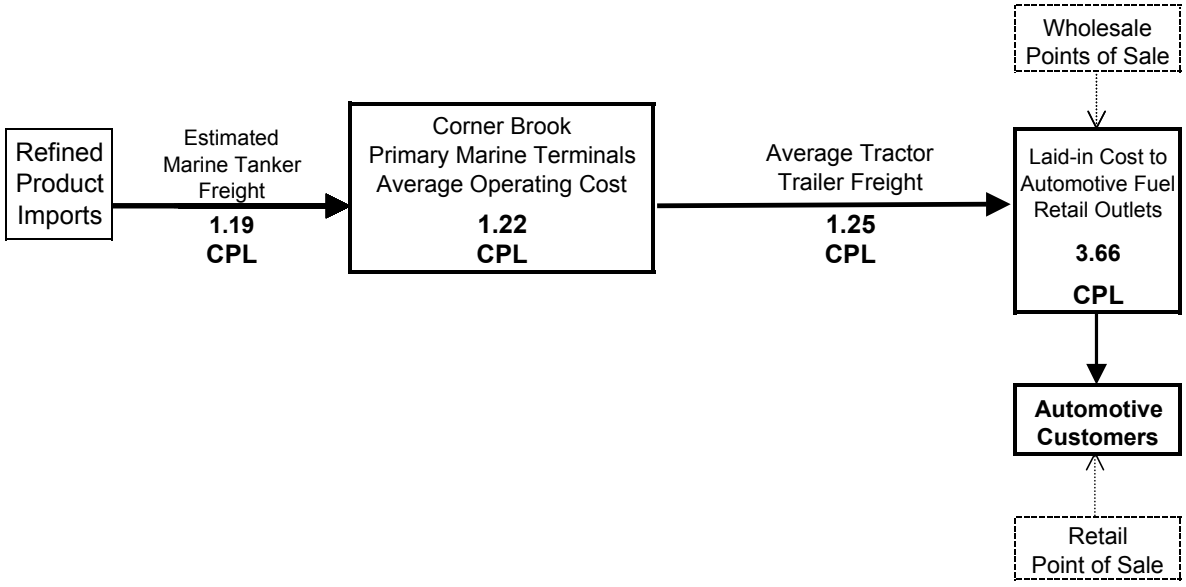
Figure 7

SUPPLY CHAIN COST DIAGRAM

Retail Automotive Fuels

Zone 7 - Stephenville - Port aux Basques - Burgeo

Product from Corner Brook Terminals



APPENDIX F

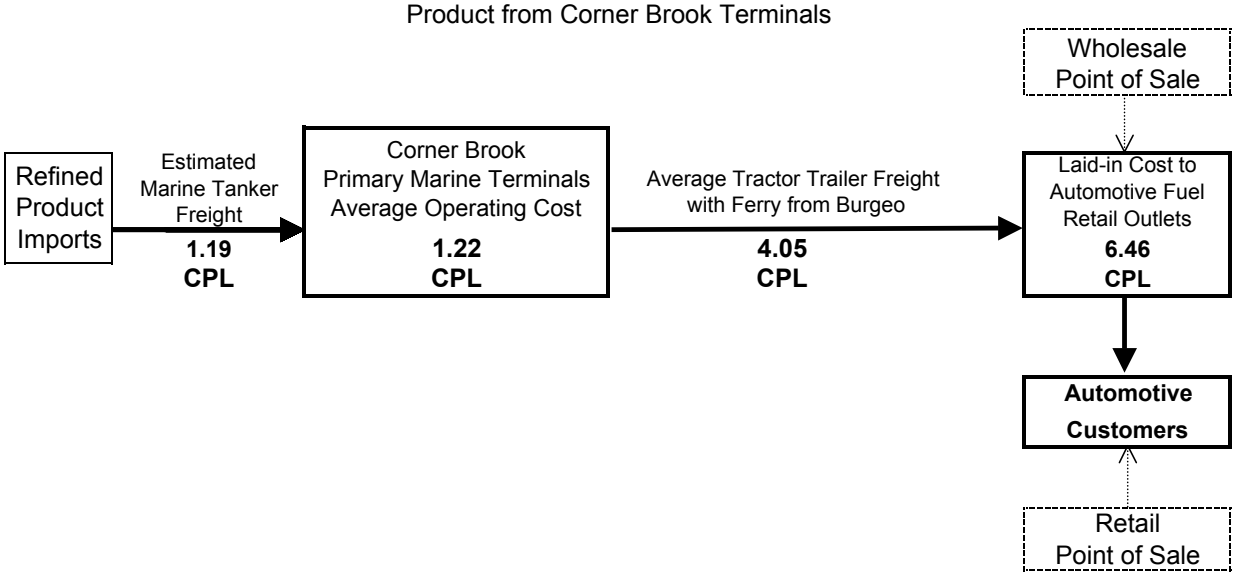
Figure 7a

SUPPLY CHAIN COST DIAGRAM

Retail Automotive Fuels

Zone 7a - Ramea Island

Product from Corner Brook Terminals



APPENDIX F

Figure 7b1

SUPPLY CHAIN COST DIAGRAM

(GASOLINE)

Zone 7b - Grey River & Francois / La Poile & Grand Bruit
(Drums from Burgeo Shipped via Freight Ferry)

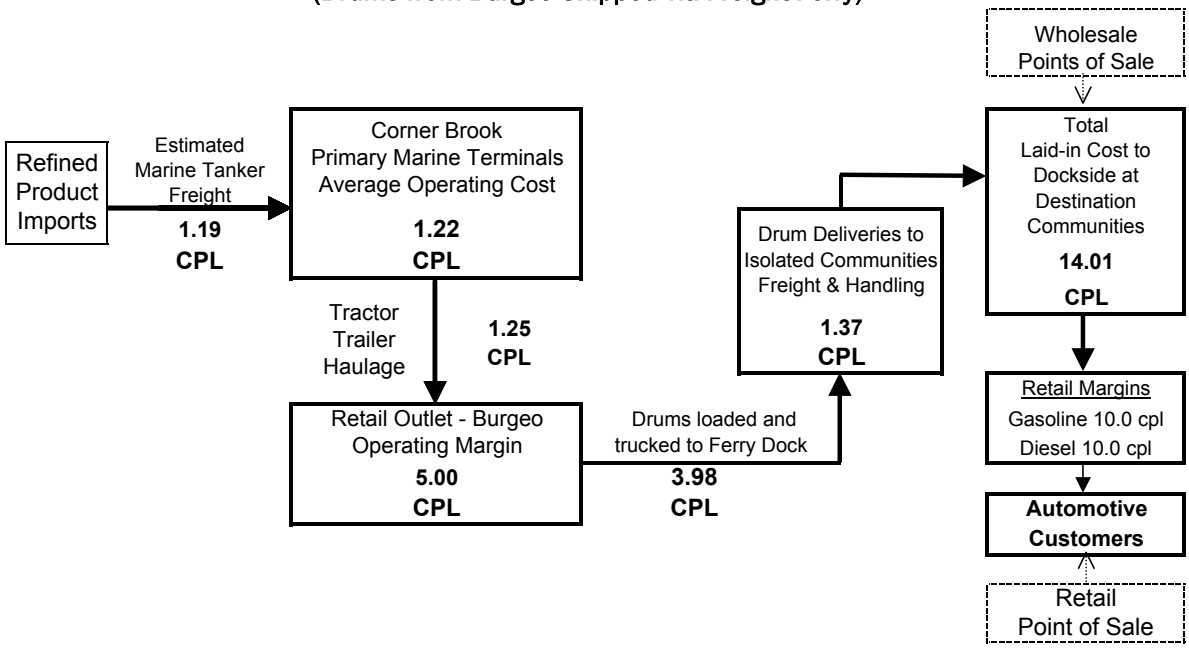
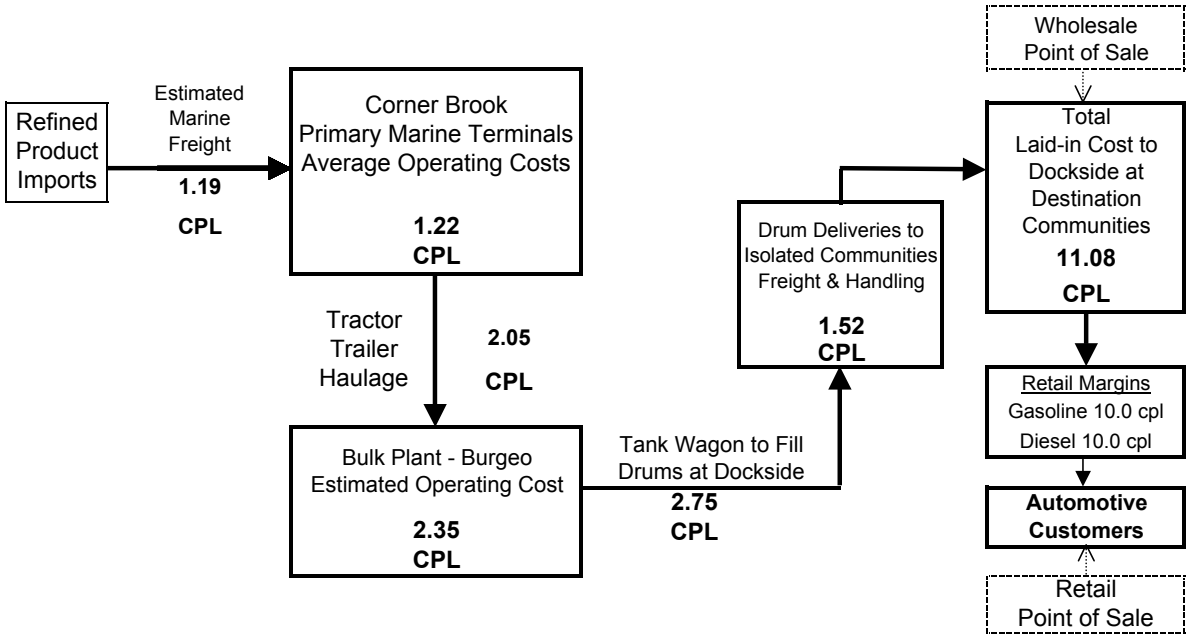


Figure 7b2

SUPPLY CHAIN COST DIAGRAM

(DIESEL FUEL)

Zone 7b - Grey River & Francois / La Poile & Grand Bruit
(Drums from Burgeo Shipped via Freight Ferry)



APPENDIX F

Figure 8

SUPPLY CHAIN COST DIAGRAM
Retail Automotive Fuels
Zone 8 - Northern Peninsula South
Product from Corner Brook Terminals

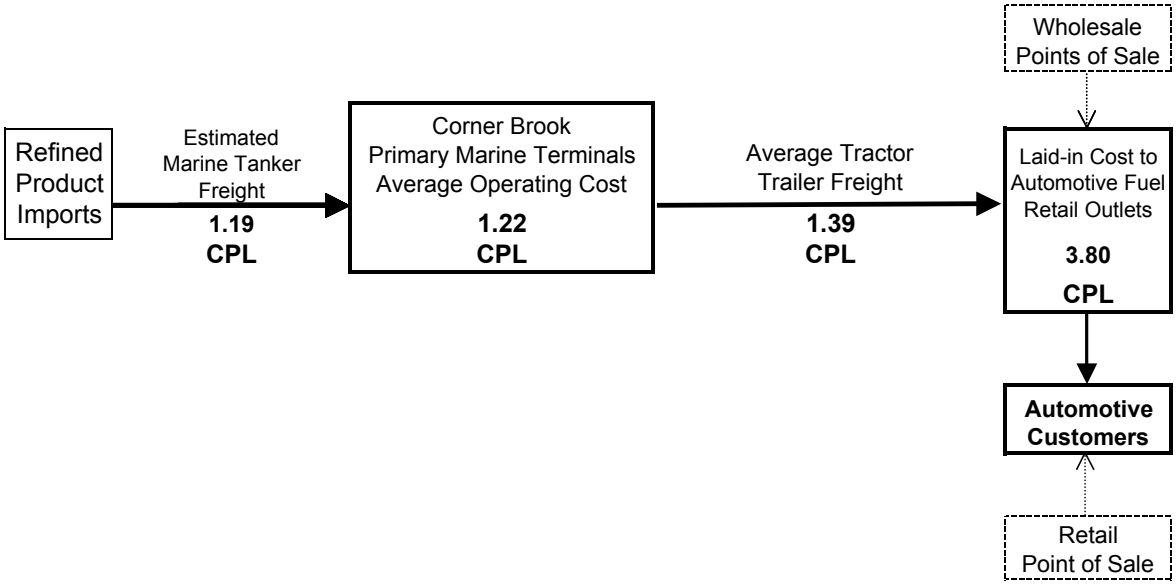
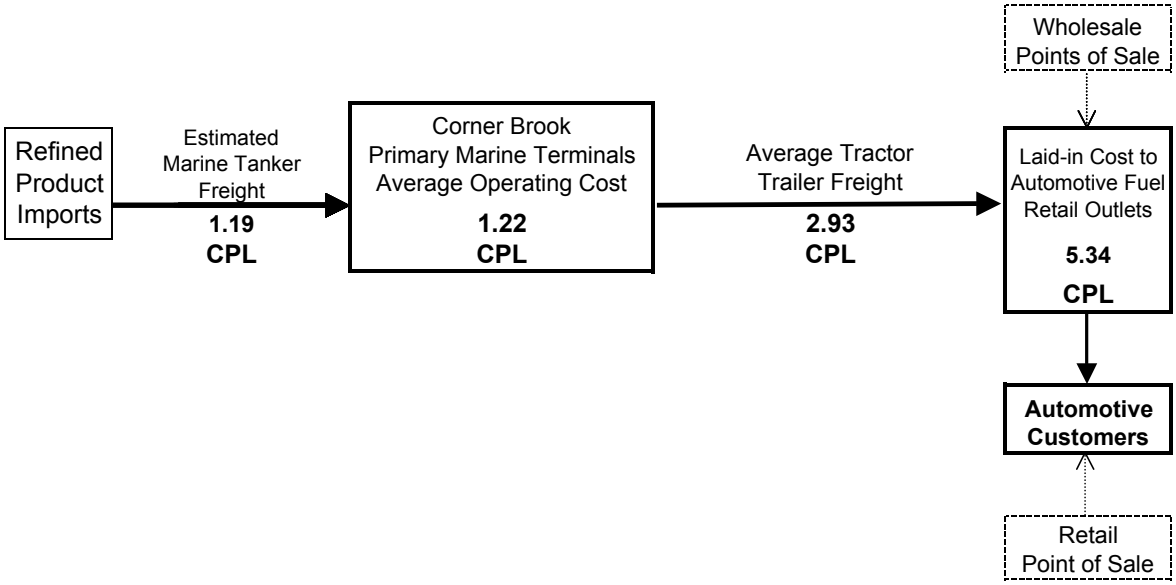


Figure 9

SUPPLY CHAIN COST DIAGRAM
Retail Automotive Fuels
Zone 9 - Northern Peninsula North
Product from Corner Brook Terminals



APPENDIX F

Figure 10

SUPPLY CHAIN COST DIAGRAM

Retail Automotive Fuels

Zone 10 - Labrador - The Straits

Product from Local Marine Depots

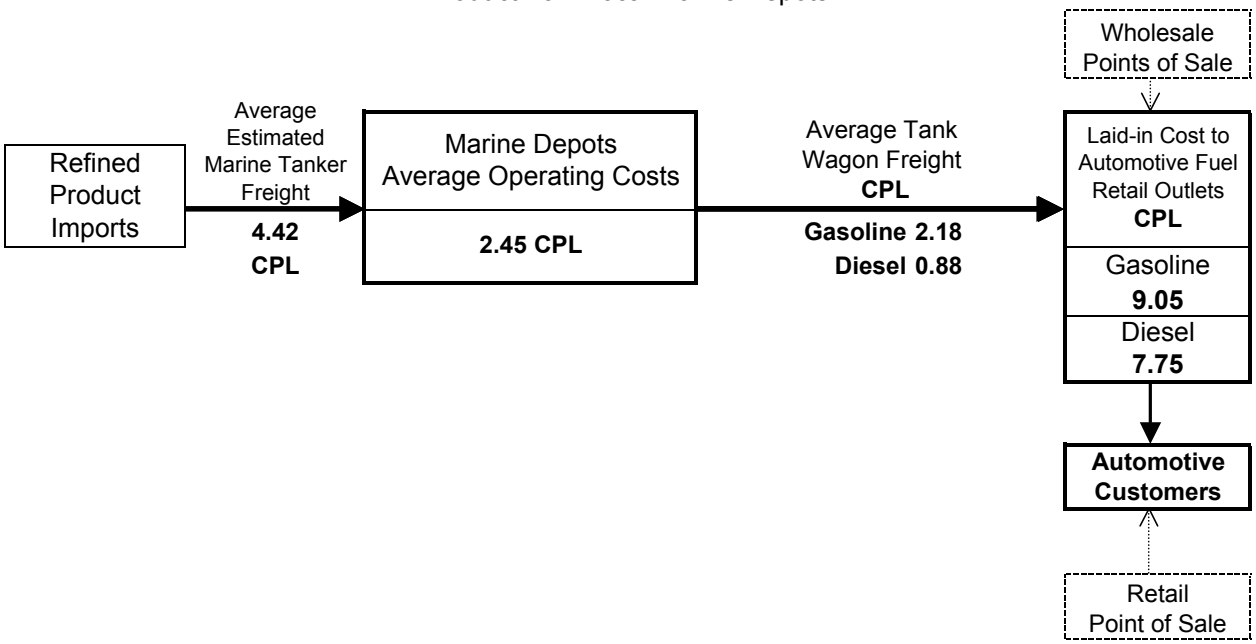


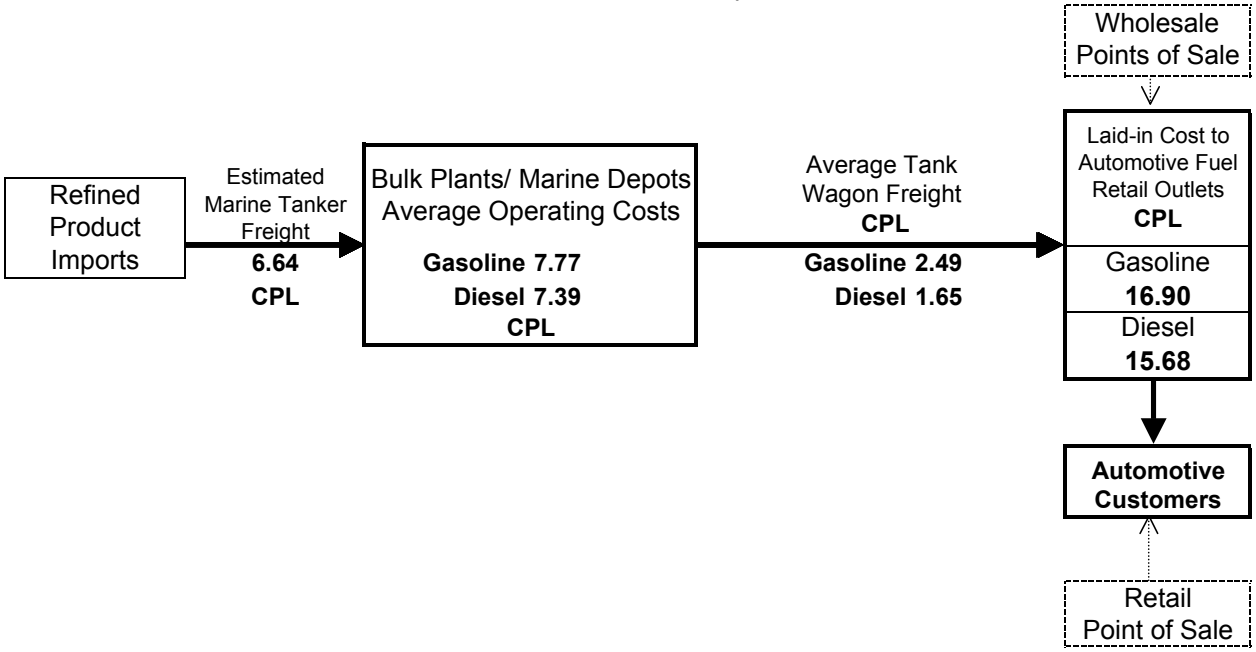
Figure 11

SUPPLY CHAIN COST DIAGRAM

Retail Automotive Fuels

Zone 11 - Labrador South - Lodge Bay to Cartwright

Product from Local Depots



APPENDIX F

FIGURE 11a

SUPPLY CHAIN COST DIAGRAM

Retail Automotive Fuels

Zone 11a - Labrador Coast South - (Isolated Communities)

Product from Local Marine Depots

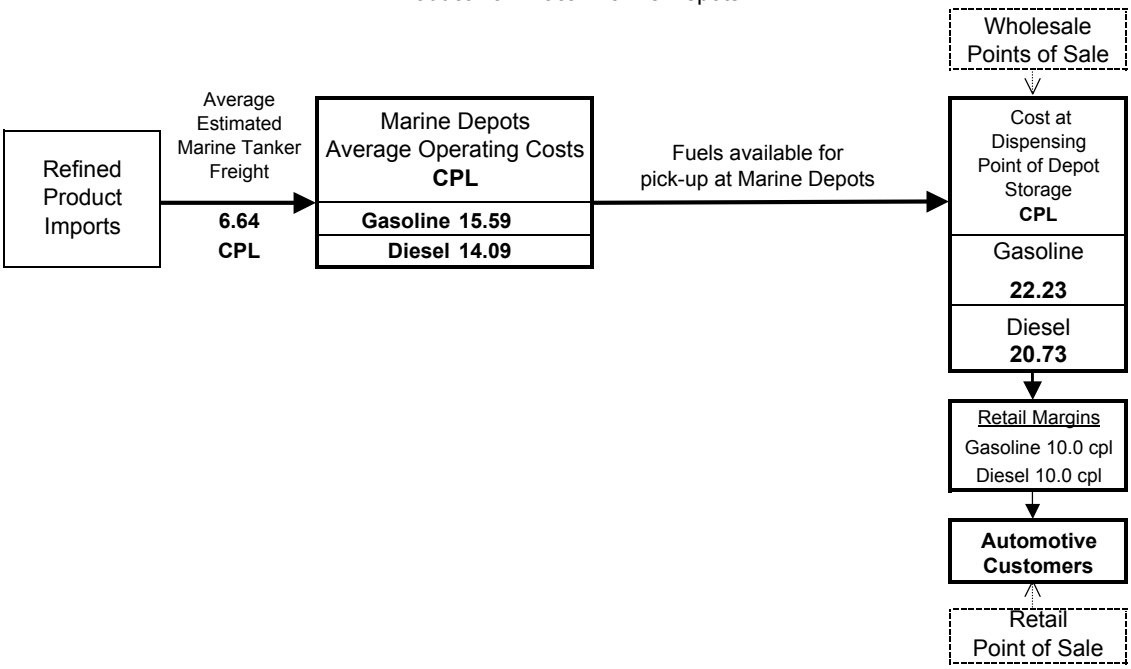


FIGURE 11b

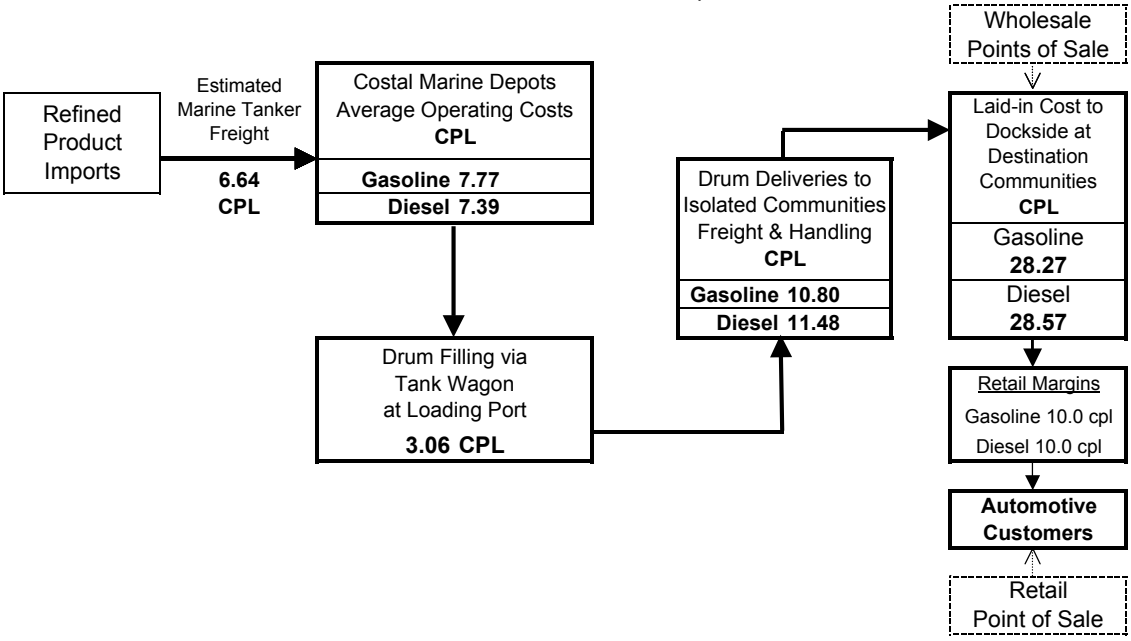
SUPPLY CHAIN COST DIAGRAM

Retail Automotive Fuels

Zone 11b - Williams Harbour - Norman Bay - Other Isolated Coastal Communities

(Drums from Charlottetown or Post Hope Simpson shipped via Freight Ferry)

Product from Local Marine Depots



APPENDIX F

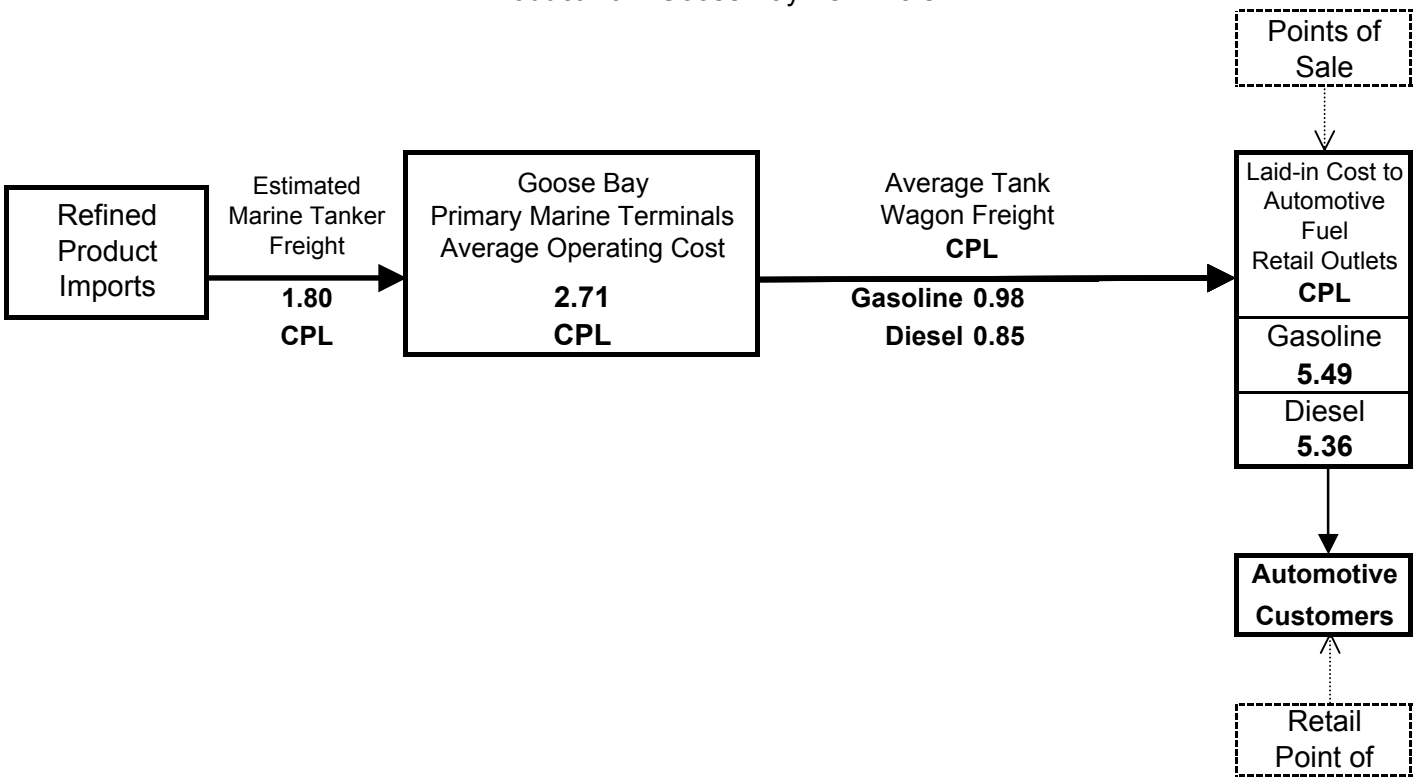
FIGURE 12

SUPPLY CHAIN COST DIAGRAM

Retail Automotive Fuels

Zone 12 - Central Labrador (Goose Bay and Area)

Product from Goose Bay Terminals



APPENDIX F

FIGURE 13

SUPPLY CHAIN COST DIAGRAM

Retail Automotive Fuels

Zone 13 - Western Labrador (Labrador City and Wabush)

Product from Labrador City Rail Bulk Plant

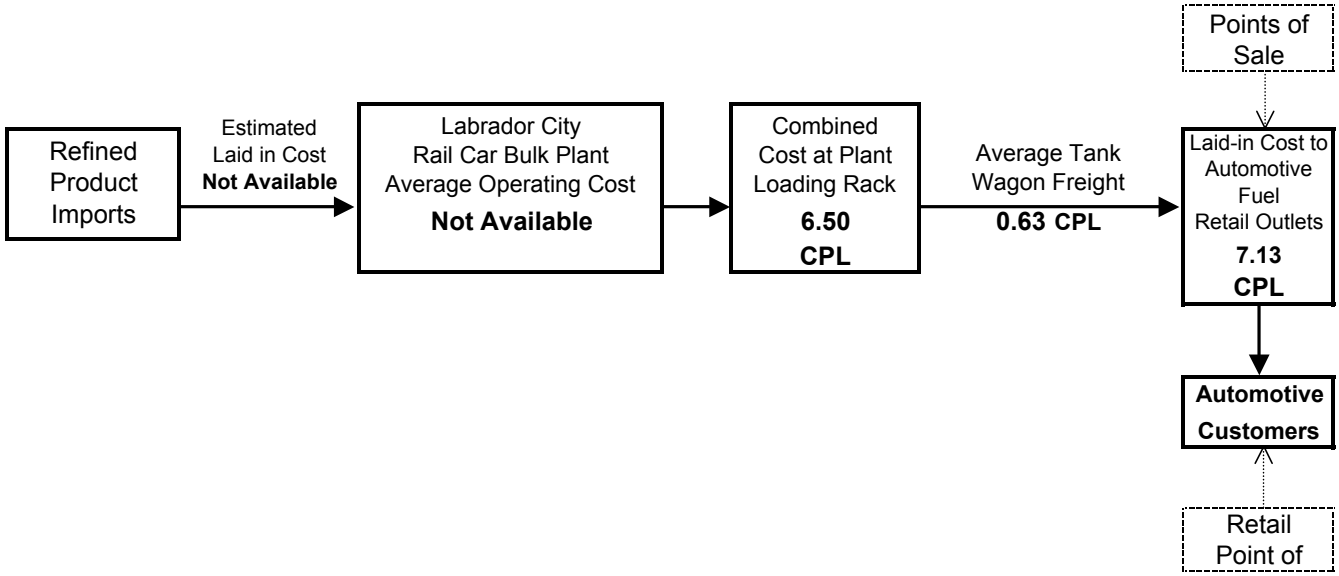


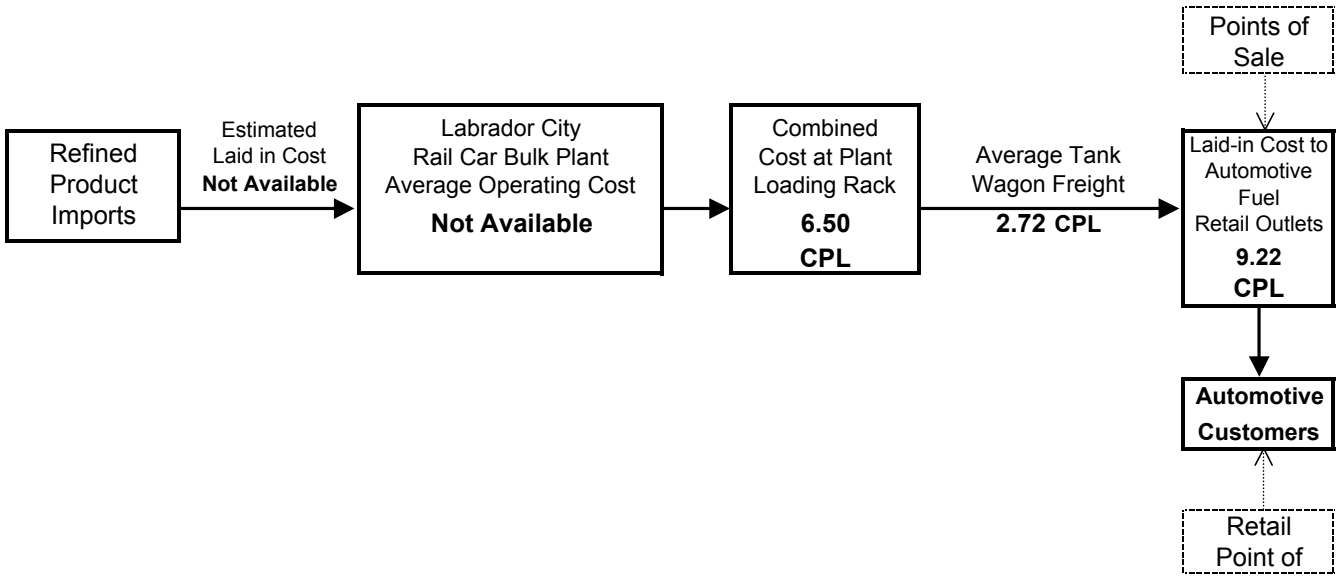
FIGURE 13a

SUPPLY CHAIN COST DIAGRAM

Retail Automotive Fuels

Zone 13a - Churchill Falls - Western Labrador

Product from Labrador City Rail Bulk Plant



APPENDIX F

FIGURE 13a

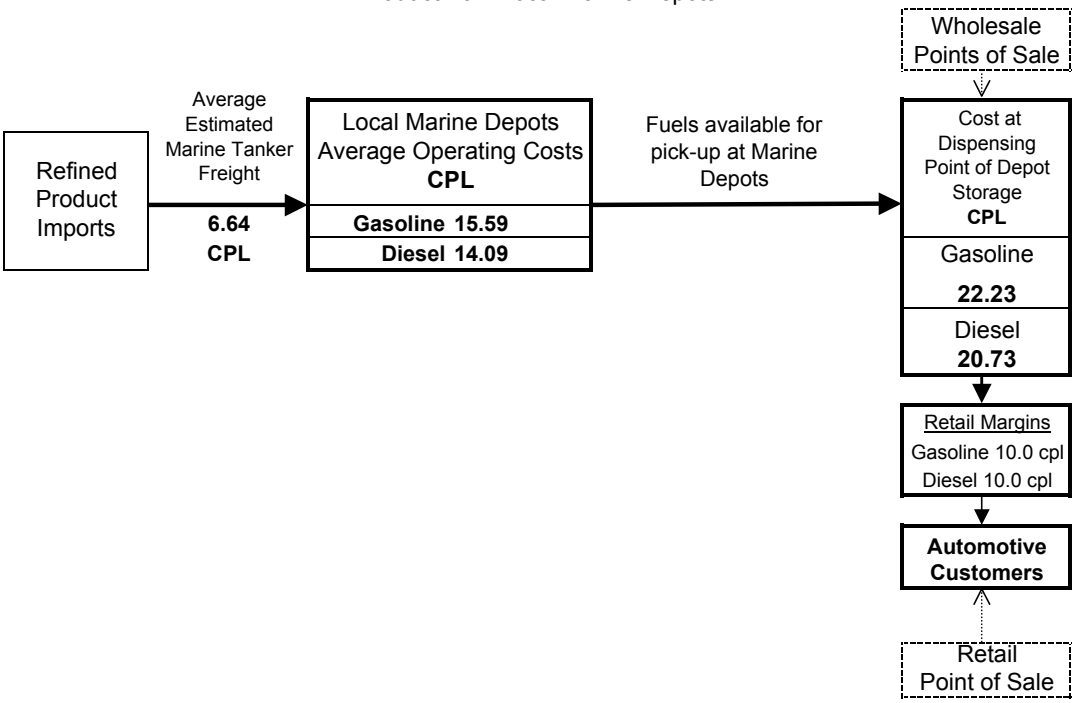
FIGURE 14

SUPPLY CHAIN COST DIAGRAM

Retail Automotive Fuels

Zone 14 - Labrador Coast North - (Isolated Communities)

Product from Local Marine Depots



APPENDIX G

Table G-1

Full Load (38,000 litre) T/T Distillate Deliveries to Bulk Plants

Source Terminal	38,000 Litres Full Trailer Loads Bulk Plant Location	Existing PPPC Zone	Distance One Way Kms	Calculated Total Trip Cost T/T Rate To Bulk Plant CPL	Diesel Fuel Surcharge on Rate at 7%	Total Calculated Delivery Rates Including DFS CPL
Holyrood	Aquaforte	1	79	1.047	*0.0733*	**1.120**
Holyrood	Harbour Grace	1	52	0.789	*0.0552*	**0.844**
Holyrood	*Placentia*	1	82	0.981	*0.0687*	***1.050***
Holyrood	Marystown	2	256	2.174	*0.1522*	**2.326**
Holyrood	Lethbridge	2	171	1.454	*0.1018*	**1.556**
Holyrood	*Clarenville*	2	142	1.239	*0.0868*	***1.326***
Holyrood	Bonavista	2	252	2.031	*0.1421*	**2.173**
Holyrood	Gander	*3*	286	2.089	*0.1463*	**2.236**
Holyrood	Fogo via Ferry at Farewell	3b	414	4.875	*0.3412*	**5.216**
Holyrood	Pool's Cove Crossroads	4	529	3.732	*0.2612*	**3.993**
St. John's	Bay Roberts	1	84	0.976	*0.0683*	**1.044**
St. John's	Harbour Grace	1	97	1.052	*0.0736*	**1.125**
St. John's	Grand Bank	*2*	335	2.711	*0.1897*	**2.900**
Come By Chance	Donovans - Mount Pearl	1	142	1.231	*0.0862*	**1.317**
Come By Chance	*Bell Island via Ferry Portugal Cove*	1a	156	1.967	*0.1377*	***2.105***
Come By Chance	*Carbonear*	1	116	1.129	*0.0790*	***1.208***
Come By Chance	Marystown	*2*	153	1.497	*0.1048*	**1.602**
Come By Chance	Bonavista	*2*	150	1.404	*0.0983*	**1.502**
Come By Chance	Gander	*3*	184	1.446	*0.1012*	**1.547**
Come By Chance	Bishops Falls	*3*	264	1.939	*0.1357*	**2.075**
Come By Chance	Fogo via Ferry at Farewell	3b	297	4.128	*0.2890*	**4.417**
Come By Chance	Pasadena	*6*	512	3.369	*0.2359*	**3.605**
Come By Chance	Stephenville	*7*	619	3.953	*0.2767*	**4.229**
Corner Brook	Springdale	5	180	1.522	*0.1065*	**1.628**
Corner Brook	Stephenville	7	82	0.933	*0.0653*	**0.998**
Corner Brook	Port aux Basques	7	219	1.778	*0.1245*	**1.902**
Corner Brook	Burgeo	7	213	1.919	*0.1343*	**2.053**
Corner Brook	*Rocky Harbour & Area*	8	122	1.241	*0.0868*	***1.327***
Corner Brook	Port au Choix Area	9	282	2.463	*0.1724*	**2.636**
Corner Brook	*St. Anthony*	9	472	3.995	*0.2796*	**4.274**
St. Barbe	St. Anthony	9	125	1.441	*0.1008*	**1.541**
OTHER Possible						
Lewisporte	*Gander*	3	60	0.828	*0.0579*	**0.886**
Lewisporte	*Pool's Cove Crossroads*	4	212	1.900	*0.1330*	**2.033**

APPENDIX G

Table G-2

Full Load T/T Distillates to Bulk Plant
Rate based on Full Load to Bulk Plant - Harbour Grace

38000	Litres per Load		
PPPC Zone	Source Terminal	Units	Calculations
1 - Harbour Grace (Bulk Plant)	**St. John's**		
Distance One Way		kms	97
Additional kms to reach edge of Supplying Terminal City/Town		kms	10
Equivalent Distance One-Way on TCH Class A Paved Roads		kms	69
Equivalent Distance One-Way on Good Quality Class B Paved Roads		kms	28
Equivalent Distance One-Way on other Local Class C Road Systems		kms	0
Equivalent Distance One-Way in City/Town Road Systems		kms	10
Check Distance		#	0
Assumed Number of Drops		#	1
Loading Time (Full Load)		hrs	1.0
Total Drop Time - Bulk Plant Pumping		hrs	1.0
Ferry Loading-Crossing-Return Trip Time		hrs	N/A
Overnight Trip due Ferry Crossing		hrs	N/A
Driver Break Times and Other Delays		hrs	0.25
Total Non Travel Time with Vehicle		hrs	2.25
Total Non-Travel Time With or Without Vehicle		hrs	2.25
Class A Road Travel @ 90 kms/hr		hrs	0.8
Class B Road Travel @ 65 kms/hr		hrs	0.4
Class C Road Travel @ 40 kms/hr		hrs	0.0
City/Town C Road Travel @ 30 kms/hr		hrs	0.3
Trip Travel Time each way		hrs	1.5
Total travel Time Return Trip		hrs	3.1
Total Trip Hours Return		hrs	5.3
Tractor Trailer Positioning Cost		$	$50.00
Non-Travel Cost @ $50.00 per hour		$	$112.50
Non-Travel Cost Overnight at Motel for Driver $20 / Hr + $100		$	N/A
Return Trip on Good TCH Class A Highway @ $1.00 per km		$	$138.00
Return Trip on Class B Paved Highway @ $1.20 per km		$	$67.20
Return Trip on Class C Highway Roads @ $1.40 per km		$	$0.00
Return Trip on City/Town Roads @ $ 1.60 per km		$	$32.00
Total Trip Travel Costs		$	$237.20
Ferry Crossing Cost - Return Trip		$	N/A
Total Trip Cost to Retail Outlet on Island and Return		$	$399.70
Calculated Total Trip Cost		CPL	1.052
Diesel Fuel Surcharge at Rate		7%	*0.0736*
Total Calculated part Load Delivery Rates Including DFS		CPL	**1.125**

APPENDIX G

Table G-3

Full Load T/T Distillate Deliveries to Bulk Plants

Rate based on Full Load to Bulk Plant - Fogo Island

38000	Litres per Load		
PPPC Zone	Source Terminal	Units	Load on Ferry at
3b - Fogo Island (Bulk Plant)	**Holyrood**		**Farewell**
Distance One Way		kms	414
Additional kms to reach edge of Supplying Terminal City/Town		kms	5
Equivalent Distance One-Way on TCH Class A Paved Roads		kms	281
Equivalent Distance One-Way on Good Quality Class B Paved Roads		kms	44
Equivalent Distance One-Way on other Local Class C Road Systems		kms	60
Equivalent Distance One-Way in City/Town Road Systems including On-Island		kms	34
Check Distance		#	0
Assumed Number of Drops		#	1
Loading Time (Full Load)		hrs	1.0
Total Drop Time - Bulk Plant Pumping		hrs	1.0
Ferry Loading-Crossing-Return Trip Time		hrs	1.5
Driver Break Times and Other Delays		hrs	2.0
Total Non Travel Time with Vehicle		hrs	**5.5**
Overnight Trip due Ferry Crossing at 7:45 am Sunday Morning		hrs	***9.0***
Class A Road Travel @ 90 kms/hr		hrs	3.1
Class B Road Travel @ 65 kms/hr		hrs	0.7
Class C Road Travel @ 40 kms/hr		hrs	1.5
City/Town C Road Travel @ 30 kms/hr		hrs	1.1
Trip Travel Time each way		hrs	6.4
Total travel Time Return Trip		hrs	12.9
Total Trip Hours Return		hrs	**27.4**
Tractor Trailer Positioning Cost		$	$50.00
Non-Travel Cost @ $50.00 per hour		$	$275.00
Non-Travel Cost Overnight at Motel for Driver $20 / Hr + $100		$	$280.00
Return Trip on Good TCH Class A Highway @ $1.00 per km		$	$562.00
Return Trip on Class B Paved Highway @ $1.20 per km		$	$105.60
Return Trip on Class C Highway Roads @ $1.40 per km		$	$168.00
Return Trip on City/Town Roads @ $ 1.60 per km		$	$108.80
Ferry Crossing Cost - Return Trip*(see Note)		$	$303.00
Trip Travel Cost		$	$944.40
Total Trip Cost to Bulk Plant on Island and Return		$	$1,852.40
Calculated Total Trip Cost		CPL	4.875
Diesel Fuel Surcharge at Rate		7%	0.341
Total Calculated part Load Delivery Rates Including DFS		CPL	**5.216**

* Ferry for dangerous goods trip leaves Farewell on 2nd and 4th Sunday of Month at 7:45 am. Hence TT has to be at Farwell ready to load at 7:00 am on the particular Sunday chosen. This means overnighting for driver at Lewisporte or some other local community. Ferry cost for TT is $146.00 each way plus $5.50 each way for driver.

APPENDIX G

Table G-4

Full Load T/T Distillates to Bulk Plant
Rate based on Full Load to Bulk Plant - Springdale

38000	Litres per Load		
PPPC Zone	Source Terminal	Units	Calculations
1 - Springdale (Bulk Plant)	**Corner Brook**		
Distance One Way		kms	180
Additional kms to reach edge of Supplying Terminal City/Town		kms	7
Equivalent Distance One-Way on TCH Class A Paved Roads		kms	142
Equivalent Distance One-Way on Good Quality Class B Paved Roads		kms	24
Equivalent Distance One-Way on other Local Class C Road Systems		kms	14
Equivalent Distance One-Way in City/Town Road Systems		kms	7
Check Distance		#	0
Assumed Number of Drops		#	1
Loading Time (Full Load)		hrs	1.0
Total Drop Time - Bulk Plant Pumping		hrs	1.0
Ferry Loading-Crossing-Return Trip Time		hrs	N/A
Overnight Trip due Ferry Crossing		hrs	N/A
Driver Break Times and Other Delays		hrs	0.50
Total Non Travel Time with Vehicle		hrs	2.50
Total Non-Travel Time With or Without Vehicle		hrs	2.50
Class A Road Travel @ 90 kms/hr		hrs	1.6
Class B Road Travel @ 65 kms/hr		hrs	0.4
Class C Road Travel @ 40 kms/hr		hrs	0.4
City/Town C Road Travel @ 30 kms/hr		hrs	0.2
Trip Travel Time each way		hrs	2.5
Total travel Time Return Trip		hrs	5.1
Total Trip Hours Return		hrs	7.6
Tractor Trailer Positioning Cost		$	$50.00
Non-Travel Cost @ $50.00 per hour		$	$125.00
Non-Travel Cost Overnight at Motel for Driver $20 / Hr + $100		$	N/A
Return Trip on Good TCH Class A Highway @ $1.00 per km		$	$284.00
Return Trip on Class B Paved Highway @ $1.20 per km		$	$57.60
Return Trip on Class C Highway Roads @ $1.40 per km		$	$39.20
Return Trip on City/Town Roads @ $ 1.60 per km		$	$22.40
Total Trip Travel Costs $			$403.20
Ferry Crossing Cost - Return Trip		$	N/A
Total Trip Cost to Bulk Plant and Return		$	$578.20
Calculated Total Trip Cost		CPL	1.522
Diesel Fuel Surcharge at Rate		7%	*0.1065*
Total Calculated part Load Delivery Rates Including DFS		CPL	**1.628**

APPENDIX-H

TABLE H-1

Home Heat Deliveries via Tank Wagon - Estimated Costs

Home Heat operation Based on 300 days per year operational availability

Tandem Axle Tank Wagon - 20,000 Litres Capacity
Delivery Cost Per Annum and per Day

	Estimated	Assumed	Cost per	Cost Per
Direct Operating Expenses	**$/Annum**	**Days**	**$/Day**	**$/Day**
Driver salary and benefits	$35,900	300	$120	$18
Helper salary and benefits	8,300	300	$28	$0
Interest- Vehicle financing	19,500	300	$65	$65
Depreciation- Vehicle*	34,000	300	$113	$113
Fuel consumed	12,000	300	$40	$0
Repairs and maintenance	12,000	300	$40	$8
Insurance	5,000	300	$17	$16
Licence	1,000	300	$3	$3
Miscellaneous	300	300	$1	$0
Annual Operating Cost	**$128,000**	300	**$427**	**$223**
Equivalent Cost per Hour - 8 hour working day			**$53.33**	**$27.91**

*Based on a tandem at a cost of $195,000 less an estimated residual value of $25,000 after 5 years with straight line depreciation.

Single Axle Tank Wagon - 11,500 Litres Capacity
Delivery Cost Per Annum and per Day

	Cost	Operating	Average	day when
Direct Operating Expenses	**$/Annum**	**Days**	**$/Day**	**$/Day**
Driver salary and benefits	$35,900	300	$120	$18
Helper salary and benefits	8,300	300	$28	$0
Interest- Vehicle financing	16,000	300	$53	$53
Depreciation- Vehicle**	28,000	300	$93	$93
Fuel consumed	11,500	300	$38	$0
Repairs and maintenance	12,000	300	$40	$8
Insurance	5,000	300	$17	$17
Licence	1,000	300	$3	$3
Miscellaneous	300	300	$1	$0
	$118,000	300	**$393**	**$193**
Equivalent Cost per Hour - 8 hour working day			**$49.17**	**$24.08**

**Based on a single-axle at a cost of $160,000 less an estimated residual value of $20,000 after 5 years with straight line depreciation..

APPENDIX H

Table H1-ANE

Tank Wagon Delivery Cost Model - Home Heating Fuel

HH Pricing Zone 1 Avalon North East - (Base Zone)

Census Population -1991	176,346	Loading Tank Wagon at type Facility	**Terminal**
Census Population -1996	178,411	Average Kilometres for return trip in Zone	**55**
Census Population -2001	176,778	Average travel speed - Winter period (Km/Hr)	**30**
Estimated Households and Heating Method - 2001		Average travel speed - Remaining Months (Km/Hr)	**30**
Electric	51,606	Average annual drop per household delivery (Litres)	**495**
Oil/Other	22,066	Working Hours per Day per T/W - Winter Period	**10**
Total	73,671	Working Hours per Day per T/W - Remaining Months	**8**
Avg Population per Household 2001	**2.38**	Annual Operation Cost - Singe Axle Tank Wagon	$118,000
Estimated Percent Homes with Oil Heat	**30.0%**	Annual Operation Cost - Tandem Axle Tank Wagon	$128,000
Est Avg Vol Per Year Per Household Using Oil	**3,400**	Idle Time Cost per day - Single Axle Tank-Wagon	**$193**
Estimated Total Heating Fuel Per Year for Zone (Litres)	**75,023,559**	Idle Time Cost per day - Tandem Axle Tank-Wagon	**$223**

Average Cost of T/W Deliveries CPL	
HH Pricing Zone 1 Avalon North East	**3.42**

HH Pricing Zone 1 Avalon North East

	A. Use all Single Axle Tank Wagons			B. Use all Tandem Axle Tank Wagons		
	Winter Dec-Mar 61% Annual Volume	**Remaining Months**	**Full Year Avg/Totals**	**Winter Dec-Mar 61% Annual Volume**	**Remaining Months**	**Full Year Avg/Totals**
Total Volume by Zone for Heating Fuel for Year (Litres)	45,764,371	29,259,188	75,023,559	45,764,371	29,259,188	75,023,559
Average Drop Amount per Household (Litres)	**525**	**448**	**495**	**525**	**448**	**495**
Capacity per Vehicle (Litres)	**11,500**	**11,500**	**11,500**	**20,000**	**20,000**	**20,000**
Loading Time per Vehicle Load (Minutes)	27	24	25.33	35	32	33.83
Average # Drops Per Vehicle Load	21.9	25.7	23.2	38.1	44.6	40.4
Estimate of Kms Traveled Per Return Trip for Zone	**55**	**55**	**55**	**55**	**55**	**55**
Time for Each Drop (Mins)	20	15	**18**	20	15	**18**
Total Drop Time per Load (Minutes)	438	385	419	762	670	729
Average Speed Attained for Travel Time (kms /hr)	**30**	**30**	**30**	**30**	**30**	**30**
Total Travel Time per Load (Minutes)	110	110	110	110	110	110
Total Average Delivery Time for Each Load (Hours)	9.6	8.6	9.2	15.1	13.5	14.6
Average Delivery Rate Litres/Hr	1201	1331	1244	1323	1478	1374
Volume Delivered During Period for area	45,764,371	29,259,188	75,023,559	45,764,371	29,259,188	75,023,559
# of Working Days during Period	100	200	300	100	200	300
Average Volume Delivered per Working Day for period	457,644	146,296	250,079	457,644	146,296	250,079
Average Required Total Trips per Day	39.8	12.7		22.9	7.3	
Total Hours Required per day During Period	381.1	109.9		345.9	99.0	
Assumed Working Hours per Day per Vehicle	**10.0**	**8.0**		**10.0**	**8.0**	
Indicated Number of Vehicles Required	38.11	13.74		34.59	12.37	
Average Volume delivered by each TW for period	1,200,845	2,129,036		1,323,182	2,365,572	
Average Volume delivered by each TW per day.	12,008	10,645		13,232	11,828	
Actual Number of Vehicles required to be on hand	39	14		35	13	
Number of vehicles required full-time	38	13		34	12	
Volume delivered by full time vehicle(s)	45,632,122	27,677,463		44,988,186	28,386,870	
Volume left to be delivered by part time Vehicle	132,249	1,581,725		776,185	872,318	
Part time Operation vehicle (Days)	11	149		59	74	
Idle time for part time vehicles) -(Days)	89	51		41	126	
Full Time Cost per vehicle per Day	$393	$393		$427	$427	
Idle Time Cost per vehicle per Day	$193	$193		$223	$223	
Cost of Full Time Vehicles for period	$1,494,667	$1,022,667		$1,450,667	$1,024,000	
Cost of Part Time Vehicles for period	$4,332	$58,444		$25,028	$31,467	
Cost of Idle Time for part Time Vehicles for period	$17,174	$0		$9,219	$0	
Total Cost for vehicles for period	$1,516,173	$1,081,111	$2,597,283	$1,484,914	$1,055,467	$2,540,381
Cost per Period based on required Vehicles (CPL)	**3.31**	**3.69**	**3.46**	**3.24**	**3.61**	**3.39**

Average Tandem & Single Axle TWs	**3.42**

APPENDIX H

Table H1-ANW

Tank Wagon Delivery Cost Model - Home Heating Fuel

HH Pricing Zone 1 - Avalon North West

Census Population -1991	42,778	Loading Tank Wagon at type Facility	**Bulk Plant**
Census Population -1996	41,915	Average Kilometres for return trip in Zone	**100**
Census Population -2001	38,849	Average travel speed - Winter period (Km/Hr)	**30**
Estimated Households and Heating Method - 2001		Average travel speed - Remaining Months (Km/Hr)	**50**
Electric	9,010	Average annual drop per household delivery (Litres)	**422**
Oil/Other	7,335	Working Hours per Day per T/W - Winter Period	**10**
Total	16,345	Working Hours per Day per T/W - Remaining Months	**8**
Avg Population per Household 2001	**2.4**	Annual Operation Cost - Singe Axle Tank Wagon	$118,000
Estimated Percent Homes with Oil Heat	**44.9%**	Annual Operation Cost - Tandem Axle Tank Wagon	$128,000
Est Avg Vol Per Year Per Household Using Oil	**3,060**	Idle Time Cost per day - Single Axle Tank-Wagon	**$193**
Estimated Total Heating Fuel Per Year for Zone (Litres)	**22,444,997**	Idle Time Cost per day - Tandem Axle Tank-Wagon	**$223**

Average Cost of T/W Deliveries CPL	
HH Pricing Zone 1 - Avalon North West	**4.19**

HH Pricing Zone 1 - Avalon North West

	A. Use all Single Axle Tank Wagons			B. Use all Tandem Axle Tank Wagons		
	Winter Dec-Mar 61% Annual Volume	**Remaining Months**	**Full Year Avg/Totals**	**Winter Dec-Mar 61% Annual Volume**	**Remaining Months**	**Full Year Avg/Totals**
Total Volume by Zone for Heating Fuel for Year (Litres)	13,691,448	8,753,549	22,444,997	13,691,448	8,753,549	22,444,997
Average Drop Amount per Household (Litres)	**447**	**382**	**422**	**447**	**382**	**422**
Capacity per Vehicle (Litres)	**11,500**	**11,500**	**11,500**	**20,000**	**20,000**	**20,000**
Loading Time per Vehicle Load (Minutes)	32	30	30.72	40	38	39.22
Average # Drops Per Vehicle Load	25.7	30.1	27.3	44.7	52.4	47.4
Estimate of Kms Traveled Per Return Trip for Zone	**100**	**100**	**100**	**100**	**100**	**100**
Time for Each Drop (Mins)	20	15	**18**	20	15	**18**
Total Drop Time per Load (Minutes)	515	452	492	895	785	855
Average Speed Attained for Travel Time (kms /hr)	**30**	**50**	**37.8**	**30**	**50**	**37.8**
Total Travel Time per Load (Minutes)	200	120	159	200	120	159
Total Average Delivery Time for Each Load (Hours)	12.4	10.0	11.4	18.9	15.7	17.6
Average Delivery Rate Litres/Hr	925	1148	1013	1057	1272	1139
Volume Delivered During Period for area	13,691,448	8,753,549	22,444,997	13,691,448	8,753,549	22,444,997
# of Working Days during Period	100	200	300	100	200	300
Average Volume Delivered per Working Day for period	136,914	43,768	74,817	136,914	43,768	74,817
Average Required Total Trips per Day	11.9	3.8		6.8	2.2	
Total Hours Required per day During Period	148.0	38.1		129.5	34.4	
Assumed Working Hours per Day per Vehicle	**10.0**	**8.0**		**10.0**	**8.0**	
Indicated Number of Vehicles Required	14.80	4.77		12.95	4.30	
Average Volume delivered by each TW for period	924,882	1,836,722		1,057,404	2,035,321	
Average Volume delivered by each TW per day.	9,249	9,184		10,574	10,177	
Actual Number of Vehicles required to be on hand	15	5		13	5	
Number of vehicles required full-time	14	4		12	4	
Volume delivered by full time vehicle(s)	12,948,343	7,346,890		12,688,850	8,141,283	
Volume left to be delivered by part time Vehicle	743,105	1,406,659		1,002,598	612,266	
Part time Operation vehicle (Days)	80	153		95	60	
Idle time for part time vehicles) -(Days)	20	47		5	140	
Full Time Cost per vehicle per Day	$393	$393		$427	$427	
Idle Time Cost per vehicle per Day	$193	$193		$223	$223	
Cost of Full Time Vehicles for period	$550,667	$314,667		$512,000	$341,333	
Cost of Part Time Vehicles for period	$31,603	$60,247		$40,455	$25,670	
Cost of Idle Time for part Time Vehicles for period	$3,793	$0		$1,156	$0	
Total Cost for vehicles for period	$586,063	$374,914	$960,976	$553,611	$367,003	$920,614
Cost per Period based on required Vehicles (CPL)	**4.28**	**4.28**	**4.28**	**4.04**	**4.19**	**4.10**

Average Tandem & Single Axle TWs	**4.19**

APPENDIX H

Table H1-ASW

Tank Wagon Delivery Cost Model - Home Heating Fuel

HH Pricing Zone 1- Avalon South West			
Census Population -1991	12,809	Loading Tank Wagon at type Facility	**Bulk Plant**
Census Population -1996	11,777	Average Kilometres for return trip in Zone	**136**
Census Population -2001	10,432	Average travel speed - Winter period (Km/Hr)	**45**
Estimated Households and Heating Method - 2001		Average travel speed - Remaining Months (Km/Hr)	**65**
Electric	2,101	Average annual drop per household delivery (Litres)	**350**
Oil/Other	2,114	Working Hours per Day per T/W - Winter Period	**10**
Total	4,215	Working Hours per Day per T/W - Remaining Months	**8**
Avg Population per Household 2001	**2.5**	Annual Operation Cost - Singe Axle Tank Wagon	$118,000
Estimated Percent Homes with Oil Heat	**52.3%**	Annual Operation Cost - Tandem Axle Tank Wagon	$128,000
Est Avg Vol Per Year Per Household Using Oil	**3,060**	Idle Time Cost per day - Single Axle Tank-Wagon	**$193**
Estimated Total Heating Fuel Per Year for Zone (Litres)	**6,468,840**	Idle Time Cost per day - Tandem Axle Tank-Wagon	**$223**

Average Cost of T/W Deliveries CPL HH Pricing Zone 1- Avalon South West	**4.95**

HH Pricing Zone 1- Avalon South West

	A. Use all Single Axle Tank Wagons			B. Use all Tandem Axle Tank Wagons		
	Winter Dec-Mar 61% Annual Volume	**Remaining Months**	**Full Year Avg/Totals**	**Winter Dec-Mar 61% Annual Volume**	**Remaining Months**	**Full Year Avg/Totals**
Total Volume by Zone for Heating Fuel for Year (Litres)	3,945,992	2,522,848	6,468,840	3,945,992	2,522,848	6,468,840
Average Drop Amount per Household (Litres)	**371**	**317**	**350**	**371**	**317**	**350**
Capacity per Vehicle (Litres)	**11,500**	**11,500**	**11,500**	**20,000**	**20,000**	**20,000**
Loading Time per Vehicle Load (Minutes)	32	30	30.72	40	38	39.22
Average # Drops Per Vehicle Load	31.0	36.3	32.9	53.9	63.1	57.1
Estimate of Kms Traveled Per Return Trip for Zone	**136**	**136**	**136**	**136**	**136**	**136**
Time for Each Drop (Mins)	20	15	**18**	20	15	**18**
Total Drop Time per Load (Minutes)	620	544	593	1078	946	1031
Average Speed Attained for Travel Time (kms /hr)	**45**	**65**	**52.8**	**45**	**65**	**52.8**
Total Travel Time per Load (Minutes)	181	126	155	181	126	155
Total Average Delivery Time for Each Load (Hours)	13.9	11.7	13.0	21.7	18.5	20.4
Average Delivery Rate Litres/Hr	829	987	887	923	1081	979
Volume Delivered During Period for area	3,945,992	2,522,848	6,468,840	3,945,992	2,522,848	6,468,840
# of Working Days during Period	100	200	300	100	200	300
Average Volume Delivered per Working Day for period	39,460	12,614	21,563	39,460	12,614	21,563
Average Required Total Trips per Day	3.4	1.1		2.0	0.6	
Total Hours Required per day During Period	47.6	12.8		42.7	11.7	
Assumed Working Hours per Day per Vehicle	**10.0**	**8.0**		**10.0**	**8.0**	
Indicated Number of Vehicles Required	4.76	1.60		4.27	1.46	
Average Volume delivered by each TW for period	828,551	1,578,942		923,432	1,729,869	
Average Volume delivered by each TW per day.	8,286	7,895		9,234	8,649	
Actual Number of Vehicles required to be on hand	5	2		5	2	
Number of vehicles required full-time	4	1		4	1	
Volume delivered by full time vehicle(s)	3,314,203	1,578,942		3,693,727	1,729,869	
Volume left to be delivered by part time Vehicle	631,789	943,906		252,265	792,979	
Part time Operation vehicle (Days)	76	120		27	92	
Idle time for part time vehicles) -(Days)	24	80		73	108	
Full Time Cost per vehicle per Day	$393	$393		$427	$427	
Idle Time Cost per vehicle per Day	$193	$193		$223	$223	
Cost of Full Time Vehicles for period	$157,333	$78,667		$170,800	$85,400	
Cost of Part Time Vehicles for period	$29,993	$47,028		$11,665	$39,148	
Cost of Idle Time for part Time Vehicles for period	$4,583	$0		$16,208	$0	
Total Cost for vehicles for period	$191,909	$125,694	$317,604	$198,673	$124,548	$323,221
Cost per Period based on required Vehicles (CPL)	**4.86**	**4.98**	**4.91**	**5.03**	**4.94**	**5.00**

Average Tandem & Single Axle TWs	**4.95**

APPENDIX H

Table H1-ASE

Tank Wagon Delivery Cost Model - Home Heating Fuel

HH Pricing Zone 1 - Avalon South East

Census Population -1991	13,231	Loading Tank Wagon at type Facility	**Bulk Plant**
Census Population -1996	12,114	Average Kilometres for return trip in Zone	**155**
Census Population -2001	10,565	Average travel speed - Winter period (Km/Hr)	**40**
Estimated Households and Heating Method - 2001		Average travel speed - Remaining Months (Km/Hr)	**60**
Electric	1,605	Average annual drop per household delivery (Litres)	**350**
Oil/Other	2,157	Working Hours per Day per T/W - Winter Period	**10**
Total	3,763	Working Hours per Day per T/W - Remaining Months	**8**
Avg Population per Household 2001	**2.8**	Annual Operation Cost - Singe Axle Tank Wagon	$118,000
Estimated Percent Homes with Oil Heat	**57.3%**	Annual Operation Cost - Tandem Axle Tank Wagon	$128,000
Est Avg Vol Per Year Per Household Using Oil	**3,060**	Idle Time Cost per day - Single Axle Tank-Wagon	**$193**
Estimated Total Heating Fuel Per Year for Zone (Litres)	**6,601,044**	Idle Time Cost per day - Tandem Axle Tank-Wagon	**$223**

Average Cost of T/W Deliveries CPL HH Pricing Zone 1 - Avalon South East	**5.21**

HH Pricing Zone 1 - Avalon South East

	A. Use all Single Axle Tank Wagons			**B. Use all Tandem Axle Tank Wagons**		
	Winter Dec-Mar 61% Annual Volume	**Remaining Months**	**Full Year Avg/Totals**	**Winter Dec-Mar 61% Annual Volume**	**Remaining Months**	**Full Year Avg/Totals**
Total Volume by Zone for Heating Fuel for Year (Litres)	4,026,637	2,574,407	6,601,044	4,026,637	2,574,407	6,601,044
Average Drop Amount per Household (Litres)	**371**	**317**	**350**	**371**	**317**	**350**
Capacity per Vehicle (Litres)	**11,500**	**11,500**	**11,500**	**20,000**	**20,000**	**20,000**
Loading Time per Vehicle Load (Minutes)	32	30	30.72	40	38	39.22
Average # Drops Per Vehicle Load	31.0	36.3	32.9	53.9	63.1	57.1
Estimate of Kms Traveled Per Return Trip for Zone	**155**	**155**	**155**	**155**	**155**	**155**
Time for Each Drop (Mins)	20	15	**18**	20	15	**18**
Total Drop Time per Load (Minutes)	620	544	593	1078	946	1031
Average Speed Attained for Travel Time (kms /hr)	**40**	**60**	**47.8**	**40**	**60**	**47.8**
Total Travel Time per Load (Minutes)	233	155	195	233	155	195
Total Average Delivery Time for Each Load (Hours)	14.7	12.1	13.6	22.5	19.0	21.1
Average Delivery Rate Litres/Hr	781	947	843	888	1053	948
Volume Delivered During Period for area	4,026,637	2,574,407	6,601,044	4,026,637	2,574,407	6,601,044
# of Working Days during Period	100	200	300	100	200	300
Average Volume Delivered per Working Day for period	40,266	12,872	22,003	40,266	12,872	22,003
Average Required Total Trips per Day	3.5	1.1		2.0	0.6	
Total Hours Required per day During Period	51.6	13.6		45.3	12.2	
Assumed Working Hours per Day per Vehicle	**10.0**	**8.0**		**10.0**	**8.0**	
Indicated Number of Vehicles Required	5.16	1.70		4.53	1.53	
Average Volume delivered by each TW for period	780,591	1,515,102		888,450	1,685,138	
Average Volume delivered by each TW per day.	7,806	7,576		8,884	8,426	
Actual Number of Vehicles required to be on hand	6	2		5	2	
Number of vehicles required full-time	5	1		4	1	
Volume delivered by full time vehicle(s)	3,902,953	1,515,102		3,553,799	1,685,138	
Volume left to be delivered by part time Vehicle	123,684	1,059,306		472,837	889,269	
Part time Operation vehicle (Days)	16	140		53	106	
Idle time for part time vehicles) -(Days)	84	60		47	94	
Full Time Cost per vehicle per Day	$393	$393		$427	$427	
Idle Time Cost per vehicle per Day	$193	$193		$223	$223	
Cost of Full Time Vehicles for period	$196,667	$78,667		$170,800	$85,400	
Cost of Part Time Vehicles for period	$6,232	$55,001		$22,725	$45,067	
Cost of Idle Time for part Time Vehicles for period	$16,242	$0		$10,432	$0	
Total Cost for vehicles for period	$219,141	$133,668	$352,809	$203,957	$130,467	$334,424
Cost per Period based on required Vehicles (CPL)	**5.44**	**5.19**	**5.34**	**5.07**	**5.07**	**5.07**

Average Tandem & Single Axle TWs	**5.21**

APPENDIX H

Table H1-AS

Tank Wagon Delivery Cost Model - Home Heating Fuel

HH Pricing Zone 1 - Avalon South

Census Population -1991	26,040	Loading Tank Wagon at type Facility	**Bulk Plant**
Census Population -1996	23,891	Average Kilometres for return trip in Zone	**155**
Census Population -2001	20,997	Average travel speed - Winter period (Km/Hr)	**40**
Estimated Households and Heating Method - 2001		Average travel speed - Remaining Months (Km/Hr)	**60**
Electric	3,706	Average annual drop per household delivery (Litres)	**350**
Oil/Other	4,271	Working Hours per Day per T/W - Winter Period	**10**
Total	7,978	Working Hours per Day per T/W - Remaining Months	**8**
Avg Population per Household 2001	**2.6**	Annual Operation Cost - Singe Axle Tank Wagon	$118,000
Estimated Percent Homes with Oil Heat	**53.5%**	Annual Operation Cost - Tandem Axle Tank Wagon	$128,000
Est Avg Vol Per Year Per Household Using Oil	**3,060**	Idle Time Cost per day - Single Axle Tank-Wagon	**$193**
Estimated Total Heating Fuel Per Year for Zone (Litres)	**13,069,884**	Idle Time Cost per day - Tandem Axle Tank-Wagon	**$223**

Average Cost of T/W Deliveries CPL	
HH Pricing Zone 1 - Avalon South	**5.06**

HH Pricing Zone 1 - Avalon South

	A. Use all Single Axle Tank Wagons			**B. Use all Tandem Axle Tank Wagons**		
	Winter Dec-Mar 61% Annual Volume	**Remaining Months**	**Full Year Avg/Totals**	**Winter Dec-Mar 61% Annual Volume**	**Remaining Months**	**Full Year Avg/Totals**
Total Volume by Zone for Heating Fuel for Year (Litres)	7,972,629	5,097,255	13,069,884	7,972,629	5,097,255	13,069,884
Average Drop Amount per Household (Litres)	**371**	**317**	**350**	**371**	**317**	**350**
Capacity per Vehicle (Litres)	**11,500**	**11,500**	**11,500**	**20,000**	**20,000**	**20,000**
Loading Time per Vehicle Load (Minutes)	32	30	30.72	40	38	39.22
Average # Drops Per Vehicle Load	31.0	36.3	32.9	53.9	63.1	57.1
Estimate of Kms Traveled Per Return Trip for Zone	**155**	**155**	**155**	**155**	**155**	**155**
Time for Each Drop (Mins)	20	15	**18**	20	15	**18**
Total Drop Time per Load (Minutes)	620	544	593	1078	946	1031
Average Speed Attained for Travel Time (kms /hr)	**40**	**60**	**47.8**	**40**	**60**	**47.8**
Total Travel Time per Load (Minutes)	233	155	195	233	155	195
Total Average Delivery Time for Each Load (Hours)	14.7	12.1	13.6	22.5	19.0	21.1
Average Delivery Rate Litres/Hr	781	947	843	888	1053	948
Volume Delivered During Period for area	7,972,629	5,097,255	13,069,884	7,972,629	5,097,255	13,069,884
# of Working Days during Period	100	200	300	100	200	300
Average Volume Delivered per Working Day for period	79,726	25,486	43,566	79,726	25,486	43,566
Average Required Total Trips per Day	6.9	2.2		4.0	1.3	
Total Hours Required per day During Period	102.1	26.9		89.7	24.2	
Assumed Working Hours per Day per Vehicle	**10.0**	**8.0**		**10.0**	**8.0**	
Indicated Number of Vehicles Required	10.21	3.36		8.97	3.02	
Average Volume delivered by each TW for period	780,591	1,515,102		888,450	1,685,138	
Average Volume delivered by each TW per day.	7,806	7,576		8,884	8,426	
Actual Number of Vehicles required to be on hand	11	4		9	4	
Number of vehicles required full-time	10	3		8	3	
Volume delivered by full time vehicle(s)	7,805,906	4,545,305		7,107,599	5,055,415	
Volume left to be delivered by part time Vehicle	166,723	551,950		865,030	41,839	
Part time Operation vehicle (Days)	21	73		97	5	
Idle time for part time vehicles) -(Days)	79	127		3	195	
Full Time Cost per vehicle per Day	$393	$393		$427	$427	
Idle Time Cost per vehicle per Day	$193	$193		$223	$223	
Cost of Full Time Vehicles for period	$393,333	$236,000		$341,333	$256,000	
Cost of Part Time Vehicles for period	$8,401	$28,658		$41,542	$2,119	
Cost of Idle Time for part Time Vehicles for period	$15,178	$0		$588	$0	
Total Cost for vehicles for period	$416,912	$264,658	$681,570	$383,463	$258,119	$641,582
Cost per Period based on required Vehicles (CPL)	**5.23**	**5.19**	**5.21**	**4.81**	**5.06**	**4.91**

Average Tandem & Single Axle TWs	**5.06**

APPENDIX H

Table H-1a

Tank Wagon Delivery Cost Model - Home Heating Fuel

HH Pricing Zone 1a - Bell Island

Census Population -1991	4,185
Census Population -1996	3,596
Census Population -2001	3,078
Estimated Households and Heating Method - 2001	
Electric	698
Oil/Other	716
Total	1,414
Avg Population per Household 2001	**2.2**
Estimated Percent Homes with Oil Heat	**50.6%**
Est Avg Vol Per Year Per Household Using Oil	**3,450**
Estimated Total Heating Fuel Per Year for Zone (Litres)	**2,470,200**

Assuming Deliveries from Bulk Plant on Bell Island

	Bulk Plant
Loading Tank Wagon at type Facility	
Average Kilometres for return trip in Zone	**12**
Average travel speed - Winter period (Km/Hr)	**30**
Average travel speed - Remaining Months (Km/Hr)	**50**
Average annual drop per household delivery (Litres)	**400**
Working Hours per Day per T/W - Winter Period	**10**
Working Hours per Day per T/W - Remaining Months	**8**
Annual Operation Cost - Singe Axle Tank Wagon	$118,000
Annual Operation Cost - Tandem Axle Tank Wagon	$128,000
Idle Time Cost per day - Single Axle Tank-Wagon	**$193**
Idle Time Cost per day - Tandem Axle Tank-Wagon	**$223**

Average Cost of T/W Deliveries CPL HH Pricing Zone 1a - Bell Island	**3.82**

HH Pricing Zone 1a - Bell Island

	A. Use all Single Axle Tank Wagons			**B. Use all Tandem Axle Tank Wagons**		
	Winter Dec-Mar 61% Annual Volume	**Remaining Months**	**Full Year Avg/Totals**	**Winter Dec-Mar 61% Annual Volume**	**Remaining Months**	**Full Year Avg/Totals**
Total Volume by Zone for Heating Fuel for Year (Litres)	1,506,822	963,378	2,470,200	1,506,822	963,378	2,470,200
Average Drop Amount per Household (Litres)	**424**	**362**	**400**	**424**	**362**	**400**
Capacity per Vehicle (Litres)	**11,500**	**11,500**	**11,500**	**20,000**	**20,000**	**20,000**
Loading Time per Vehicle Load (Minutes)	32	30	30.72	40	38	39.22
Average # Drops Per Vehicle Load	27.1	31.8	28.8	47.2	55.2	50.0
Estimate of Kms Traveled Per Return Trip for Zone	**12**	**12**	**12**	**12**	**12**	**12**
Time for Each Drop (Mins)	20	15	**18**	20	15	**18**
Total Drop Time per Load (Minutes)	542	477	519	943	829	903
Average Speed Attained for Travel Time (kms /hr)	**30**	**50**	**37.8**	**30**	**50**	**37.8**
Total Travel Time per Load (Minutes)	24	14	19	24	14	19
Total Average Delivery Time for Each Load (Hours)	10.0	8.7	9.5	16.8	14.7	16.0
Average Delivery Rate Litres/Hr	1154	1326	1213	1191	1362	1249
Volume Delivered During Period for area	1,506,822	963,378	2,470,200	1,506,822	963,378	2,470,200
# of Working Days during Period	100	200	300	100	200	300
Average Volume Delivered per Working Day for period	15,068	4,817	8,234	15,068	4,817	8,234
Average Required Total Trips per Day	1.3	0.4		0.8	0.2	
Total Hours Required per day During Period	13.1	3.6		12.6	3.5	
Assumed Working Hours per Day per Vehicle	**10.0**	**8.0**		**10.0**	**8.0**	
Indicated Number of Vehicles Required	1.31	0.45		1.26	0.44	
Average Volume delivered by each TW for period	1,153,937	2,121,366		1,191,190	2,179,022	
Average Volume delivered by each TW per day.	11,539	10,607		11,912	10,895	
Actual Number of Vehicles required to be on hand	2	1		2	1	
Number of vehicles required full-time	1	0		1	0	
Volume delivered by full time vehicle(s)	1,153,937	0		1,191,190	0	
Volume left to be delivered by part time Vehicle	352,885	963,378	2,470,200	315,632	963,378	2,470,200
Part time Operation vehicle (Days)	31	84		26	48	
Idle time for part time vehicles) -(Days)	69	116		74	152	
Full Time Cost per vehicle per Day	$393	$393		$427	$427	
Idle Time Cost per vehicle per Day	$193	$193		$223	$223	
Cost of Full Time Vehicles for period	$39,333	$0		$42,667	$0	
Cost of Part Time Vehicles for period	$12,029	$32,950		$11,305	$20,552	
Cost of Idle Time for part Time Vehicles for period	$13,398	$0		$16,391	$0	
Total Cost for vehicles for period	$64,760	$32,950	$97,710	$70,363	$20,552	$90,915
Cost per Period based on required Vehicles (CPL)	**4.30**	**3.42**	**3.96**	**4.67**	**2.13**	**3.68**

Average Tandem & Single Axle TWs	**3.82**

APPENDIX H

Table H-2

Tank Wagon Delivery Cost Model - Home Heating Fuel

HH Pricing Zone 2 - Burin and Bonavista Peninsulas

Note: - Assumes there are Bulk Plants in each of the 3 Areas making up this zone.

Census Population -1991	61,110	Loading Tank Wagon at type Facility	**Bulk Plant**
Census Population -1996	58,634	Average Kilometres for return trip in Zone	**120**
Census Population -2001	51,933	Average travel speed - Winter period (Km/Hr)	**40**
Estimated Households and Heating Method - 2001		Average travel speed - Remaining Months (Km/Hr)	**65**
Electric	12,395	Average annual drop per household delivery (Litres)	**405**
Oil/Other	10,463	Working Hours per Day per T/W - Winter Period	**10**
Total	22,858	Working Hours per Day per T/W - Remaining Months	**8**
Avg Population per Household 2001	**2.3**	Annual Operation Cost - Singe Axle Tank Wagon	$118,000
Estimated Percent Homes with Oil Heat	**45.8%**	Annual Operation Cost - Tandem Axle Tank Wagon	$128,000
Est Avg Vol Per Year Per Household Using Oil	**3,042**	Idle Time Cost per day - Single Axle Tank-Wagon	**$193**
Estimated Total Heating Fuel Per Year for Zone (Litres)	**31,827,734**	Idle Time Cost per day - Tandem Axle Tank-Wagon	**$223**

Average Cost of T/W Deliveries CPL	
HH Pricing Zone 2 - Burin and Bonavista Peninsulas	**4.25**

HH Pricing Zone 2 - Burin and Bonavista Peninsulas	**A. Use all Single Axle Tank Wagons**			**B. Use all Tandem Axle Tank Wagons**		
	Winter Dec-Mar 61% Annual Volume	**Remaining Months**	**Full Year Avg/Totals**	**Winter Dec-Mar 61% Annual Volume**	**Remaining Months**	**Full Year Avg/Totals**
Total Volume by Zone for Heating Fuel for Year (Litres)	19,414,918	12,412,816	31,827,734	19,414,918	12,412,816	31,827,734
Average Drop Amount per Household (Litres)	**429**	**367**	**405**	**429**	**367**	**405**
Capacity per Vehicle (Litres)	**11,500**	**11,500**	**11,500**	**20,000**	**20,000**	**20,000**
Loading Time per Vehicle Load (Minutes)	32	30	30.72	40	38	39.22
Average # Drops Per Vehicle Load	26.8	31.3	28.4	46.6	54.5	49.4
Estimate of Kms Traveled Per Return Trip for Zone	**120**	**120**	**120**	**120**	**120**	**120**
Time for Each Drop (Mins)	20	15	**18**	20	15	**18**
Total Drop Time per Load (Minutes)	536	470	513	932	817	891
Average Speed Attained for Travel Time (kms /hr)	**40**	**65**	**49.75**	**40**	**65**	**49.75**
Total Travel Time per Load (Minutes)	180	111	145	180	111	145
Total Average Delivery Time for Each Load (Hours)	12.5	10.2	11.5	19.2	16.1	17.9
Average Delivery Rate Litres/Hr	923	1131	1003	1041	1242	1116
Volume Delivered During Period for area	19,414,918	12,412,816	31,827,734	19,414,918	12,412,816	31,827,734
# of Working Days during Period	100	200	300	100	200	300
Average Volume Delivered per Working Day for period	194,149	62,064	106,092	194,149	62,064	106,092
Average Required Total Trips per Day	16.9	5.4		9.7	3.1	
Total Hours Required per day During Period	210.4	54.9		186.4	50.0	
Assumed Working Hours per Day per Vehicle	**10.0**	**8.0**		**10.0**	**8.0**	
Indicated Number of Vehicles Required	21.04	6.86		18.64	6.25	
Average Volume delivered by each TW for period	922,916	1,808,957		1,041,304	1,987,150	
Average Volume delivered by each TW per day.	9,229	9,045		10,413	9,936	
Actual Number of Vehicles required to be on hand	22	7		19	7	
Number of vehicles required full-time	21	6		18	6	
Volume delivered by full time vehicle(s)	19,381,231	10,853,741		18,743,477	11,922,900	
Volume left to be delivered by part time Vehicle	33,687	1,559,075		671,441	489,917	
Part time Operation vehicle (Days)	4	172		64	49	
Idle time for part time vehicles) -(Days)	96	28		36	151	
Full Time Cost per vehicle per Day	$393	$381		$427	$427	
Idle Time Cost per vehicle per Day	$193	$193		$223	$223	
Cost of Full Time Vehicles for period	$826,000	$457,200		$768,000	$512,000	
Cost of Part Time Vehicles for period	$1,436	$65,674		$27,512	$21,038	
Cost of Idle Time for part Time Vehicles for period	$18,596	$0		$7,921	$0	
Total Cost for vehicles for period	$846,031	$522,874	$1,368,905	$803,433	$533,038	$1,336,471
Cost per Period based on required Vehicles (CPL)	**4.36**	**4.21**	**4.30**	**4.14**	**4.29**	**4.20**

Average Tandem & Single Axle TWs	**4.25**

APPENDIX H

Table H-3

Tank Wagon Delivery Cost Model - Home Heating Fuel

HH Pricing Zone 3 Central Newfoundland

Census Population -1991	81,698	Loading Tank Wagon at type Facility	**Terminal**
Census Population -1996	78,096	Kilometres for return trip in Zone	**167**
Census Population -2001	71,049	Average travel speed - Winter period (Km/Hr)	**50**
Estimated Households and Heating Method - 2001		Average travel speed - Remaining Months (Km/Hr)	**70**
Electric	9,110	Average annual drop per household delivery (Litres)	**400**
Oil/Other	14,988	Working Hours per Day per T/W - Winter Period	**10**
Total	24,098	Working Hours per Day per T/W - Remaining Months	**8**
Avg Population per Household 2001	**2.9**	Annual Operation Cost - Singe Axle Tank Wagon	$118,000
Estimated Percent Homes with Oil Heat	**62.2%**	Annual Operation Cost - Tandem Axle Tank Wagon	$128,000
Est Avg Vol Per Year Per Household Using Oil	**2,800**	Idle Time Cost per day - Single Axle Tank-Wagon	**$193**
Estimated Total Heating Fuel Per Year for Zone (Litres)	**41,967,185**	Idle Time Cost per day - Tandem Axle Tank-Wagon	**$223**

Average Cost of T/W Deliveries CPL HH Pricing Zone 3 Central Newfoundland	**4.41**

HH Pricing Zone 3 Central Newfoundland

	A. Use all Single Axle Tank Wagons			B. Use all Tandem Axle Tank Wagons		
	Winter Dec-Mar 61% Annual Volume	**Remaining Months**	**Full Year Avg/Totals**	**Winter Dec-Mar 61% Annual Volume**	**Remaining Months**	**Full Year Avg/Totals**
Total Volume by Zone for Heating Fuel for Year (Litres)	25,599,983	16,367,202	41,967,185	25,599,983	16,367,202	41,967,185
Average Drop Amount per Household (Litres)	**424**	**362**	**400**	**424**	**362**	**400**
Capacity per Vehicle (Litres)	**11,500**	**11,500**	**11,500**	**20,000**	**20,000**	**20,000**
Loading Time per Vehicle Load (Minutes)	27	24	25.33	35	32	33.83
Average # Drops Per Vehicle Load	27.1	31.8	28.8	47.2	55.2	50.0
Estimate of Kms Traveled Per Return Trip for Zone	**167**	**167**	**167**	**167**	**167**	**167**
Time for Each Drop (Mins)	20	15	**18**	20	15	**18**
Total Drop Time per Load (Minutes)	542	477	519	943	829	903
Average Speed Attained for Travel Time (kms /hr)	**50**	**70**	**57.8**	**50**	**70**	**57.8**
Total Travel Time per Load (Minutes)	200	143	173	200	143	173
Total Average Delivery Time for Each Load (Hours)	12.8	10.7	12.0	19.6	16.7	18.5
Average Delivery Rate Litres/Hr	897	1073	962	1018	1195	1081
Volume Delivered During Period for area	25,599,983	16,367,202	41,967,185	25,599,983	16,367,202	41,967,185
# of Working Days during Period	100	200	300	100	200	300
Average Volume Delivered per Working Day for period	256,000	81,836	139,891	256,000	81,836	139,891
Average Required Total Trips per Day	22.3	7.1		12.8	4.1	
Total Hours Required per day During Period	285.4	76.3		251.5	68.5	
Assumed Working Hours per Day per Vehicle	**10.0**	**8.0**		**10.0**	**8.0**	
Indicated Number of Vehicles Required	28.54	9.54		25.15	8.56	
Average Volume delivered by each TW for period	896,858	1,716,519		1,017,988	1,912,594	
Average Volume delivered by each TW per day.	8,969	8,583		10,180	9,563	
Actual Number of Vehicles required to be on hand	29	10		26	9	
Number of vehicles required full-time	28	9		25	8	
Volume delivered by full time vehicle(s)	25,112,015	15,448,669		25,449,691	15,300,753	
Volume left to be delivered by part time Vehicle	487,967	918,533		150,291	1,066,449	
Part time Operation vehicle (Days)	54	107		15	112	
Idle time for part time vehicles) -(Days)	46	93		85	88	
Full Time Cost per vehicle per Day	$393	$393		$427	$427	
Idle Time Cost per vehicle per Day	$193	$193		$223	$223	
Cost of Full Time Vehicles for period	$1,101,333	$708,000		$1,066,667	$682,667	
Cost of Part Time Vehicles for period	$21,401	$42,096		$6,299	$47,581	
Cost of Idle Time for part Time Vehicles for period	$8,799	$0		$19,008	$0	
Total Cost for vehicles for period	$1,131,533	$750,096	$1,881,629	$1,091,974	$730,248	$1,822,221
Cost per Period based on required Vehicles (CPL)	**4.42**	**4.58**	**4.48**	**4.27**	**4.46**	**4.34**

Average Tandem & Single Axle TWs	**4.41**

APPENDIX H

Table H-3a

Tank Wagon Delivery Cost Model - Home Heating Fuel

Delivered Direct to Zone from Gander Bulk Plant

HH Pricing Zone 3a - St. Brendan's Island

Ferry from Burnside-Return Rates: $5.50 Driver $106.00 T/W

FerryTrip 1 hour each way - Get Ferry at 9:15 am - return at 7:30 pm

Time available on Island for Drops 5 hrs 300 minutes

Census Population -1991	378	Loading Tank Wagon at type Facility	**Bulk Plant**
Census Population -1996	321	Average Kilometres for return trip in Zone	**204**
Census Population -2001	251	Average travel speed - Winter period (Km/Hr)	**60**
Estimated Households and Heating Method - 2001		Average travel speed - Remaining Months (Km/Hr)	**80**
Electric	17	Average annual drop per household delivery (Litres)	**400**
Oil/Other	68	Working Hours per Day per T/W - Winter Period	**12**
Total	85	Working Hours per Day per T/W - Remaining Months	**12**
Avg Population per Household 2001	**2.8**	Annual Operation Cost - Singe Axle Tank Wagon	$118,000
Estimated Percent Homes with Oil Heat	**65.0%**	Annual Operation Cost - Tandem Axle Tank Wagon	$128,000
Est Avg Vol Per Year Per Household Using Oil	**2,600**	**Average Cost of T/W Deliveries CPL**	
Estimated Total Heating Fuel Per Year for Zone (Litres)	**176,800**	**HH Pricing Zone 3a - St. Brendan's Island**	**7.49**
Load at Gander Bulk Plant	**6:30 am**	**Total Trip**	
Retrun to Gander at	**9:30 pm**	**15 Hours**	

Note: Not Feasible to use Tandem TWs due to trip time involved

HH Pricing Zone 3a - St. Brendan's Island

	A. Use all Single Axle Tank Wagons			B. Use all Tandem Axle Tank Wagons		
	Winter Dec-Mar 61% Annual Volume	**Remaining Months**	**Full Year Avg/Totals**	Winter Months	Remaining Months	Full Year Avg/Totals
Total Volume by Zone for Heating Fuel for Year (Litres)	107,848	68,952	176,800			
Average Drop Amount per Household (Litres)	**424**	**362**	**400**			
Capacity per Vehicle (Litres)	**9,000**	**9,000**	**9,000**			
Loading Time per Vehicle Load (Minutes)	29	27	28.22			
Average # Drops Per Vehicle Load	21.2	24.9	22.5			
Estimate of Kms Traveled Per Return Trip for Zone	**204**	**204**	**204**			
Time for Each Drop (Mins)	21	15	**19**			
Total Drop Time per Load (Minutes)	446	373	420			
Average Speed Attained for Travel Time (kms /hr)	**60**	**80**	**67.8**			
Total Travel Time per Load (Minutes)	204	153	181			
Ferry Crossing Time Return Trip (Mins)	180	180	180			
Total Load Delivery Time including return Ferry Trip(Mins)	859	733	809			
Total Average Delivery Time for Each Load (Hours)	14.3	12.2	13.5			
Average Delivery Rate Litres/Hr	629	737	668			
Volume Required Delivered During Period for area	107,848	68,952	176,800			
# of Working Days during Period	12	8	20			
Average Volume Delivered per Working Day for period	9,000	9,000	9,000			
Average Required Total Trips per Day	1.0	1.0				
Total Hours Required per day During Period	14.3	12.2				
Assumed Working Hours per Day per Vehicle	**15.0**	**13.0**				
Indicated Number of Vehicles Required	0.95	0.94				
Average Volume delivered by each TW for period	113,028	73,380	186,408			
Average Volume delivered by each TW per day.	9,432	9,578				
Number of vehicles required full-time	1	1				
Volume delivered by full time vehicle(s)	113,028	73,380	186,408			
Volume left to be delivered by part time Vehicle	N/A	N/A				
Part time Operation vehicle (Days)	N/A	N/A				
Idle time for part time vehicles) -(Days)	N/A	N/A				
Full Time Cost per vehicle per Day	$393	$393				
Full time Cost per Hour based on 10 Hour day	$39	$39				
Idle Time Cost per vehicle per Day	$193	$193				
Idle Time Cost per Hour based on 10 hour day	$19	$24				
Cost of Full Time Vehicles for period	$7,064	$3,914				
Cost of Part Time Vehicles for period	N/A	N/A				
Cost of Idle Time for part Time Vehicles for period	N/A	N/A				
Cost of Ferry Per Trip (Driver and Helper in Winter)	$117	$112				
Total cost of Ferry Trips for period	$1,402	$854				
Total Cost for vehicles for period	$8,466	$4,768	$13,234			
Cost per Period based on required Vehicles (CPL)	**7.85**	**6.92**	**7.49**			

Average Single Axle TWs **7.49**

APPENDIX H

Table H-3b

Tank Wagon Delivery Cost Model - Home Heating Fuel

HH Pricing Zone 3b Fogo Island	
Census Population -1991	3,915
Census Population -1996	3,573
Census Population -2001	3,018
Estimated Households and Heating Method - 2001	
Electric	382
Oil/Other	709
Total	1,090
Avg Population per Household 2001	**2.8**
Estimated Percent Homes with Oil Heat	**65.0%**
Est Avg Vol Per Year Per Household Using Oil	**2,600**
Estimated Total Heating Fuel Per Year for Zone (Litres)	**1,842,100**

Assuming Deliveries from Bulk Plant on Fogo Island	
Loading Tank Wagon at type Facility	**Bulk Plant**
Kilometres for return trip in Zone	**40**
Average travel speed - Winter period (Km/Hr)	**40**
Average travel speed - Remaining Months (Km/Hr)	**60**
Average annual drop per household delivery (Litres)	**400**
Working Hours per Day per T/W - Winter Period	**10**
Working Hours per Day per T/W - Remaining Months	**8**
Annual Operation Cost - Singe Axle Tank Wagon	$118,000
Annual Operation Cost - Tandem Axle Tank Wagon	$128,000
Idle Time Cost per day - Single Axle Tank-Wagon	**$193**
Idle Time Cost per day - Tandem Axle Tank-Wagon	**$223**

Average Cost of T/W Deliveries CPL HH Pricing Zone 3b Fogo Island	3.93

HH Pricing Zone 3b Fogo Island

	A. Use all Single Axle Tank Wagons			B. Use all Tandem Axle Tank Wagons		
	Winter Dec-Mar 61% Annual Volume	Remaining Months	Full Year Avg/Totals	Winter Dec-Mar 61% Annual Volume	Remaining Months	Full Year Avg/Totals
Total Volume by Zone for Heating Fuel for Year (Litres)	1,123,681	718,419	1,842,100	1,123,681	718,419	1,842,100
Average Drop Amount per Household (Litres)	**424**	**362**	**400**	**424**	**362**	**400**
Capacity per Vehicle (Litres)	**11,500**	**11,500**	**11,500**	**20,000**	**20,000**	**20,000**
Loading Time per Vehicle Load (Minutes)	32	30	30.72	40	38	39.22
Average # Drops Per Vehicle Load	27.1	31.8	28.8	47.2	55.2	50.0
Estimate of Kms Traveled Per Return Trip for Zone	**40**	**40**	**40**	**40**	**40**	**40**
Time for Each Drop (Mins)	20	15	**18**	20	15	**18**
Total Drop Time per Load (Minutes)	542	477	519	943	829	903
Average Speed Attained for Travel Time (kms /hr)	**40**	**60**	**47.8**	**40**	**60**	**47.8**
Total Travel Time per Load (Minutes)	60	40	50	60	40	50
Total Average Delivery Time for Each Load (Hours)	10.6	9.1	10.0	17.4	15.1	16.5
Average Delivery Rate Litres/Hr	1088	1264	1150	1150	1323	1210
Volume Delivered During Period for area	1,123,681	718,419	1,842,100	1,123,681	718,419	1,842,100
# of Working Days during Period	100	200	300	100	200	300
Average Volume Delivered per Working Day for period	11,237	3,592	6,140	11,237	3,592	6,140
Average Required Total Trips per Day	1.0	0.3		0.6	0.2	
Total Hours Required per day During Period	10.3	2.8		9.8	2.7	
Assumed Working Hours per Day per Vehicle	**10.0**	**8.0**		**10.0**	**8.0**	
Indicated Number of Vehicles Required	1.03	0.36		0.98	0.34	
Average Volume delivered by each TW for period	1,088,409	2,021,906		1,150,090	2,117,501	
Average Volume delivered by each TW per day.	10,884	10,110		11,501	10,588	
Actual Number of Vehicles required to be on hand	2	1		1	1	
Number of vehicles required full-time	1	0		0	0	
Volume delivered by full time vehicle(s)	1,088,409	0		0	0	
Volume left to be delivered by part time Vehicle	35,272	718,419	1,842,100	1,123,681	718,419	1,842,100
Part time Operation vehicle (Days)	3	71		98	36	
Idle time for part time vehicles) -(Days)	97	129		2	164	
Full Time Cost per vehicle per Day	$393	$393		$427	$427	
Idle Time Cost per vehicle per Day	$193	$193		$223	$223	
Cost of Full Time Vehicles for period	$39,333	$0		$0	$0	
Cost of Part Time Vehicles for period	$1,275	$27,952		$41,687	$15,326	
Cost of Idle Time for part Time Vehicles for period	$18,675	$0		$512	$0	
Total Cost for vehicles for period	$59,283	$27,952	$87,234	$42,199	$15,326	$57,525
Cost per Period based on required Vehicles (CPL)	**5.28**	**3.89**	**4.74**	**3.76**	**2.13**	**3.12**

Average Tandem & Single Axle TWs	3.93

APPENDIX H

Table H-3c

Tank Wagon Delivery Cost Model - Home Heating Fuel

No Bulk Plant on Change Islands - Delivey via Fery from Fogo Island Bulk Plant

HH Pricing Zone 3c -Change Islands
Ferry from Farewell - Sundays Only

Census Population -1991
Census Population -1996
Census Population -2001
Estimated Households and Heating Method - 2001
Electric
Oil/Other
Total
Avg Population per Household 2001
Estimated Percent Homes with Oil Heat
Est Avg Vol Per Year Per Household Using Oil
Estimated Total Heating Fuel Per Year for Zone (Litres)
Load at Lewisporte Terminal
Return to Lewisporte at
Additional Wages at straight time over 10 hrs per day.

Ferry Return Rates Return: $3 Driver $106 T/W
Ferry Trip 1 hour each way - Get Ferry at 7:45 am - return at 4:30 pm
Time available on Island for Drops-hrs 8 480 minutes

524	Loading Tank Wagon at type Facility	**Terminal**
460	Average Kilometres for return trip in Zone	**48**
360	Average travel speed - Winter period (Km/Hr)	**40**
	Average travel speed - Remaining Months (Km/Hr)	**50**
38	Average annual drop per household delivery (Litres)	**400**
113	Working Hours per Day per T/W - Winter Period	**11**
150	Working Hours per Day per T/W - Remaining Months	**10**
2.4	Annual Operation Cost - Singe Axle Tank Wagon	$118,000
75.0%	Annual Operation Cost - Tandem Axle Tank Wagon	$128,000
2,600	**Average Cost of T/W Deliveries CPL**	
292,500	**HH Pricing Zone 3c -Change Islands**	**6.71**
5:30 am	**Total Trip**	
6:30 pm	**13 Hours**	

Note: Not Feasible to use Tandem TWs due to trip time involved

HH Pricing Zone 3c -Change Islands

	A. Use all Single Axle Tank Wagons			B. Use all Tandem Axle Tank Wagons		
	Winter Dec-Mar 61% Annual Volume	**Remaining Months**	**Full Year Avg/Totals**	**Winter Dec-Mar 61% Annual Volume**	**Remaining Months**	**Full Year Avg/Totals**
Total Volume by Zone for Heating Fuel for Year (Litres)	178,425	114,075	292,500	178,425	114,075	292,500
Average Drop Amount per Household (Litres)	**424**	**362**	**400**	**424**	**362**	**400**
Capacity per Vehicle (Litres)	**9,000**	**9,000**	**9,000**	**16,000**	**16,000**	**16,000**
Average # Drops Per Vehicle Load	21	25	23	38	44.2	40.0
Loading Time per Vehicle Load (Minutes)	24	21	22.83	31	28	29.83
Estimate of Kms Traveled Per Return Trip for Zone	**48**	**52**	**52**	**48**	**48**	**48**
Average Speed Attained for Travel Time (kms /hr)	**40**	**50**	**43.9**	**40**	**50**	**43.9**
Total Travel Time per Load (Minutes)	72	62	71	72	58	66
Time for Each Drop (Mins)	23	16	**20**	17	16	**17**
Total Available Drop Time per Load (Mins)	480	398	451	480	N/A	N/A
Ferry Crossing Time Return Trip (Mins)	90	90	90			
Total Load Delivery Time with Ferry Trip (Mins)	**666**	571	635	Insufficient time for each drop to use Tandem Tank Wagon in this service.		
Average Delivery Time required for Each Load (Hours)	11.1	9.5	10.6			
Volume Required Delivered During Period for area	178,425	114,075	292,500			
# of Full Working Days available during Period	20	13	33			
Average Volume Delivered per Working Day for period	9,000	9,000	8,952			
# of Full Working Days required during Period	20	13	33			
Average Required Total Trips per Working Day	1.0	1.0				
Total Hours Required per day During Period	11.1	9.5				
Working Hours per Working Day per Vehicle	**13.0**	**13.0**				
Indicated Number of Vehicles Required	1.53	1.00				
Average Volume delivered by each TW for period	117,000	114,075	231,075			
Average Volume delivered by each TW per day.	5,902	9,000				
Number of vehicles required full-time	1.0	1.0				
Number of vehicles required part-time	0.5	NIL				
Volume delivered by full time vehicle(s)	76,721	114,075	190,796			
Volume left to be delivered by part time Vehicle	40,279	Nil				
Part time Operation vehicle (Days)	7	Nil				
Idle time for part time vehicles) -(Days)	N/A	Nil				
Full Time Cost per vehicle per Day	$393	$393				
Full time Cost per Hour based on 10 Hours per day	$39	$39				
Idle Time Cost per vehicle per Day	$193	$193				
Idle Time Cost per Hour based on 10 hour day	$19	$19				
Cost of Full Time Vehicles for period	$7,999	$5,094				
Cost of Part Time Vehicles for period	$2,885	N/A				
Cost of Idle Time for part Time Vehicles for period	N/A	N/A				
Cost of Ferry Per Trip (Driver and Helper in Winter)	$115	$109				
Total cost of Ferry Trips for period	$2,280	$1,382				
Total Cost for vehicles for period	$13,164	$6,475	$19,639			
Cost per Period based on required Vehicles (CPL)	**7.38**	**5.68**	**6.71**			

Average Single Axle TWs **6.71**

APPENDIX H

Table H-4

Tank Wagon Delivery Cost Model - Home Heating Fuel

HH Pricing Zone 4 Connaigre Peninsula

Census Population -1991	9,156
Census Population -1996	8,870
Census Population -2001	7,887
Estimated Households and Heating Method - 2001	
Electric	821
Oil/Other	1,916
Total	2,737
Avg Population per Household 2001	**2.9**
Estimated Percent Homes with Oil Heat	**70.0%**
Est Avg Vol Per Year Per Household Using Oil	**2,500**
Estimated Total Heating Fuel Per Year for Zone (Litres)	**4,790,172**

Assuming Deliveries from Bulk Plant within Zone

Loading Tank Wagon at type Facility	**Bulk Plant**
Kilometres for return trip in Zone	**97**
Average travel speed - Winter period (Km/Hr)	**40**
Average travel speed - Remaining Months (Km/Hr)	**60**
Average annual drop per household delivery (Litres)	**350**
Working Hours per Day per T/W - Winter Period	**10**
Working Hours per Day per T/W - Remaining Months	**8**
Annual Operation Cost - Singe Axle Tank Wagon	$118,000
Annual Operation Cost - Tandem Axle Tank Wagon	$128,000
Idle Time Cost per day - Single Axle Tank-Wagon	**$193**
Idle Time Cost per day - Tandem Axle Tank-Wagon	**$223**

Average Cost of T/W Deliveries CPL HH Pricing Zone 4 Connaigre Peninsula	**4.97**

HH Pricing Zone 4 Connaigre Peninsula

	A. Use all Single Axle Tank Wagons			B. Use all Tandem Axle Tank Wagons		
	Winter Dec-Mar 61% Annual Volume	**Remaining Months**	**Full Year Avg/Totals**	**Winter Dec-Mar 61% Annual Volume**	**Remaining Months**	**Full Year Avg/Totals**
Total Volume by Zone for Heating Fuel for Year (Litres)	2,922,005	1,868,167	4,790,172	2,922,005	1,868,167	4,790,172
Average Drop Amount per Household (Litres)	**371**	**317**	**350**	**371**	**317**	**350**
Capacity per Vehicle (Litres)	**11,500**	**11,500**	**11,500**	**20,000**	**20,000**	**20,000**
Loading Time per Vehicle Load (Minutes)	32	30	30.72	40	38	39.22
Average # Drops Per Vehicle Load	31.0	36.3	32.9	53.9	63.1	57.1
Estimate of Kms Traveled Per Return Trip for Zone	**97**	**97**	**97**	**97**	**97**	**97**
Time for Each Drop (Mins)	20	15	**18**	20	15	**18**
Total Drop Time per Load (Minutes)	620	544	593	1078	946	1031
Average Speed Attained for Travel Time (kms /hr)	**40**	**60**	**47.8**	**40**	**60**	**47.8**
Total Travel Time per Load (Minutes)	146	97	122	146	97	122
Total Average Delivery Time for Each Load (Hours)	13.3	11.2	12.4	21.1	18.0	19.9
Average Delivery Rate Litres/Hr	866	1029	925	950	1110	1006
Volume Delivered During Period for area	2,922,005	1,868,167	4,790,172	2,922,005	1,868,167	4,790,172
# of Working Days during Period	100	200	300	100	200	300
Average Volume Delivered per Working Day for period	29,220	9,341	15,967	29,220	9,341	15,967
Average Required Total Trips per Day	2.5	0.8		1.5	0.5	
Total Hours Required per day During Period	33.7	9.1		30.8	8.4	
Assumed Working Hours per Day per Vehicle	**10.0**	**8.0**		**10.0**	**8.0**	
Indicated Number of Vehicles Required	3.37	1.13		3.08	1.05	
Average Volume delivered by each TW for period	865,805	1,646,130		949,617	1,775,522	
Average Volume delivered by each TW per day.	8,658	8,231		9,496	8,878	
Actual Number of Vehicles required to be on hand	4	2		4	2	
Number of vehicles required full-time	3	1		3	1	
Volume delivered by full time vehicle(s)	2,597,415	1,646,130		2,848,852	1,775,522	
Volume left to be delivered by part time Vehicle	324,590	222,038	3,144,043	73,154	92,645	3,014,651
Part time Operation vehicle (Days)	37	27		8	10	
Idle time for part time vehicles) -(Days)	63	173		92	190	
Full Time Cost per vehicle per Day	$393	$393		$427	$427	
Idle Time Cost per vehicle per Day	$193	$193		$223	$223	
Cost of Full Time Vehicles for period	$118,000	$78,667		$128,000	$85,333	
Cost of Part Time Vehicles for period	$14,746	$10,611		$3,287	$4,453	
Cost of Idle Time for part Time Vehicles for period	$12,064	$0		$20,582	$0	
Total Cost for vehicles for period	$144,810	$89,278	$234,088	$151,869	$89,786	$241,655
Cost per Period based on required Vehicles (CPL)	**4.96**	**4.78**	**4.89**	**5.20**	**4.81**	**5.04**

Average Tandem & Single Axle TWs **4.97**

APPENDIX H

Table H-4a

Drum deliveries from Hermitage to Coastal Communities of McCallum, Gaultois, and from Pool's Cove to Rencontre East

HH Pricing Zone 4a - Gaultois / McCallum / Rencontre East	Gaultois	McCallum	Rencontre East	Totals
Census Population -1991	516	147	212	875
Census Population -1996	423	138	215	776
Census Population -2001	321	128	202	651
Estimated Households and Heating Method - 2001:				
Electric	33	13	18	64
Oil/Other	77	30	42	149
Total	110	43	60	213
Avg Population per Household 2001	2.9	3.0	3.4	3.1
Estimated Percent Homes with Oil Heat	70%	70%	70%	70%
Est Avg Vol Per Year Per Household Using Oil	1,800	1,800	1,800	1,800
Estimated Total Heating Fuel Per Year for Zone (Litres)	138,600	54,180	75,600	**268,380**
HH Pricing Zone 4a - Gaultois / McCallum / Rencontre East				**14.85**

HH Pricing Zone 4a - Gaultois / McCallum / Rencontre East	**Gaultois**	**McCallum**	**Rencontre East**		**Totals & Averages**
Total Volume by Community for Heating Fuel for Year (Litres)	138,600	54,180	75,600		268,380
Total Volume by Community for winter months (Litres)	84,546	33,050	46,116		163,712
Total Volume by Community for remaining months (Litres)	54,054	21,130	29,484		104,668
Total Drums Required per Year	676	264	369		1,309
Tank Wagon Delivery to Drums at Dockside					
Connaigre Zone- Calculated Tank Wagon cost to deliver fuel and fill drums at dockside in Hermitage and Pool's Cove - CPL	**2.87**	**2.87**	**2.87**		**2.87**
Capacity of each 45 Imperial Gallon Drum (Litres)	205	205	205		205
Estimated Weight of each Drum Empty (Kg)	23	23	23		23
Estimated Weight of each Drum Full (Kg)	196	196	196		196
Cost of per shipment $ per 50 Kilograms ($50 max per shipment)	$2.00	$2.00	$2.00		$2.00
Winter Period:					
Total Number of Drums required over Winter Period	412	161	225		799
Number of Weeks during Winter Period	17	17	17		17
Average Number of Drums shipped per week in winter period	25	10	14		47
Coastal Freight Shipping Full Drums Cost (Maximum per shipment)	$50.00	$50.00	$50.00		$150.00
Cost of Shipping each Full Drum each week	$2.00	$5.00	$3.57		$3.19
Coastal Freight Shipping Return Empty Drums Cost per week (Total)	$12.00	$5.00	$7.00		$22.00
Cost of Shipping each Drum Empty (Return to Filling Dock each week)	$0.48	$0.50	$0.50		$0.47
Total Return Coastal Freight Shipping Cost per Drum	$2.48	$5.50	$4.07		$3.66
Total Return Coastal Freight Shipping Cost (Cents per Litre)	**1.21**	**2.68**	**1.99**		**1.79**
Non-Winter Period:					
Total Number of Drums required over Period	264	103	144		511
Number of Months during Period	8	8	8		8
Average Number of Drums shipped per month in Period	33	13	18		64
Coastal Freight Shipping Full Drums Cost (Maximum per shipment)	$50.00	$50.00	$50.00		$150.00
Cost of Shipping each Full Drum each month	$1.52	$3.88	$2.78		$2.35
Coastal Freight Shipping Empty Drums Cost per month	$50.00	$50.00	$50.00		$150.00
Cost of Shipping each Drum Empty (Return to Filling Dock each month)	$1.52	$3.88	$2.78		$2.35
Total Return Coastal Freight Shipping Cost per Drum	$3.03	$7.76	$5.56		$4.70
Total Return Coastal Freight Shipping Cost (Cents per Litre)	**1.48**	**3.79**	**2.71**		**2.29**
Year Round Average Costs:					
Total Shipping Costs all Drums	$1,823	$1,687	$1,716		$5,323
Average annual Shipping Costs all Drums CPL	**1.32**	**3.11**	**2.27**		**1.98**
Total Delivered Cost to Destination Community Docks (Wholesale point of sale) CPL	**4.19**	**5.98**	**5.14**	Avg	**4.85**
Total cost of delivering drums to customers in Communities (Retail Margin)	**10.00**	**10.00**	**10.00**		**10.00**
Delivered Retail ex-tax Cost to Coastal Communities Customers CPL	**14.19**	**15.98**	**15.14**	Avg	**14.85**

APPENDIX H

Table H-5

Tank Wagon Delivery Cost Model - Home Heating Fuel

HH Pricing Zone 5 - Triton, Springdale, Baie Verte Peninsula

Census Population -1991	21,158	Loading Tank Wagon at type Facility	**Bulk Plant**
Census Population -1996	19,523	Kilometres for return trip in Zone	**139**
Census Population -2001	16,945	Average travel speed - Winter period (Km/Hr)	**50**
Estimated Households and Heating Method - 2001		Average travel speed - Remaining Months (Km/Hr)	**70**
Electric	2,583	Average annual drop per household delivery (Litres)	**425**
Oil/Other	4,042	Working Hours per Day per T/W - Winter Period	**10**
Total	6,624	Working Hours per Day per T/W - Remaining Months	**8**
Avg Population per Household 2001	**2.6**	Annual Operation Cost - Singe Axle Tank Wagon	$118,000
Estimated Percent Homes with Oil Heat	**61.0%**	Annual Operation Cost - Tandem Axle Tank Wagon	$128,000
Est Avg Vol Per Year Per Household Using Oil	**2,400**	Idle Time Cost per day - Single Axle Tank-Wagon	**$193**
Estimated Total Heating Fuel Per Year for Zone (Litres)	**9,700,036**	Idle Time Cost per day - Tandem Axle Tank-Wagon	**$223**
Mother Marine Terminal Location	**Corner Brook**		

Average Cost of T/W Deliveries CPL HH Pricing Zone 5 - Triton, Springdale, Baie Verte Peninsula	**4.22**

HH Pricing Zone 5 - Triton, Springdale, Baie Verte Peninsula

	A. Use all Single Axle Tank Wagons			B. Use all Tandem Axle Tank Wagons		
	Winter Dec-Mar 61% Annual Volume	**Remaining Months**	**Full Year Avg/Totals**	**Winter Dec-Mar 61% Annual Volume**	**Remaining Months**	**Full Year Avg/Totals**
Total Volume by Zone for Heating Fuel for Year (Litres)	5,917,022	3,783,014	9,700,036	5,917,022	3,783,014	9,700,036
Average Drop Amount per Household (Litres)	**451**	**385**	**425**	**451**	**385**	**425**
Capacity per Vehicle (Litres)	**11,500**	**11,500**	**11,500**	**20,000**	**20,000**	**20,000**
Loading Time per Vehicle Load (Minutes)	32	30	30.72	40	38	39.22
Average # Drops Per Vehicle Load	25.5	29.9	27.1	44.3	51.9	47.1
Estimate of Kms Traveled Per Return Trip for Zone	**139**	**139**	**139**	**139**	**139**	**139**
Time for Each Drop (Mins)	20	15	**18**	20	15	**18**
Total Drop Time per Load (Minutes)	510	448	488	887	779	849
Average Speed Attained for Travel Time (kms /hr)	**50**	**70**	**57.8**	**50**	**70**	**57.8**
Total Travel Time per Load (Minutes)	167	119	144	167	119	144
Total Average Delivery Time for Each Load (Hours)	11.8	9.9	11.1	18.2	15.6	17.2
Average Delivery Rate Litres/Hr	974	1156	1040	1097	1282	1162
Volume Delivered During Period for area	5,917,022	3,783,014	9,700,036	5,917,022	3,783,014	9,700,036
# of Working Days during Period	100	200	300	100	200	300
Average Volume Delivered per Working Day for period	59,170	18,915	32,333	59,170	18,915	32,333
Average Required Total Vehicle Trips per Day	5.1	1.6		3.0	0.9	
Total Hours Required per day During Period	60.7	16.4		53.9	14.8	
Assumed Working Hours per Day per Vehicle	**10.0**	**8.0**		**10.0**	**8.0**	
Indicated Number of Vehicles Required	6.07	2.04		5.39	1.84	
Average Volume delivered by each TW for period	974,194	1,850,192		1,097,175	2,050,485	
Average Volume delivered by each TW per day.	9,742	9,251		10,972	10,252	
Actual Number of Vehicles required to be on hand	7	3		6	2	
Number of vehicles required full-time	6	2		5	1	
Volume delivered by full time vehicle(s)	5,845,164	3,700,384		5,485,875	2,050,485	
Volume left to be delivered by part time Vehicle	71,858	82,630	9,700,036	431,147	1,732,529	9,700,036
Part time Operation vehicle (Days)	7	9		39	169	
Idle time for part time vehicles) -(Days)	93	191		61	31	
Full Time Cost per vehicle per Day	$393	$393		$427	$427	
Idle Time Cost per vehicle per Day	$193	$193		$223	$223	
Cost of Full Time Vehicles for period	$236,000	$157,333		$213,333	$85,333	
Cost of Part Time Vehicles for period	$2,901	$3,513		$16,766	$72,101	
Cost of Idle Time for part Time Vehicles for period	$17,876	$0		$13,537	$0	
Total Cost for vehicles for period	$256,778	$160,847	$417,624	$243,637	$157,435	$401,071
Cost per Period based on required Vehicles (CPL)	**4.34**	**4.25**	**4.31**	**4.12**	**4.16**	**4.13**

Average Tandem & Single Axle TWs	**4.22**

APPENDIX H

Table H-5a

Tank Wagon Delivery Cost Model - Home Heating Fuel

Deliver to Long Island from Springdale Bulk Plant

HH Pricing Zone 5a - Long Island

Ferry from Pilleys Island

Census Population -1991	397
Census Population -1996	348
Census Population -2001	308
Estimated Households and Heating Method - 2001	
Electric	44
Oil/Other	76
Total	120
Avg Population per Household 2001	**2.6**
Estimated Percent Homes with Oil Heat	**63.0%**
Est Avg Vol Per Year Per Household Using Oil	**2,400**
Estimated Total Heating Fuel Per Year for Zone (Litres)	**181,440**
Load at Springdale Bulk Plant	**7:30 am**
Return to Springdale at	**6:30 pm**
Total Trip Time (Hours)	**11.0**

Ferry Return Rates: $4.00 Driver $44.00 T/W

Ferry Trip 1 hour each way - Get Ferry at 9:30 am - return at 4:30 pm

Time available on Island for Drops 7 hrs 420 minutes

Loading Tank Wagon at type Facility	**Bulk Plant**
Average Kilometres for return trip in Zone	**112**
Average travel speed - Winter period (Km/Hr)	**50**
Average travel speed - Remaining Months (Km/Hr)	**70**
Average annual drop per household delivery (Litres)	**400**
Working Hours per Day per T/W - Winter Period	**11**
Working Hours per Day per T/W - Remaining Months	**10**
Annual Operation Cost - Singe Axle Tank Wagon	$118,000
Annual Operation Cost - Tandem Axle Tank Wagon	$128,000
Idle Time Cost per day - Single Axle Tank-Wagon	**$193**
Idle Time Cost per day - Tandem Axle Tank-Wagon	**$223**

Average Cost of T/W Deliveries CPL	
HH Pricing Zone 5a - Long Island	**4.94**

HH Pricing Zone 5a - Long Island

	A. Use all Single Axle Tank Wagons			B. Use all Tandem Axle Tank Wagons		
	Winter Dec-Mar 61% Annual Volume	**Remaining Months**	**Full Year Avg/Totals**	**Winter Dec-Mar 61% Annual Volume**	**Remaining Months**	**Full Year Avg/Totals**
Total Volume by Zone for Heating Fuel for Year (Litres)	110,678	70,762	181,440	110,678	70,762	181,440
Average Drop Amount per Household (Litres)	**424**	**362**	**400**	**424**	**362**	**400**
Capacity per Vehicle (Litres)	**9,000**	**9,000**	**9,000**	**16,000**	**16,000**	**16,000**
Average # Drops Per Vehicle Load	21	25	23	38	44.2	40.0
Loading Time per Vehicle Load (Minutes)	29	27	28.22	36	34	35.22
Estimate of Kms Traveled Per Return Trip for Zone	**112**	**112**	**112**	**112**	**112**	**112**
Average Speed Attained for Travel Time (kms /hr)	**50**	**70**	**57.8**	**50**	**70**	**57.8**
Total Travel Time per Load (Minutes)	134	96	116	134	96	116
Time for Each Drop (Mins)	20	16	**18**	17	16	**17**
Total Available Drop Time per Load (Mins)	420	398	412	642	707	664
Ferry Crossing Time Return Trip (Mins)	20	20	20	40	3.0	3.0
Total Load Delivery Time with Ferry Trip (Mins)	**603**	541	576	**852**	852	852
Average Delivery Time required for Each Load (Hours)	10.1	9.0	9.6	14.2	17.0	16.6
Volume Required Delivered During Period for area	110,678	70,762	181,440			
# of Full Working Days available during Period	100	200	300	**Note: Not Feasible to use Tandem TWs due to trip time involved**		
Average Volume Delivered per Working Day for period	9,000	9,000	9,000			
# of Full Working Days required during Period	12	8	20			
Average Required Total Trips per Day	1.0	1.0				
Total Hours Required per day During Period	10.1	9.0				
Rounded up Working Hours per Day per Vehicle	**11.0**	**10.0**				
Indicated Number of Vehicles Required	0.91	0.90				
Average Volume delivered by each TW for period	110,678	70,762	181,440			
Average Volume delivered by each TW per day.	9,000	9,000				
Number of vehicles required full-time	1	1				
Volume delivered by full time vehicle(s)	110,678	70,762	181,440			
Volume left to be delivered by part time Vehicle	Nil	Nil				
Part time Operation vehicle (Days)	Nil	Nil				
Idle time for part time vehicles) -(Days)	Nil	Nil				
Full Time Cost per vehicle per Day	$393	$393				
Full time Cost per Hour based on 10 Hours per day	$39	$39				
Idle Time Cost per vehicle per Day	$193	$193				
Idle Time Cost per Hour based on 10 hour day	$19	$19				
Cost of Full Time Vehicles for period	$4,860	$3,090				
Cost of Part Time Vehicles for period	N/A	N/A				
Cost of Idle Time for part Time Vehicles for period	N/A	N/A				
Cost of Ferry Per Trip (Driver and Helper in Winter)	$52	$48				
Total cost of Ferry Trips for period	$639	$377				
Total Cost for vehicles for period	$5,500	$3,467	$8,967			
Cost per Period based on required Vehicles (CPL)	**4.97**	**4.90**	**4.94**			

Average Single Axle TWs **4.94**

APPENDIX H

Table H-5b

Tank Wagon Delivery Cost Model - Home Heating Fuel

Deliver to Long Island from Springdale Bulk Plant

HH Pricing Zone 5b - Little Bay Islands
Ferry from Shoal Arm

Census Population -1991	261
Census Population -1996	244
Census Population -2001	176
Estimated Households and Heating Method - 2001	
Electric	26
Oil/Other	49
Total	75
Avg Population per Household 2001	**2.3**
Estimated Percent Homes with Oil Heat	**65.0%**
Est Avg Vol Per Year Per Household Using Oil	**2,400**
Estimated Total Heating Fuel Per Year for Zone (Litres)	**117,000**
Load at Springdale Bulk Plant	**7:30 am**
Return to Springdale at	**6:30 pm**
Total Trip Time (Hours)	**11.0**

Ferry Return Rates: $4.50 Driver $82.00 T/W
Ferry Trip 1 hour each way - Get Ferry at 8:45 am - return at 5:30 pm
Time available on Island for Drops (Hrs 6.25 375 minutes

Loading Tank Wagon at type Facility		**Bulk Plant**
Average Kilometres for return trip in Zone		**52**
Average travel speed - Winter period (Km/Hr)		**50**
Average travel speed - Remaining Months (Km/Hr)		**60**
Average annual drop per household delivery (Litres)		**450**
Working Hours per Day per T/W - Winter Period		**11**
Working Hours per Day per T/W - Remaining Months		**10**
Annual Operation Cost - Singe Axle Tank Wagon		$118,000
Annual Operation Cost - Tandem Axle Tank Wagon		$128,000
Idle Time Cost per day - Single Axle Tank-Wagon		**$193**
Idle Time Cost per day - Tandem Axle Tank-Wagon		**$223**
Average Cost of T/W Deliveries CPL		
HH Pricing Zone 5b - Little Bay Islands		**5.38**

HH Pricing Zone 5b - Little Bay Islands

	A. Use all Single Axle Tank Wagons			B. Use all Tandem Axle Tank Wagons		
	Winter Dec-Mar 61% Annual Volume	**Remaining Months**	**Full Year Avg/Totals**	**Winter Dec-Mar 61% Annual Volume**	**Remaining Months**	**Full Year Avg/Totals**
Total Volume by Zone for Heating Fuel for Year (Litres)	71,370	45,630	117,000	71,370	45,630	117,000
Average Drop Amount per Household (Litres)	**477**	**407**	**450**	**477**	**407**	**450**
Capacity per Vehicle (Litres)	**9,000**	**9,000**	**9,000**	**16,000**	**16,000**	**16,000**
Average # Drops Per Vehicle Load	19	22	20	34	39.3	35.6
Loading Time per Vehicle Load (Minutes)	29	27	28	36	34	35.22
Estimate of Kms Traveled Per Return Trip for Zone	**52**	**52**	**52**	**52**	**52**	**52**
Average Speed Attained for Travel Time (kms /hr)	**50**	**60**	**54**	**50**	**60**	**53.9**
Total Travel Time per Load (Minutes)	62	52	58	62	52	58
Time for Each Drop (Mins)	20	16	18	20	16	**18**
Total Available Drop Time per Load (Mins)	375	354	367	**671**	629	656
Ferry Crossing Time Return Trip (Mins)	150	150	150	40	3.0	3.0
Total Trip Delivery Time with Ferry Trip (Mins)	**616**	583	603	**809**		
Average Delivery Time required for Each Load (Hours)	10.3	9.7	10.1	13.5	14.9	15.5
Volume Required Delivered During Period for area	71,370	45,630	117,000			
# of Full Working Days available during Period	100	200	300	**Note: Not Feasible to use Tandem TWs due to trip time involved**		
Average Volume Delivered per Working Day for period	9,000	9,000	9,000			
# of Full Working Days required during Period	8	5	13			
Average Required Total Trips per Day	1.0	1.0				
Total Hours Required per day During Period	10.3	9.7				
Rounded up Working Hours per Day per Vehicle	**11.0**	**10.0**				
Indicated Number of Vehicles Required	0.93	0.97				
Average Volume delivered by each TW for period	71,370	45,630	117,000			
Average Volume delivered by each TW per day.	9,000	9,000				
Number of vehicles required full-time	1	1				
Volume delivered by full time vehicle(s)	71,370	45,630	117,000			
Volume left to be delivered by part time Vehicle	Nil	Nil				
Part time Operation vehicle (Days)	Nil	Nil				
Idle time for part time vehicles) -(Days)	Nil	Nil				
Full Time Cost per vehicle per Day	$393	$393				
Full time Cost per Hour based on 10 Hours per day	$39	$39				
Idle Time Cost per vehicle per Day	$193	$193				
Idle Time Cost per Hour based on 10 hour day	$19	$19				
Cost of Full Time Vehicles for period	$3,202	$1,935				
Cost of Part Time Vehicles for period	N/A	N/A				
Cost of Idle Time for part Time Vehicles for period	N/A	N/A				
Cost of Ferry Per Trip (Driver and Helper in Winter)	$91	$87				
Total cost of Ferry Trips for period	$722	$439				
Total Cost for vehicles for period	$3,923	$2,374	$6,297			
Cost per Period based on required Vehicles (CPL)	**5.50**	**5.20**	**5.38**			

Average Single Axle TWs **5.38**

APPENDIX H

Table H-6

Tank Wagon Delivery Cost Model - Home Heating Fuel

HH Pricing Zone 6 - Corner Brook, Bay of Islands, Deer Lake to Howley

Census Population -1991	43,196	Loading Tank Wagon at type Facility	**Terminal**
Census Population -1996	42,396	Kilometres for return trip in Zone	**76**
Census Population -2001	38,824	Average travel speed - Winter period (Km/Hr)	**40**
Estimated Households and Heating Method - 2001		Average travel speed - Remaining Months (Km/Hr)	**60**
Electric	7,421	Average annual drop per household delivery (Litres)	**450**
Oil/Other	7,079	Working Hours per Day per T/W - Winter Period	**10**
Total	14,500	Working Hours per Day per T/W - Remaining Months	**8**
Avg Population per Household 2001	**2.7**	Annual Operation Cost - Singe Axle Tank Wagon	$118,000
Estimated Percent Homes with Oil Heat	**48.8%**	Annual Operation Cost - Tandem Axle Tank Wagon	$128,000
Est Avg Vol Per Year Per Household Using Oil	**3,000**	Idle Time Cost per day - Single Axle Tank-Wagon	**$193**
Estimated Total Heating Fuel Per Year for Zone (Litres)	**21,235,825**	Idle Time Cost per day - Tandem Axle Tank-Wagon	**$223**

Loading Terminal Location **Corner Brook**

Average Cost of T/W Deliveries CPL HH Pricing Zone 6 - Corner Brook, Bay of Islands, Deer Lake to Howley	**3.62**

HH Pricing Zone 6 - Corner Brook, Bay of Islands, Deer Lake to Howley

	A. Use all Single Axle Tank Wagons			B. Use all Tandem Axle Tank Wagons		
	Winter Dec-Mar 61% Annual Volume	**Remaining Months**	**Full Year Avg/Totals**	**Winter Dec-Mar 61% Annual Volume**	**Remaining Months**	**Full Year Avg/Totals**
Total Volume by Zone for Heating Fuel for Year (Litres)	12,953,853	8,281,972	21,235,825	12,953,853	8,281,972	21,235,825
Average Drop Amount per Household (Litres)	**477**	**407**	**450**	**477**	**407**	**450**
Capacity per Vehicle (Litres)	**11,500**	**11,500**	**11,500**	**20,000**	**20,000**	**20,000**
Loading Time per Vehicle Load (Minutes)	27	24	25.33	35	32	33.83
Average # Drops Per Vehicle Load	24.1	28.3	25.6	41.9	49.1	44.4
Estimate of Kms Traveled Per Return Trip for Zone	**76**	**76**	**76**	**76**	**76**	**76**
Time for Each Drop (Mins)	20	15	**18**	20	15	**18**
Total Drop Time per Load (Minutes)	482	424	461	839	737	802
Average Speed Attained for Travel Time (kms /hr)	**40**	**60**	**47.8**	**40**	**60**	**47.8**
Total Travel Time per Load (Minutes)	114	76	95	114	76	95
Total Average Delivery Time for Each Load (Hours)	10.4	8.7	9.7	16.5	14.1	15.5
Average Delivery Rate Litres/Hr	1108	1318	1186	1215	1420	1288
Volume Delivered During Period for area	12,953,853	8,281,972	21,235,825	12,953,853	8,281,972	21,235,825
# of Working Days during Period	100	200	300	100	200	300
Average Volume Delivered per Working Day for period	129,539	41,410	70,786	129,539	41,410	70,786
Average Required Total Trips per Day for Period	11.3	3.6		6.5	2.1	
Total Hours Required per day During Period	116.9	31.4		106.6	29.2	
Assumed Working Hours per Day per Vehicle	**10.0**	**8.0**		**10.0**	**8.0**	
Indicated Number of Vehicles Required	11.69	3.93		10.66	3.65	
Average Volume delivered by each TW for period	1,108,113	2,109,556		1,215,098	2,271,919	
Average Volume delivered by each TW per day.	11,081	10,548		12,151	11,360	
Actual Number of Vehicles required to be on hand	12	4		11	4	
Number of vehicles required full-time	11	3		10	3	
Volume delivered by full time vehicle(s)	12,189,241	6,328,667		12,150,983	6,815,756	Ck Total
Volume left to be delivered by part time Vehicle	764,613	1,953,304	21,235,825	802,870	1,466,216	21,235,825
Part time Operation vehicle (Days)	69	185		66	129	
Idle time for part time vehicles) -(Days)	31	15		34	71	
Full Time Cost per vehicle per Day	$393	$381		$427	$427	
Idle Time Cost per vehicle per Day	$193	$193		$223	$223	
Cost of Full Time Vehicles for period	$432,667	$228,600		$426,667	$256,000	
Cost of Part Time Vehicles for period	$27,141	$70,556		$28,192	$55,071	
Cost of Idle Time for part Time Vehicles for period	$5,983	$0		$7,565	$0	
Total Cost for vehicles for period	$465,790	$299,156	$764,946	$462,424	$311,071	$773,495
Cost per Period based on required Vehicles (CPL)	**3.60**	**3.61**	**3.60**	**3.57**	**3.76**	**3.64**

Average Tandem & Single Axle TWs **3.62**

APPENDIX H

Table H-7W

Tank Wagon Delivery Cost Model - Home Heating Fuel

HH Pricing Zone 7 - West - Stephenville and Port aux Basque Areas

Census Population -1991	35,672	Loading Tank Wagon at type Facility	**Bulk Plant**
Census Population -1996	33,891	Average Kilometres for return trip in Zone	**80**
Census Population -2001	29,941	Average travel speed - Winter period (Km/Hr)	**50**
Estimated Households and Heating Method - 2001		Average travel speed - Remaining Months (Km/Hr)	**70**
Electric	5,227	Average annual drop per household delivery (Litres)	**400**
Oil/Other	6,328	Working Hours per Day per T/W - Winter Period	**10**
Total	11,555	Working Hours per Day per T/W - Remaining Months	**8**
Avg Population per Household 2001	**2.6**	Annual Operation Cost - Singe Axle Tank Wagon	$118,000
Estimated Percent Homes with Oil Heat	**54.8%**	Annual Operation Cost - Tandem Axle Tank Wagon	$128,000
Est Avg Vol Per Year Per Household Using Oil	**2,500**	Idle Time Cost per day - Single Axle Tank-Wagon	**$193**
Estimated Total Heating Fuel Per Year for Zone (Litres)	**15,820,650**	Idle Time Cost per day - Tandem Axle Tank-Wagon	**$223**
Mother Marine Terminal Location	**Corner Brook**		

HH Pricing Zone 7 - West - Stephenville and Port aux Basque Areas	**3.98**

HH Pricing Zone 7 - West - Stephenville and Port aux Basque Areas

	A. Use all Single Axle Tank Wagons			**B. Use all Tandem Axle Tank Wagons**		
	Winter Dec-Mar 61% Annual Volume	**Remaining Months**	**Full Year Avg/Totals**	**Winter Dec-Mar 61% Annual Volume**	**Remaining Months**	**Full Year Avg/Totals**
Total Volume by Zone for Heating Fuel for Year (Litres)	9,650,597	6,170,054	15,820,650	9,650,597	6,170,054	15,820,650
Average Drop Amount per Household (Litres)	**424**	**362**	**400**	**424**	**362**	**400**
Capacity per Vehicle (Litres)	**11,500**	**11,500**	**11,500**	**20,000**	**20,000**	**20,000**
Loading Time per Vehicle Load (Minutes)	32	30	30.72	40	38	39.22
Average # Drops Per Vehicle Load	27.1	31.8	28.8	47.2	55.2	50.0
Estimate of Kms Traveled Per Return Trip for Zone	**80**	**80**	**80**	**80**	**80**	**80**
Time for Each Drop (Mins)	20	15	**18**	20	15	**18**
Total Drop Time per Load (Minutes)	542	477	519	943	829	903
Average Speed Attained for Travel Time (kms /hr)	**50**	**70**	**57.8**	**50**	**70**	**57.8**
Total Travel Time per Load (Minutes)	96	69	83	96	69	83
Total Average Delivery Time for Each Load (Hours)	11.2	9.6	10.5	18.0	15.6	17.1
Average Delivery Rate Litres/Hr	1030	1201	1091	1112	1283	1171
Volume Delivered During Period for area	9,650,597	6,170,054	15,820,650	9,650,597	6,170,054	15,820,650
# of Working Days during Period	100	200	300	100	200	300
Average Volume Delivered per Working Day for period	96,506	30,850	52,736	96,506	30,850	52,736
Average Required Total Trips per Day	8.4	2.7		4.8	1.5	
Total Hours Required per day During Period	93.7	25.7		86.8	24.0	
Assumed Working Hours per Day per Vehicle	**10.0**	**8.0**		**10.0**	**8.0**	
Indicated Number of Vehicles Required	9.37	3.21		8.68	3.01	
Average Volume delivered by each TW for period	1,029,923	1,921,367		1,111,733	2,052,816	
Average Volume delivered by each TW per day.	10,299	9,607		11,117	10,264	
Actual Number of Vehicles required to be on hand	10	4		9	4	
Number of vehicles required full-time	9	3		8	3	
Volume delivered by full time vehicle(s)	9,269,309	5,764,102	Ck Total	8,893,861	6,158,447	Ck Total
Volume left to be delivered by part time Vehicle	381,287	405,951	15,820,650	756,736	11,606	15,820,650
Part time Operation vehicle (Days)	37	42		68	1	
Idle time for part time vehicles) -(Days)	63	158		32	199	
Full Time Cost per vehicle per Day	$393	$381		$427	$427	
Idle Time Cost per vehicle per Day	$193	$193		$223	$223	
Cost of Full Time Vehicles for period	$354,000	$228,600		$341,333	$256,000	
Cost of Part Time Vehicles for period	$14,562	$16,100		$29,042	$482	
Cost of Idle Time for part Time Vehicles for period	$12,155	$0		$7,121	$0	
Total Cost for vehicles for period	$380,717	$244,700	$625,416	$377,497	$256,482	$633,979
Cost per Period based on required Vehicles (CPL)	**3.95**	**3.97**	**3.95**	**3.91**	**4.16**	**4.01**

Average Tandem & Single Axle TWs **3.98**

APPENDIX H

Table H-7SE

Tank Wagon Delivery Cost Model - Home Heating Fuel

HH Pricing Zone 7 - South East - Burgeo

Census Population -1991	2,400	Loading Tank Wagon at type Facility	**Bulk Plant**
Census Population -1996	2,098	Kilometres for return trip in Zone	**12**
Census Population -2001	1,782	Average travel speed - Winter period (Km/Hr)	**30**
Estimated Households and Heating Method - 2001		Average travel speed - Remaining Months (Km/Hr)	**50**
Electric	274	Average annual drop per household delivery (Litres)	**400**
Oil/Other	411	Working Hours per Day per T/W - Winter Period	**8**
Total	685	Working Hours per Day per T/W - Remaining Months	**8**
Avg Population per Household 2001	**2.6**	Annual Operation Cost - Singe Axle Tank Wagon	$118,000
Estimated Percent Homes with Oil Heat	**60.0%**	Annual Operation Cost - Tandem Axle Tank Wagon	$128,000
Est Avg Vol Per Year Per Household Using Oil	**2,500**	Idle Time Cost per day - Single Axle Tank-Wagon	**$193**
Estimated Total Heating Fuel Per Year for Zone (Litres)	**1,027,500**	Idle Time Cost per day - Tandem Axle Tank-Wagon	**$223**
Mother Marine Terminal Location	**Corner Brook**	**Average Cost of T/W Deliveries CPL**	
		HH Pricing Zone 7 - South East - Burgeo	**4.80**

HH Pricing Zone 7 - South East - Burgeo

	A. Use all Single Axle Tank Wagons			B. Use all Tandem Axle Tank Wagons		
	Winter Dec-Mar 61% Annual Volume	**Remaining Months**	**Full Year Avg/Totals**	**Winter Dec-Mar 61% Annual Volume**	**Remaining Months**	**Full Year Avg/Totals**
Total Volume by Zone for Heating Fuel for Year (Litres)	626,775	400,725	1,027,500	626,775	400,725	1,027,500
Average Drop Amount per Household (Litres)	**424**	**362**	**400**	**424**	**362**	**400**
Capacity per Vehicle (Litres)	**11,500**	**11,500**	**11,500**	**20,000**	**20,000**	**20,000**
Loading Time per Vehicle Load (Minutes)	32	30	30.72	40	38	39.22
Average # Drops Per Vehicle Load	27.1	31.8	28.8	47.2	55.2	50.0
Estimate of Kms Traveled Per Return Trip for Zone	**12**	**12**	**12**	**12**	**12**	**12**
Time for Each Drop (Mins)	20	15	**18**	20	15	**18**
Total Drop Time per Load (Minutes)	542	477	519	943	829	903
Average Speed Attained for Travel Time (kms /hr)	**30**	**50**	**37.8**	**30**	**50**	**37.8**
Total Travel Time per Load (Minutes)	24	14	19	24	14	19
Total Average Delivery Time for Each Load (Hours)	10.0	8.7	9.5	16.8	14.7	16.0
Average Delivery Rate Litres/Hr	1154	1326	1213	1191	1362	1249
Volume Delivered During Period for area	626,775	400,725	1,027,500	626,775	400,725	1,027,500
# of Working Days available during Period	100	200	300	100	200	300
# of Working Days required during Period	68	38		66	37	
Average Volume Delivered per Working Day for period	6,268	2,004	3,425	6,268	2,004	3,425
Average Required Total Trips per Day	0.5	0.2		0.3	0.1	
Total Hours Required per day During Period	5.4	1.5		5.3	1.5	
Assumed Available Working Hours per Day per Vehicle	**8.0**	**8.0**		**8.0**	**8.0**	
Indicated Number of Vehicles Required	0.68	0.19		0.66	0.18	
Average Volume delivered by each TW for period	626,775	400,725	1,027,500	626,775	400,725	1,027,500
Average Volume delivered by each TW per day.	6,268	2,004		6,268	2,004	
Actual Number of Vehicles required to be on hand	1	1		1	1	
Number of vehicles required full-time	0	0		0	0	
Volume delivered by full time vehicle(s)	0	0		0	0	
Volume left to be delivered by part time Vehicle	626,775	400,725	1,027,500	626,775	400,725	1,027,500
Part time Operation vehicle (Days)	68	38		66	37	
Idle time for part time vehicles -(Days)	32	162		34	163	
Full Time Cost per vehicle per Day	$393	$381		$427	$427	
Idle Time Cost per vehicle per Day	$193	$186		$223	$223	
Cost of Full Time Vehicles for period	$0	$0		$0	$0	
Cost of Part Time Vehicles for period	$26,705	$14,394		$28,063	$15,693	
Cost of Idle Time for part Time Vehicles for period	$6,196	$0		$7,633	$0	
Total Cost for vehicles for period	$32,902	$14,394	$47,296	$35,696	$15,693	$51,388
Cost per Period based on required Vehicles (CPL)	**5.25**	**3.59**	**4.60**	**5.70**	**3.92**	**5.00**

Average Tandem & Single Axle TWs **4.80**

APPENDIX H

Table H-7a

Tank Wagon Delivery Cost Model - Home Heating Fuel

No Bulk Plant at Ramea - Deliver Direct to Zone from Burgeo Bulk Plant

HH Pricing Zone 7a - Ramea

Ferry from Burgeo-Return Rates: $6.00 Driver $128.00 T/W

Ferry Trip 1 hour each way - Get Ferry at 9:30 am - return at 3:30 pm next day

Time available on Island for Drops-hrs **14.5** **870** minutes

Census Population -1991	1,224	Loading Tank Wagon at type Facility - BURGEO	**Bulk Plant**
Census Population -1996	1,080	Average Kilometres for return trip in Zone	**20**
Census Population -2001	754	Average travel speed - Winter period (Km/Hr)	**50**
		Average travel speed - Remaining Months (Km/Hr)	**50**
Estimated Households and Heating Method - 2001			
Electric	27	Average annual drop per household delivery (Litres)	**300**
Oil/Other	242	Working Hours per Day per T/W - Winter Period	See Table
Total	269	Working Hours per Day per T/W - Remaining Months	See Table
Avg Population per Household 2001	**2.8**	Annual Operation Cost - Singe Axle Tank Wagon	$118,000
Estimated Percent Homes with Oil Heat	**90.0%**	Annual Operation Cost - Tandem Axle Tank Wagon	$128,000
Est Avg Vol Per Year Per Household Using Oil	**2,500**	Idle Time Cost per day - Single Axle Tank-Wagon	**$193**
Estimated Total Heating Fuel Per Year for Zone (Litres)	**605,714**	Idle Time Cost per day - Tandem Axle Tank-Wagon	**$223**
Load at Burgeo Bulk Plan	**7:30 am**	Note: **Tank Wagon and Driver must over-night in Ramea due to**	
Get Ferry at 4:30 pm and arrive Burgeo Next Day at	**6:00 pm**	**Ferry Schedule to allow time for full load T/W deliveries**	
Total Trip Time (Hours)	**22.5**	**Average Cost of T/W Deliveries CPL HH Pricing Zone 7a - Ramea**	**8.58**

HH Pricing Zone 7a - Ramea

	A. Use all Single Axle Tank Wagons			Note: Use of Tandem Tank Wagons not possible in Ramea due to narrow roadways.		
	Winter Dec-Mar 61% Annual Volume	**Remaining Months**	**Full Year Avg/Totals**			
Total Volume by Zone for Heating Fuel for Year (Litres)	369,486	236,229	605,714			
Average Drop Amount per Household (Litres)	**318**	**271**	**300**			
Capacity per Vehicle (Litres)	**11,500**	**11,500**	**11,500**			
Average # Drops Per Vehicle Load	36	42	38			
Loading Time per Vehicle Load (Minutes)	32	32	32			
Estimate of Kms Traveled Per Return Trip for Zone	**20**	**20**	**20**			
Average Speed Attained for Travel Time (kms /hr)	**50**	**50**	**50**			
Total Travel Time per Load (Minutes)	24	24	24			
Allowable Time for Each Drop (Mins)	24	21	**23**			
Total Available Drop Time per Load (Mins)	870	870	870			
Ferry Crossing Time Return Trip (Mins)	200	200	200			
Total Load Delivery Time with Ferry Trip (Mins)	**1126**	1126	1126			
Average Total Working Time required for Each Load (Hrs)	18.8	18.8	18.8			
Volume Required Delivered During Period for area	369,486	236,229	605,714			
# of Full Working Days available during Period	100	200	300			
Average Volume Delivered per Trip	11,500	11,500	5,750			
# of Full Working Days required during Period (2 per Trip)	64	41	105			
Average Required Total Trips per period	32	21				
Total Hours Required per day During Period	11.3	11.3				
Rounded up Working Hours per Day per Vehicle	**12.0**	**12.0**				
Indicated Number of Vehicles Required	0.94	0.94				
Average Volume delivered by each TW for period	369,486	236,229	605,714			
Average Volume delivered by each TW per day.	5,750	5,750				
Number of vehicles required to be on-hand	1	1				
Volume delivered by full time vehicle(s)	0	0	0			
Volume left to be delivered by part time Vehicle	369,486	236,229				
Part time Operation vehicle (Days)	64	41				
Idle time for part time vehicles) -(Days)	36	159				
Full Time Cost per vehicle per Day	$393	$393				
Full time Cost per Hour based on 10 Hours per day	$39	$39				
Idle Time Cost per vehicle per Day	$186	$186				
Idle Time Cost per Hour based on 10 hour day	$19	$19				
Cost of Full Time Vehicles for period	$0	$0				
Cost of Part Time Vehicles for period	$23,695	$15,149				
Cost of Idle Time for part Time Vehicles for period	Not Applied	Not Applied				
Cost of return Ferry Per Trip (Driver and Helper in Winter)	$140	$134				
Total cost of Ferry Crossings for Period	$4,498	$2,753				
Cost of Over-night in Ramea (Driver and Helper in Winter)	$6,426	$2,054				
Total Cost for vehicles for period	$34,619	$17,338	$51,957			
Cost per Period based on required Vehicles (CPL)	**9.37**	**7.34**	**8.58**			

Average Single Axle TWs for Year CPL **8.58**

APPENDIX H

Table H-7b

Drum deliveries Furnace Oil or Diesel from Burgeo to Coastal Communities of La Poile, Grand Bruit, and Grey River & Francois

HH Pricing Zone 7b - Grey River / Francois / Lapoile / Grand Bruit

Furnace Oil Use	La Poile	Grand Bruit	Grey River	Francois	Totals
Census Population -1991	168	64	181	187	600
Census Population -1996	148	57	188	175	568
Census Population -2001	131	50	174	162	517
Estimated Households and Heating Method - 2001:					
Electric	14	5	18	15	53
Oil/Other	33	13	42	35	123
Total	47	18	60	50	175
Avg Population per Household 2001	2.8	2.8	2.9	3.2	3.0
Estimated Percent Homes with Oil Heat	70%	70%	70%	70%	70%
Est Avg Vol Per Year Per Household Using Oil	1,800	1,800	1,800	1,800	1,800
Estimated Total Heating Fuel Per Year for Zone (Litres)	59,220	22,680	75,600	63,000	**220,500**
	(Average Including Retail Margin of 10.0 cpl)				**14.27**

HH Pricing Zone 7b - Grey River / Francois / Lapoile / Grand Bruit	**La Poile**	**Grand Bruit**	**Grey River**	**Francois**		**Totals & Averages**
Total Volume by Community for Heating Fuel for Year (Litres)	59,220	22,680	75,600	63,000		220,500
Total Volume by Community for winter months (Litres)	36,124	13,835	46,116	38,430		134,505
Total Volume by Community for remaining months (Litres)	23,096	8,845	29,484	24,570		85,995
Total Drums Required per Year	289	111	369	307		1,076
Tank Wagon Delivery to Drums at Dockside						
Single Axle Tank-Wagon - Capacity (Litres)	11,500	11,500	11,500	11,500		11,500
Drums filled per month (Winter period)	44	17	56	47		164
Capacity of each drum (litres)	205	205	205	205		205
Total quantity required to fill drums (Litres)	9,031	3,459	11,529	9,608		33,626
Minutes to Load tank wagon @ 500 litres /min	18	7	23	19		
Driving Time - Return Trip to dockside	20	20	20	20		
Drum filling time (minutes each drum)	4	4	4	4		
Total Drum filling time (mins)	176	67	225	187		
Allowance for delays (mins)	30	10	30	30		Weighted
Total time for return trip (mins)	244	104	298	257		Averages
Total trip time (hours)	4.1	1.7	5.0	4.3		by
Single Axle Tank-Wagon - Cost per hour	$49.17	$49.17	$49.17	$49.17		Volume
Total cost based on time coat per hour for truck and driver	$200.19	$85.56	$244.22	$210.35		$740.32
Average cost per drum	$4.54	$5.07	$4.34	$4.49		$5.64
Average cost (Cents per litre) at 25% over tank-wagon cost	**2.77**	**3.09**	**2.65**	**2.74**		**2.75**
Estimated Weight of each Drum Empty (Kg)	23	23	23	23		23
Estimated Weight of each Drum Full (Kg)	196	196	196	196		196
Winter Period: Handling and Shipping Drums						
Total Number of Drums required over Winter Period	176	67	225	187		656
Number of Months during Winter Period (Dec-Mar)	4	4	4	4		4
Average Number of Drums shipped per month in winter period	44	17	56	47		164
Freight Cost per 50 Kg (Maximum $50 per trip)	$2.00	$2.00	$2.00	$2.00		$2.00
Total weight shipment (Kgs)	8,635	3,307	11,023	9,186		32,150
Coastal Freight Shipping Full Drums Cost (Maximum per shipment)	$50.00	$50.00	$50.00	$50.00		$200.00
Cost of Shipping each Full Drum each shipment	$1.13	$2.96	$0.89	$1.07		$1.22
Total weight empty drums returned each month (Kgs)	1,013	388	1,293	1,078		3,773
Coastal Freight Shipping Return Empty Drums Cost per month	$40.53	$15.52	$50.00	$43.12		$149.17
Cost of Shipping each Drum Empty (Return to Burgeo each month)	$0.92	$0.92	$0.89	$0.92		$0.91
Total Return Coastal Freight Shipping Cost per Drum	$2.05	$3.88	$1.78	$1.99		$2.13
Total Return Coastal Freight Shipping Cost (Cents per Litre)	1.00	1.89	0.87	0.97		1.04
Non-Winter Period: Handling and Shipping Drums						
Total Number of Drums required over Period	113	43	144	120		419
Number of Months during Period	8	8	8	8		8
Average Number of Drums shipped per month in Period	15	6	18	15		53
Total weight shipment (Kgs)	2,940	1,176	3,528	2,940		10,584
Coastal Freight Shipping Full Drums Cost (Maximum per shipment)	$50.00	$47.04	$50.00	$50.00		$197.04
Cost of Shipping each Full Drum each month	$3.33	$7.84	$2.78	$3.33		$3.72
Total weight empty drums returned each month (Kgs)	345	138	414	345		1,219
Coastal Freight Shipping Empty Drums Cost per month	$13.80	$5.52	$16.56	$13.80		$49.68
Cost of Shipping each Drum Empty (Return to Burgeo each week)	$0.92	$0.92	$0.92	$0.92		$0.94
Total Return Coastal Freight Shipping Cost per Drum	$4.25	$8.76	$3.70	$4.25		$4.66
Total Return Coastal Freight Shipping Cost (Cents per Litre)	2.07	4.27	1.80	2.07		2.27
Year Round Average Costs:						
Total Shipping Costs all Drums	$841	$640	$932	$882		$3,349
Average annual Shipping Costs all Drums CPL	**1.42**	**2.82**	**1.23**	**1.40**		**1.52**
Total Delivered Cost to Destination Community Docks (**Wholesale point of sale**) CPL	**4.19**	**5.91**	**3.88**	**4.14**	**Avg**	**4.27**
Total cost of delivering drums to customers in Communities (Retail Margin)	**10.00**	**10.00**	**10.00**	**10.00**		**10.00**
Delivered Retail ex-tax Cost to Coastal Communities Customers CPL	**14.19**	**15.91**	**13.88**	**14.14**	**Avg**	**14.27**

APPENDIX H

Table H-8

Tank Wagon Delivery Cost Model - Home Heating Fuel

HH Pricing Zone 8 - Gros Morne to Bellburns

Area serviced direct from Corner Brook Marine Terminal

Census Population -1991	5,862	Loading Tank Wagon at type Facility	**Terminal**
Census Population -1996	5,449	Kilometres for return trip in Zone	**151**
Census Population -2001	4,771	Average travel speed - Winter period (Km/Hr)	**50**
Estimated Households and Heating Method - 2001		Average travel speed - Remaining Months (Km/Hr)	**70**
Electric	618	Average annual drop per household delivery (Litres)	**400**
Oil/Other	1,149	Working Hours per Day per T/W - Winter Period	**10**
Total	1,767	Working Hours per Day per T/W - Remaining Months	**8**
Avg Population per Household 2001	**2.7**	Annual Operation Cost - Singe Axle Tank Wagon	$118,000
Estimated Percent Homes with Oil Heat	**65.0%**	Annual Operation Cost - Tandem Axle Tank Wagon	$128,000
Est Avg Vol Per Year Per Household Using Oil	**2,200**	Idle Time Cost per day - Single Axle Tank-Wagon	**$193**
Estimated Total Heating Fuel Per Year for Zone (Litres)	**2,526,863**	Idle Time Cost per day - Tandem Axle Tank-Wagon	**$223**
Marine Terminal Location	**Corner Brook**		

Average Cost of T/W Deliveries CPL	
HH Pricing Zone 8 - Gros Morne to Bellburns	**4.64**

HH Pricing Zone 8 - Gros Morne to Bellburns

	A. Use all Single Axle Tank Wagons			B. Use all Tandem Axle Tank Wagons		
	Winter Dec-Mar 61% Annual Volume	**Remaining Months**	**Full Year Avg/Totals**	**Winter Dec-Mar 61% Annual Volume**	**Remaining Months**	**Full Year Avg/Totals**
Total Volume by Zone for Heating Fuel for Year (Litres)	1,541,386	985,477	2,526,863	1,541,386	985,477	2,526,863
Average Drop Amount per Household (Litres)	**424**	**362**	**400**	**424**	**362**	**400**
Capacity per Vehicle (Litres)	**11,500**	**11,500**	**11,500**	**20,000**	**20,000**	**20,000**
Loading Time per Vehicle Load (Minutes)	27	24	25.33	35	32	33.83
Average # Drops Per Vehicle Load	27.1	31.8	28.8	47.2	55.2	50.0
Estimate of Kms Traveled Per Return Trip for Zone	**151**	**151**	**151**	**151**	**151**	**151**
Time for Each Drop (Mins)	20	15	**18**	20	15	**18**
Total Drop Time per Load (Minutes)	542	477	519	943	829	903
Average Speed Attained for Travel Time (kms /hr)	**50**	**70**	**57.8**	**50**	**70**	**57.8**
Total Travel Time per Load (Minutes)	181	129	157	181	129	157
Total Average Delivery Time for Each Load (Hours)	12.5	10.5	11.7	19.3	16.5	18.2
Average Delivery Rate Litres/Hr	920	1096	984	1035	1212	1098
Volume Delivered During Period for area	1,541,386	985,477	2,526,863	1,541,386	985,477	2,526,863
# of Working Days during Period	100	200	300	100	200	300
Average Volume Delivered per Working Day for period	15,414	4,927	8,423	15,414	4,927	8,423
Average Required Total Trips per Day	1.3	0.4		0.8	0.2	
Total Hours Required per day During Period	16.8	4.5		14.9	4.1	
Assumed Working Hours per Day per Vehicle	**10.0**	**8.0**		**10.0**	**8.0**	
Indicated Number of Vehicles Required	1.68	0.56		1.49	0.51	
Average Volume delivered by each TW for period	919,813	1,753,918		1,034,843	1,939,085	
Average Volume delivered by each TW per day.	9,198	8,770		10,348	9,695	
Actual Number of Vehicles required to be on hand	2	1		2	1	
Number of vehicles required full-time	1	0		1	0	
Volume delivered by full time vehicle(s)	919,813	0		1,034,843	0	
Volume left to be delivered by part time Vehicle	621,574	985,477		506,543	985,477	
Part time Operation vehicle (Days)	68	112		49	102	
Idle time for part time vehicles) -(Days)	32	88		51	98	
Full Time Cost per vehicle per Day	$393	$393		$427	$427	
Idle Time Cost per vehicle per Day	$193	$193		$223	$223	
Cost of Full Time Vehicles for period	$39,333	$0		$42,667	$0	
Cost of Part Time Vehicles for period	$26,580	$44,201		$20,885	$43,368	
Cost of Idle Time for part Time Vehicles for period	$6,258	$0		$11,384	$0	
Total Cost for vehicles for period	$72,171	$44,201	$116,372	$74,936	$43,368	$118,304
Cost per Period based on required Vehicles (CPL)	**4.68**	**4.49**	**4.61**	**4.86**	**4.40**	**4.68**

Average Tandem & Single Axle TWs	**4.64**

APPENDIX H

Table H-9

Tank Wagon Delivery Cost Model - Home Heating Fuel

HH Pricing Zone 9 - Northern Peninsula North - River of Ponds to St. Anthony

Census Population -1991	18,795	Loading Tank Wagon at type Facility	Area	**Bulk Plant**
Census Population -1996	17,085	Average Kilometres for return trip in Zone		**244**
Census Population -2001	15,044	Average travel speed - Winter period (Km/Hr)		**50**
Estimated Households and Heating Method - 2001		Average travel speed - Remaining Months (Km/Hr)		**70**
Electric	1,564	Average annual drop per household delivery (Litres)		**400**
Oil/Other	3,648	Working Hours per Day per T/W - Winter Period		**10**
Total	5,212	Working Hours per Day per T/W - Remaining Months		**8**
Avg Population per Household 2001	**2.9**	Annual Operation Cost - Singe Axle Tank Wagon		$118,000
Estimated Percent Homes with Oil Heat	**70.0%**	Annual Operation Cost - Tandem Axle Tank Wagon		$128,000
Est Avg Vol Per Year Per Household Using Oil	**2,100**	Idle Time Cost per day - Single Axle Tank-Wagon		**$193**
Estimated Total Heating Fuel Per Year for Zone (Litres)	**7,661,640**	Idle Time Cost per day - Tandem Axle Tank-Wagon		**$223**
Mother Marine Terminal Location	**Corner Brook**			

Average Cost of T/W Deliveries CPL	
HH Pricing Zone 9 - Northern Peninsula North	**4.84**

HH Pricing Zone 9 - Northern Peninsula North - River of Ponds to St. Anthony

	A. Use all Single Axle Tank Wagons			**B. Use all Tandem Axle Tank Wagons**		
	Winter Dec-Mar 61% Annual Volume	**Remaining Months**	**Full Year Avg/Totals**	**Winter Dec-Mar 61% Annual Volume**	**Remaining Months**	**Full Year Avg/Totals**
Total Volume by Zone for Heating Fuel for Year (Litres)	4,673,600	2,988,040	7,661,640	4,673,600	2,988,040	7,661,640
Average Drop Amount per Household (Litres)	**424**	**362**	**400**	**424**	**362**	**400**
Capacity per Vehicle (Litres)	**11,500**	**11,500**	**11,500**	**20,000**	**20,000**	**20,000**
Loading Time per Vehicle Load (Minutes)	32	30	30.72	40	38	39.22
Average # Drops Per Vehicle Load	27.1	31.8	28.8	47.2	55.2	50.0
Estimate of Kms Traveled Per Return Trip for Zone	**244**	**244**	**244**	**244**	**244**	**244**
Time for Each Drop (Mins)	20	15	**18**	20	15	**18**
Total Drop Time per Load (Minutes)	542	477	519	943	829	903
Average Speed Attained for Travel Time (kms /hr)	**50**	**70**	**57.8**	**50**	**70**	**57.8**
Total Travel Time per Load (Minutes)	293	209	253	293	209	253
Total Average Delivery Time for Each Load (Hours)	14.4	11.9	13.4	21.3	17.9	19.9
Average Delivery Rate Litres/Hr	796	965	859	940	1115	1004
Volume Delivered During Period for area	4,673,600	2,988,040	7,661,640	4,673,600	2,988,040	7,661,640
# of Working Days during Period	100	200	300	100	200	300
Average Volume Delivered per Working Day for period	46,736	14,940	25,539	46,736	14,940	25,539
Average Required Total Trips per Day	4.1	1.3		2.3	0.7	
Total Hours Required per day During Period	58.7	15.5		49.7	13.4	
Assumed Working Hours per Day per Vehicle	**10.0**	**8.0**		**10.0**	**8.0**	
Indicated Number of Vehicles Required	5.87	1.94		4.97	1.67	
Average Volume delivered by each TW for period	796,075	1,543,706		940,294	1,784,599	
Average Volume delivered by each TW per day.	7,961	7,719		9,403	8,923	
Actual Number of Vehicles required to be on hand	6	2		5	2	
Number of vehicles required full-time	5	1		4	1	
Volume delivered by full time vehicle(s)	3,980,374	1,543,706		3,761,177	1,784,599	
Volume left to be delivered by part time Vehicle	693,227	1,444,334	7,661,640	912,423	1,203,441	7,661,640
Part time Operation vehicle (Days)	87	187		97	135	
Idle time for part time vehicles) -(Days)	13	13		3	65	
Full Time Cost per vehicle per Day	$393	$393		$427	$427	
Idle Time Cost per vehicle per Day	$193	$193		$223	$223	
Cost of Full Time Vehicles for period	$196,667	$78,667		$170,667	$85,333	
Cost of Part Time Vehicles for period	$34,252	$73,603		$41,402	$57,544	
Cost of Idle Time for part Time Vehicles for period	$2,493	$0		$661	$0	
Total Cost for vehicles for period	$233,412	$152,269	$385,681	$212,730	$142,878	$355,607
Cost per Period based on required Vehicles (CPL)	**4.99**	**5.10**	**5.03**	**4.55**	**4.78**	**4.64**

Average Tandem & Single Axle TWs **4.84**

APPENDIX H

Table H-10

Tank Wagon Delivery Cost Model - Home Heating Fuel

HH Pricing Zone 10 - Labrador Straits - L'Anse au Clair to Red Bay

Census Population -1991	2,177	Loading Tank Wagon at type Facility	**Secondary Terminal**
Census Population -1996	2,062	Average Kilometres for return trip in Zone	**36**
Census Population -2001	1,996	Average travel speed - Winter period (Km/Hr)	**40**
Estimated Households and Heating Method - 2001		Average travel speed - Remaining Months (Km/Hr)	**60**
Electric	142	Average annual drop per household delivery (Litres)	**300**
Oil/Other	533	Working Hours per Day per T/W - Winter Period	**8**
Total	675	Working Hours per Day per T/W - Remaining Months	**8**
Avg Population per Household 2001	**3.0**	Annual Operation Cost - Singe Axle Tank Wagon	$118,000
Estimated Percent Homes with Oil Heat	**79.0%**	Annual Operation Cost - Tandem Axle Tank Wagon	$128,000
Est Avg Vol Per Year Per Household Using Oil	**1,700**	Idle Time Cost per day - Single Axle Tank-Wagon	**$193**
Estimated Total Heating Fuel Per Year for Zone (Litres)	**906,100**	Idle Time Cost per day - Tandem Axle Tank-Wagon	**$223**
Loading Terminal Location	**L'Anse au Loup**	**Average Cost of T/W Deliveries CPL**	
		HH Pricing Zone 10 - Labrador Straits - L'Anse au Clair to Red Bay	**5.79**

Note 1: 70% Volume delivered during 4 winter months

Note 2: Due to home heat low volumes, no tank wagon idle time is charged anytime during year.

HH Pricing Zone 10 - Labrador Straits - L'Anse au Clair to Red Bay

	A. Use all Single Axle Tank Wagons			B. Use all Tandem Axle Tank Wagons		
	Winter Dec-Mar 70% Annual Volume	**Remaining Months**	**Full Year Avg/Totals**	**Winter Dec-Mar 70% Annual Volume**	**Remaining Months**	**Full Year Avg/Totals**
Total Volume by Zone for Heating Fuel for Year (Litres)	634,270	271,830	906,100	634,270	271,830	906,100
Average Drop Amount per Household (Litres)	**318**	**271**	**300**	**318**	**271**	**300**
Capacity per Vehicle (Litres)	**11,500**	**11,500**	**11,500**	**20,000**	**20,000**	**20,000**
Loading Time per Vehicle Load (Minutes)	32	30	30.72	40	38	39.22
Average # Drops Per Vehicle Load	36.2	42.4	38.3	62.9	73.8	66.7
Estimate of Kms Traveled Per Return Trip for Zone	**36**	**36**	**36**	**36**	**36**	**36**
Time for Each Drop (Mins)	20	15	**18**	20	15	**18**
Total Drop Time per Load (Minutes)	723	637	692	1258	1107	1203
Average Speed Attained for Travel Time (kms /hr)	**40**	**60**	**47.8**	**40**	**60**	**47.8**
Total Travel Time per Load (Minutes)	54	36	45	54	36	45
Total Average Delivery Time for Each Load (Hours)	13.5	11.7	12.8	22.5	19.7	21.5
Average Delivery Rate Litres/Hr	853	983	899	888	1016	932
Volume Delivered During Period for area	634,270	271,830	906,100	634,270	271,830	906,100
# of Working Days during Period	100	200	300	100	200	300
# of Working Days Required during Period	93	35		89	33	
Average Volume Delivered per Working Day for period	6,825	7,863		7,101	8,129	
Average Required Total Trips per Day	0.6	0.7		0.4	0.4	
Total Hours Required per day During Period	8.0	8.0		8.0	8.0	
Assumed Working Hours per Day per Vehicle	**8.0**	**8.0**		**8.0**	**8.0**	
Indicated Number of Vehicles Required	1.00	1.00		1.00	1.00	
Average Volume delivered by each TW for period	634,270	271,830	906,100	634,270	271,830	
Average Volume delivered by each TW per day.	6,825	7,863		7,101	8,129	
Actual Number of Vehicles required to be on hand	1	1		1	1	
Number of vehicles required full-time	0.93	0.17		0.89	0.17	
Volume delivered by full time vehicle(s)	0	0		0	0	
Volume left to be delivered by part time Vehicle	634,270	271,830	906,100	634,270	271,830	
Part time Operation vehicle (Days)	93	35		89	33	
Idle time for part time vehicles) -(Days)	7	165		11	167	
Full Time Cost per vehicle per Day	$393	$393		$427	$427	
Idle Time Cost per vehicle per Day	$193	$193		$223	$223	
Cost of Full Time Vehicles for period	$0	$0		$0	$0	
Cost of Part Time Vehicles for period	$36,553	$13,598		$38,109	$14,268	
Cost of Idle Time for part Time Vehicles for period	$0	$0		$2,382	$0	
Total Cost for vehicles for period	$36,553	$13,598	$50,151	$40,491	$14,268	$54,759
Cost per Period based on required Vehicles (CPL)	**5.76**	**5.00**	**5.53**	**6.38**	**5.25**	**6.04**

Average Tandem & Single Axle TWs **5.79**

APPENDIX H

Table H-11

Tank Wagon Delivery Cost Model - Home Heating Fuel

HH Pricing Zone 11 - Labrador South Coast - Lodge Bay to Cartwright
(All Road Connected Communities throughout Area)

Census Population -1991	2,558	Loading Tank Wagon at type Facility	**Marine Depot/ Bulk Plant**
Census Population -1996	2,528	Average Kilometres for return trip within Zone	**245**
Census Population -2001	2,411	Average travel speed - Winter period (Km/Hr)	**45**
Estimated Households and Heating Method - 2001		Average travel speed - Remaining Months (Km/Hr)	**65**
Electric	150	Average annual drop size per household delivery (Litres)	**350**
Oil/Other	608	Working Hours per Day per T/W - Winter Period	**8**
Total	758	Working Hours per Day per T/W - Remaining Months	**8**
Avg Population per Household 2001	**3.2**	Annual Operation Cost - Singe Axle Tank Wagon	$118,000
Estimated Percent Homes with Oil Heat	**80.2%**	Annual Operation Cost - Tandem Axle Tank Wagon	$128,000
Est Avg Vol Per Year Per Household Using Oil	**640**	Idle Time Cost per day - Single Axle Tank-Wagon	**$193**
Estimated Total Heating Fuel Per Year for Zone (Litres)	**389,120**	Idle Time Cost per day - Tandem Axle Tank-Wagon	**$223**

Note: Deliveries assumed from Bulk Plant or Marine Depot within the Zone Area

Average Cost of T/W Deliveries CPL	
HH Pricing Zone 11 - Labrador South Coast - Lodge Bay to Cartwright	**6.35**

Note 1: 70% Volume delivered during 4 winter months

Note 2: Due to home heat low volumes, no tank wagon idle time is charged anytime during year.

HH Pricing Zone 11 - Labrador South Coast - Lodge Bay to Cartwright

	A. Use all Single Axle Tank Wagons			B. Use all Tandem Axle Tank Wagons		
	Winter Dec-Mar 70% Annual Volume	**Remaining Months**	**Full Year Avg/Totals**	**Winter Dec-Mar 70% Annual Volume**	**Remaining Months**	**Full Year Avg/Totals**
Total Volume by Zone for Heating Fuel for Year (Litres)	272,384	116,736	389,120	272,384	116,736	389,120
Average Drop Amount per Household (Litres)	**371**	**317**	**350**	**371**	**317**	**350**
Capacity per Vehicle (Litres)	**11,500**	**11,500**	**11,500**	**20,000**	**20,000**	**20,000**
Loading Time per Vehicle Load (Minutes)	32	30	30.72	40	38	39.22
Average # Drops Per Vehicle Load	31.0	36.3	32.9	53.9	63.1	57.1
Estimate of Kms Traveled Per Return Trip for Zone	**245**	**245**	**245**	**245**	**245**	**245**
Time for Each Drop (Mins)	20	15	**18**	20	15	**18**
Total Drop Time per Load (Minutes)	620	544	593	1078	946	1031
Average Speed Attained for Travel Time (kms /hr)	**45**	**65**	**52.8**	**45**	**65**	**52.8**
Total Travel Time per Load (Minutes)	327	226	278	327	226	278
Total Average Delivery Time for Each Load (Hours)	16.3	13.3	15.0	24.1	20.2	22.5
Average Delivery Rate Litres/Hr	705	863	765	831	991	890
Volume Delivered During Period for area	272,384	116,736	389,120	272,384	116,736	389,120
# of Working Days during Period	100	200	300	100	200	300
# of Working Days Required during Period	48	17		41	15	
Average Volume Delivered per Working Day for period	5,644	6,902		6,644	7,930	
Average Required Total Trips per Day	0.5	0.6		0.3	0.4	
Total Hours Required per day During Period	8.0	8.0		8.0	8.0	
Assumed Working Hours per Day per Vehicle	**8.0**	**8.0**		**8.0**	**8.0**	
Indicated Number of Vehicles Required	1	1		0.41	0.07	
Average Volume delivered by each TW for period	272,384	116,736	389,120	272,384	116,736	
Average Volume delivered by each TW per day.	5,644	6,902		6,644	7,930	
Actual Number of Vehicles required to be on hand	1	1		1	1	
Number of vehicles required full-time	0.48	0.08		0	0	
Volume delivered by full time vehicle(s)	0	0		0	0	
Volume left to be delivered by part time Vehicle	272,384	116,736	389,120	272,384	116,736	389,120
Part time Operation vehicle (Days)	48	17		41	15	
Idle time for part time vehicles) -(Days)	52	183		59	185	
Full Time Cost per vehicle per Day	$393	$393		$427	$427	
Idle Time Cost per vehicle per Day	$193	$193		$223	$223	
Cost of Full Time Vehicles for period	$0	$0	$0	$0	$0	$0
Cost of Part Time Vehicles for period	$18,984	$6,653	25,637	$17,491	$6,281	23,772
Cost of Idle Time for part Time Vehicles for period	$0	$0	0	$0	$0	0
Total Cost for vehicles for period	$18,984	$6,653	$25,637	$17,491	$6,281	$23,772
Cost per Period based on required Vehicles (CPL)	**6.97**	**5.70**	**6.59**	**6.42**	**5.38**	**6.11**

Average Tandem & Single Axle TWs **6.35**

APPENDIX H

Table H-11a

Tank Wagon Delivery Cost Model - Home Heating Fuel

HH Zone 11a – Labrador South Coast (Isolated Communities with depots)

Census Population -1991 Black Tickle and Domino	260	Loading Tank Wagon at type Facility	**Marine Depot**
Census Population -1996 Black Tickle and Domino	231	Average Kilometres for return trip in Zone	**10**
Census Population -2001 Black Tickle and Domino	201	Average travel speed - Winter period (Km/Hr)	**40**
Estimated Households and Heating Method - 2001		Average travel speed - Remaining Months (Km/Hr)	**60**
Electric	0	Average annual drop per household delivery (Litres)	**200**
Oil/Other	67	Working Hours per Day per T/W - Winter Period	**8**
Total	67	Working Hours per Day per T/W - Remaining Months	**8**
Avg Population per Household 2001	**3.0**	Annual Operation Cost - Singe Axle Tank Wagon	$118,000
Estimated Percent Homes with Some Oil Heat	**95.0%**		
Est Avg Vol Per Year Per Household Using Oil	**1,200**		
Estimated Total Heating Fuel Per Year for Zone (Litres)	**80,400**		
Loading Terminal Location	**Various**		

Drum filling cost at Depot	CPL	10.00

Supply Mode Alternatives

HH Zone 11a – Labrador South Coast (Isolated Communities with depots)

	A. Use all Single Axle Tank Wagons for deliveries to homes				B. Fill 205 litre Drums for customers at marine Depot		
	Winter Dec-Mar 70% Annual Volume	Remaining Months	Full Year Avg/Totals			Full Year Avg/Totals	
Total Volume by Zone for Heating Fuel for Year (Litres)	56,280	24,120	80,400			80,400	
Average Drop Amount per Household (Litres)	**212**	**181**	**200**				
Capacity per Vehicle (Litres)	**11,500**	**11,500**	**11,500**				
Capacity of each Drum Filled at Marine Depot						205	
Number of Drums Filled per period						392	
Number of weeks per period						52	
Cost of Filling / Handling each drum						$20.50	
Total cost of Filling/ Handling Drums						$8,040	
Loading Time per Vehicle Load (Minutes)							
Average # Drops Per Vehicle Load							
Estimate of Kms Traveled Per Return Trip for Zone							
Time for Each Drop (Mins)							
Total Drop Time per Load (Minutes)							
Average Speed Attained for Travel Time (kms /hr)							
Total Travel Time per Load (Minutes)							
Total Average Delivery Time for Each Load (Hours)							
Assumed Working Hours per Day per Vehicle							
Average days for delivering each load							
Average Delivery Rate Litres/Working Day							
Volume Delivered During Period for area							
# of Available Working Days during Period							
# of Working Days Required during Period 1 T/W							
Average Volume Delivered per Working Day for period							
Average Required Total Trips per working Day							
Total Hours Required per day During Period							
Assumed Working Hours per Day per Vehicle							
Indicated Number of Vehicles Required							
Actual Number of Vehicles required to be on hand							
Number of vehicles required full-time							
Average Volume delivered by each vehicle(s)							
Volume left to be delivered by part time Vehicle							
Part time Operation vehicle (Days)							
Idle time for full time vehicles -(Days)							
Full Time Cost per vehicle per Day							
Idle Time Cost per vehicle per Day							
Cost of Full Time Vehicles for period							
Cost of Part Time Vehicles for period							
Cost of Idle Time for full time Vehicles for period							
Total Cost for vehicles for period							
Cost per Period Cents per Litre (CPL)	**N/A**	**N/A**	**N/A**			**10.00**	

Note: Tank Wagon Delivery not feasible for low home heat volume unless commercial volumes were otherwise sufficient to justify the expense of operating a tank wagon vehicle in the community.

Average Cost of Drum Filling At Depot CPL 10.00

APPENDIX H

Table H-11b

Drum deliveries from Charlottetown to Coastal Communities of Williams Harbour & Norman Bay

HH Pricing Zone 11b - Williams Harbour - Norman Bay - Freight Ferry (If Service Applicable)

	Williams Harbour	Norman Bay	Totals
Census Population -1991	77	58	135
Census Population -1996	71	52	123
Census Population -2001	60	45	105
Estimated Households and Heating Method - 2001:			
Electric	0	0	0
Oil/Wood Combination	20	15	35
Total	20	15	35
Avg Population per Household 2001	3.0	3.0	3.0
Estimated Percent Homes with Oil or Wood Heat	100%	100%	100%
Est Avg Vol Per Year Per Household Using Oil	1,000	1,000	1,000
Estimated Total Heating Fuel Per Year for Zone (Litres)	20,000	15,000	35,000

HH Pricing Zone 11b - Williams Harbour - Norman Bay - Freight Ferry (If Service Applicable) **16.29**

HH Pricing Zone 11b - Williams Harbour - Norman Bay - Freight Ferry (If Service Applicable)	**Williams Harbour**	**Norman Bay**	**Totals / Averages**
Total Number of Drums required for year.	98	73	171
Number of shipping season months during Period	5	5	5
Average Number of Drums shipped per month during shipping season	20	15	35

Tank-Wagon delivery for drum filling at dockside from Bulk Plant / Marine Depot	Port Hope Simpson or Charlottetown	Charlottetown or Port Hope Simpson	**Totals / Averages**
For drums for shipment to:	Williams Harbour	Norman Bay	**Both**
Location	Dockside	Dockside	Dockside
Supplier	Agent	Agent	Agent
Distance one way (kms)	43	43	43
Tank Wagon	Single	Single	Single
Capacity (litres)	11,500	11,500	11,500
Avg Speed of TW (kms/hr)	50	50	50
Litres Delivered	4,100	3,075	7,175
Mins to Load	11	9	20
Mins driving (Return Trip)	103	103	103
# Drums per shipment	**20**	**15**	**35**
Litres per Drum	205	205	205
Total Drum Filling Time at 5 minutes per drum	100	75	175
Allowance for Delays (Mins)	20	20	40
Total Time return Trip Minutes	223	198	318
Total Trip Hrs	3.7	3.3	7.0
Operating cost $/hr	$49.17	$49.17	$49.17
Total load delivered cost	$182.91	$162.41	$345.31
Filling Cost per Drum	$9.15	$10.83	$9.87
Delivered cost to fill drums at dockside- CPL (Weighted Average)			**4.81**

Shipping Drums and Returning Empties: (See attached Calculation Table H-29 Supplement)

Coastal Freight Shipping Full Drums (Cost per shipment)	$389.83	$292.37	$682.20
Coastal Freight Return Shipping Empty Drums Cost per shipment	$80.86	$60.65	$141.51
Total Return Coastal Freight Shipping Cost per Drum	$23.53	$23.53	$23.53
Total Return Coastal Freight Shipping Cost (Cents per Litre)	**11.48**	**11.48**	**11.48**

Total Landed Cost of Drums at Dockside at Destination Community **(Wholesale Point of Sale)**			**16.29**

APPENDIX H

Table H-11b-Supplement

Drum Delivery Calculations - Freight Ferry to Williams Harbour and Norman Bay - Stove Oil (If Applicable)

Ferry Freight Rates to Williams Harbour and Norman Bay	Williams Harbour	Norman Bay	Totals / Averages
Full Drums Stove Oil:			
Weight of empty 45 imperial gallon oil drum is 23 Kgs or	50.7	50.7	50.7
Weight of 205 litres of Stove Oil at 7.97 lbs / gallon =	359.4	359.4	359.4
Total weight full drum Stove Oil	**410.1**	**410.1**	**410.1**
Cubic Weight of 1 drum gasoline per Ferry Rates Schedule			
Volume of 45 gallon drum at 6.228 gallons per cu. Ft.=	7.23	7.23	7.23
Cubic Weight of 1 Drum per Ferry Rate Calculations @ 10lbs/cu ft=	**72.3**	**72.3**	**72.3**
Assume 4 drums are strapped to one 4' by 4' pallet			
Weight of pallet approx =	22	22	22
Weight of full drum gasoline on pallet (Including 25% of pallet wt)	**415.6**	**415.6**	**415.6**
For full drum shipments Rate would be based on actual weight since it is greater than cubic weight			
Number of drums per shipment	20	15	35
Actual weight drum shipment palletized=	8312	6234	14546
Number of hundred weights	83	62	145
Rate $/cwt =	$4.36	$4.36	$4.36
Rate per actual weight=	$4.36	$4.36	$4.36
Rate per shipment =	$362.40	$271.80	$634.20
Add Top Wharfage at Load Port	$13.71	$10.29	$24.00
Add Top Wharfage at Discharge Port	$13.71	$10.29	$24.00
Total cost per shipment =	$389.83	$292.37	$682.20
Rate for 1 drum =	$19.49	$19.49	$19.49
Rate per Litre	**9.51**	**9.51**	**9.51**
Empty Drums Returned:			
Weight of empty 45 imperial gallon oil drum is 23 Kgs or	50.7	50.7	50.7
Use Cubic Weight per empty drum since it is greater	**72.3**	**72.3**	**72.3**
Number of drums per shipment	20	15	35
Cubic weight empty drum shipment + 1/4 pallet=	78	78	78
Total weight of shipment	1555	1166	2721
Rate $/cwt =	$4.87	$4.87	$4.87
Rate per shipment =	$75.73	$56.80	$132.53
Add Top Wharfage at Load Port	$2.57	$1.92	$4.49
Add Top Wharfage at Discharge Port	$2.57	$1.92	$4.49
Total cost per shipment =	$80.86	$60.65	$141.51
Rate for 1 drum =	$4.04	$4.04	$4.04
Equivalent Rate per Litre	**1.97**	**1.97**	**1.97**
Total cost drum shipments with drums returned	$23.53	$23.53	$23.53
Total cost drum shipments with drums returned	**11.48**	**11.48**	**11.48**

APPENDIX H

Table H-12

Tank Wagon Delivery Cost Model - Home Heating Fuel

HH Pricing Zone 12 - Central Labrador - Happy Valley/ Goose Bay - North West River

Census Population -1991	10,050	Loading Tank Wagon at type Facility	**Terminal**
Census Population -1996	10,240	Average Kilometres for return trip in Zone	**36**
Census Population -2001	9,654	Average travel speed - Winter period (Km/Hr)	**40**
Estimated Households and Heating Method - 2001		Average travel speed - Remaining Months (Km/Hr)	**60**
Electric	3,026	Average annual drop per household delivery (Litres)	**450**
Oil/Other	159	Working Hours per Day per T/W - Winter Period	**8**
Total	3,185	Working Hours per Day per T/W - Remaining Months	**8**
Avg Population per Household 2001	**3.0**	Annual Operation Cost - Singe Axle Tank Wagon	$118,000
Estimated Percent Homes with Oil Heat	**5.0%**	Annual Operation Cost - Tandem Axle Tank Wagon	$128,000
Est Avg Vol Per Year Per Household Using Oil	**1,800**	Idle Time Cost per day - Single Axle Tank-Wagon	**$193**
Estimated Total Heating Fuel Per Year for Zone (Litres)	**286,650**	Idle Time Cost per day - Tandem Axle Tank-Wagon	**$223**
Loading Terminal Location	**Goose Bay**	**Average Cost of T/W Deliveries CPL**	
Note: Due to low volume, no idle time is charged to T/W anytime during year		**HH Pricing Zone 12 - Central Labrador - Happy Valley/ Goose Bay - North West River**	**3.84**

HH Pricing Zone 12 - Central Labrador - Happy Valley/ Goose Bay - North West River

	A. Use all Single Axle Tank Wagons			B. Use all Tandem Axle Tank Wagons		
	Winter Dec-Mar 70% Annual Volume	**Remaining Months**	**Full Year Avg/Totals**	**Winter Dec-Mar 70% Annual Volume**	**Remaining Months**	**Full Year Avg/Totals**
Total Volume by Zone for Heating Fuel for Year (Litres)	200,655	85,995	286,650	**(Not Feasible to use Tandem Tank-Wagons due low demand for home heat fuel)**		
Average Drop Amount per Household (Litres)	**477**	**407**	**450**			
Capacity per Vehicle (Litres)	**11,500**	**11,500**	**11,500**			
Loading Time per Vehicle Load (Minutes)	27	24	25.33			
Average # Drops Per Vehicle Load	24.1	28.3	25.6			
Estimate of Kms Traveled Per Return Trip for Zone	**36**	**36**	**36**			
Time for Each Drop (Mins)	20	15	**18**			
Total Drop Time per Load (Minutes)	482	424	461			
Average Speed Attained for Travel Time (kms /hr)	**40**	**60**	**47.8**			
Total Travel Time per Load (Minutes)	54	36	45			
Total Average Delivery Time for Each Load (Hours)	9.4	8.1	8.9			
Average Delivery Rate Litres/Hr	1226	1428	1297			
Volume Delivered During Period for area	200,655	85,995	286,650			
# of Working Days during Period	100	200	300			
# of Working Days Required during Period	20	8				
Average Volume Delivered per Working Day for period	2,007	430	956			
Average Required Total Trips per Day	0.2	0.0				
Total Hours Required per day During Period	1.6	0.3				
Assumed Working Hours per Day per Vehicle	**8.0**	**8.0**				
Indicated Number of Vehicles Required	0.20	0.04				
Average Volume delivered by each TW for period	200,655	85,995				
Average Volume delivered by each TW per day.	9,810	11,421				
Actual Number of Vehicles required to be on hand	1	1				
Number of vehicles required full-time	0	0				
Volume delivered by full time vehicle(s)	0	0				
Volume left to be delivered by part time Vehicle	200,655	85,995	286,650			
Part time Operation vehicle (Days)	20	8				
Idle time for part time vehicles) -(Days)	80	192				
Full Time Cost per vehicle per Day	$393	$393				
Idle Time Cost per vehicle per Day	$193	$193				
Cost of Full Time Vehicles for period	$0	$0				
Cost of Part Time Vehicles for period	$8,045	$2,962				
Cost of Idle Time for part Time Vehicles for period	$0	$0				
Total Cost for vehicles for period	$8,045	$2,962	$11,007			
Cost per Period based on required Vehicles (CPL)	**4.01**	**3.44**	**3.84**	**N/A**	**N/A**	**N/A**

Average Single Axle TWs **3.84**

APPENDIX H

Table H-13

Tank Wagon Delivery Cost Model - Home Heating Fuel

HH Pricing Zone 13 - Western Labrador - Labrador City/ Wabush

Census Population -1991	11,392	Loading Tank Wagon at type Facility	**Bulk Plant**
Census Population -1996	10,473	Average Kilometres for return trip in Zone	**36**
Census Population -2001	9,638	Average travel speed - Winter period (Km/Hr)	**40**
Estimated Households and Heating Method - 2001		Average travel speed - Remaining Months (Km/Hr)	**60**
Electric	3,355	Average annual drop per household delivery (Litres)	**450**
Oil/Other	110	Working Hours per Day per T/W - Winter Period	**8**
Total	3,465	Working Hours per Day per T/W - Remaining Months	**8**
Avg Population per Household 2001	**2.8**	Annual Operation Cost - Singe Axle Tank Wagon	$118,000
Estimated Percent Homes with Oil Heat	**3.2%**	Annual Operation Cost - Tandem Axle Tank Wagon	$128,000
Est Avg Vol Per Year Per Household Using Oil	**2,000**	Idle Time Cost per day - Single Axle Tank-Wagon	**$193**
Estimated Total Heating Fuel Per Year for Zone (Litres)	**220,000**	Idle Time Cost per day - Tandem Axle Tank-Wagon	**$223**
Loading Terminal Location	**Labrador City**		

Note: Due to low volume, no idle time is charged to T/W anytime during year

Average Cost of T/W Deliveries CPL	
HH Pricing Zone 13 - Western Labrador - Labrador City/ Wabush	**3.88**

HH Pricing Zone 13 - Western Labrador - Labrador City/ Wabush

	A. Use all Single Axle Tank Wagons			B. Use all Tandem Axle Tank Wagons		
	Winter Dec-Mar 70% Annual Volume	**Remaining Months**	**Full Year Avg/Totals**	**Winter Dec-Mar 70% Annual Volume**	**Remaining Months**	**Full Year Avg/Totals**
Total Volume by Zone for Heating Fuel for Year (Litres)	154,000	66,000	220,000	**(Not Feasible to use Tandem Tank-Wagons due low demand for home heat fuel)**		
Average Drop Amount per Household (Litres)	**477**	**407**	**450**			
Capacity per Vehicle (Litres)	**11,500**	**11,500**	**11,500**			
Loading Time per Vehicle Load (Minutes)	32	30	30.72			
Average # Drops Per Vehicle Load	24.1	28.3	25.6			
Estimate of Kms Traveled Per Return Trip for Zone	**36**	**36**	**36**			
Time for Each Drop (Mins)	20	15	**18**			
Total Drop Time per Load (Minutes)	482	424	461			
Average Speed Attained for Travel Time (kms /hr)	**40**	**60**	**47.8**			
Total Travel Time per Load (Minutes)	54	36	45			
Total Average Delivery Time for Each Load (Hours)	9.5	8.2	9.0			
Average Delivery Rate Litres/Hr	1215	1410	1284			
Volume Delivered During Period for area	154,000	66,000	220,000			
# of Working Days during Period	100	200	300			
# of Working Days Required during Period	16	6				
Average Volume Delivered per Working Day for period	9,724	11,281				
Average Required Total Trips per Day	0.8	1.0				
Total Hours Required per day During Period	8.0	8.0				
Assumed Working Hours per Day per Vehicle	**8.0**	**8.0**				
Indicated Number of Vehicles Required	1.00	1.00				
Average Volume delivered by each TW for period	154,000	66,000				
Average Volume delivered by each TW per day.	9,724	11,281				
Actual Number of Vehicles required to be on hand	1	1				
Number of vehicles required full-time	0	0				
Volume delivered by full time vehicle(s)	0	0				
Volume left to be delivered by part time Vehicle	154,000	66,000				
Part time Operation vehicle (Days)	16	6				
Idle time for part time vehicles) -(Days)	84	194				
Full Time Cost per vehicle per Day	$393	$393				
Idle Time Cost per vehicle per Day	$193	$193				
Cost of Full Time Vehicles for period	$0	$0				
Cost of Part Time Vehicles for period	$6,229	$2,301				
Cost of Idle Time for part Time Vehicles for period	$0	$0				
Total Cost for vehicles for period	$6,229	$2,301	$8,531			
Cost per Period based on required Vehicles (CPL)	**4.05**	**3.49**	**3.88**			

Average Single Axle TWs **3.88**

APPENDIX H

Table H-13a

Tank Wagon Delivery Cost Model - Home Heating Fuel

HH Pricing Zone 13a - Churchill Falls

Census Population -1991	810	Loading Tank Wagon at type Facility	**Bulk Plant**
Census Population -1996	717	Average Kilometres for return trip in Zone	**486**
Census Population -2001	645	Average travel speed - Winter period (Km/Hr)	**60**
Estimated Households and Heating Method - 2001		Average travel speed - Remaining Months (Km/Hr)	**80**
Electric	210	Average annual drop per household delivery (Litres)	**450**
Oil/Other	0	Working Hours per Day per T/W - Winter Period	**8**
Total	210	Working Hours per Day per T/W - Remaining Months	**8**
Avg Population per Household 2001	**3.1**	Annual Operation Cost - Singe Axle Tank Wagon	$118,000
Estimated Percent Homes with Oil Heat	**0.0%**	Annual Operation Cost - Tandem Axle Tank Wagon	$128,000
Est Avg Vol Per Year Per Household Using Oil	**N/A**		
Estimated Total Heating Fuel Per Year for Zone (Litres)	**0**	**Average Cost of T/W Deliveries CPL**	
Loading Terminal Location: **Labrador City**		**HH Pricing Zone 13a - Churchill Falls**	**5.94**

Note: No Home Heat Volume required - all Electric Heated Homes
Delivery Calculation done on Tandem Axle Tank Wagon from Labrador City Bulk Plant

HH Pricing Zone 13a - Churchill Falls

Tank Wagon Delivery to Homes in Churchill Falls	
Tandem Axle Tank-Wagon - Capacity (Litres)	20,000
Minutes to Load tank wagon @ 500 litres /min	40
Loading time (Hours)	**0.7**
Driving Distance to Churchill Falls	243
Average Driving Speed (Kms per Hour)	70
Driving Time - Return Trip to Churchill Falls (Hours)	**3.5**
Average Drop per Household (Litres)	450
Number of drops per Tank-Wagon load	44
Average Time for each drop	18
Total Drop Time (minutes)	800
Total Drop Time (Hours)	**13.3**
Driver and Tank Wagon must Overnight in Churchill Falls:	
Cost of Hotel and Meals for Driver	$150
Idle Time on Tank wagon = 16 hrs less 13.3 hrs	2.7
Cost of Idle Time on Tank wagon at $24.08/ hr	$65
Cost of extra 2.7 hours for driver	$41
Total trip time to and from Churchill Falls	**17.5**
Tandem Axle Tank-Wagon - Cost per hour	$53.33
Total cost based on operating time for truck and driver	$932
Total overnight and Idle Time costs	$256
Total Trip Costs	$1,187
Average cost (Cents per Litre)	**5.94**

This calculation is done in order to establish a cost to delivery furnace fuel from the Labrador City Rail Car bulk plant. The calculation is based on a tandem tank wagon loading at Labrador City, making full load deliverers to homes in Churchill Falls and returning to Labrador City the following day. Extra costs for a full 16 hour shift by driver and his overnight lodging costs are included. Idle time for vehicle where it is less than a full 16 hours for 2 days is also applied.

APPENDIX H

Table H-14

Tank Wagon Delivery Cost Model - Home Heating Fuel

HH Pricing Zone 14 - Northern Labrador - (6 Coastal Communities)

Census Population -1991	2,984
Census Population -1996	3,186
Census Population -2001	3,214
Estimated Households and Heating Method - 2001	
Electric	214
Oil/Other	641
Total	855
Avg Population per Household 2001	**3.8**
Estimated Percent Homes with Oil Heat	**75.0%**
Est Avg Vol Per Year Per Household Using Oil	**1,200**
Estimated Total Heating Fuel Per Year for Zone (Litres)	**769,500**
Loading Terminal Location	**Various**

Including Natuashish run by Band Council

Loading Tank Wagon at type Facility	**Marine Depots**
Average Kilometres for return trip in Zone	**14**
Average travel speed - Winter period (Km/Hr)	**40**
Average travel speed - Remaining Months (Km/Hr)	**60**
Average annual drop per household delivery (Litres)	**300**
Working Hours per Day per T/W - Winter Period	**8**
Working Hours per Day per T/W - Remaining Months	**8**
Annual Operation Cost - Singe Axle Tank Wagon	$118,000
Annual Operation Cost - Tandem Axle Tank Wagon	$128,000

Drum filling cost at Depot	**CPL**	**10.00**

Supply Mode Alternatives

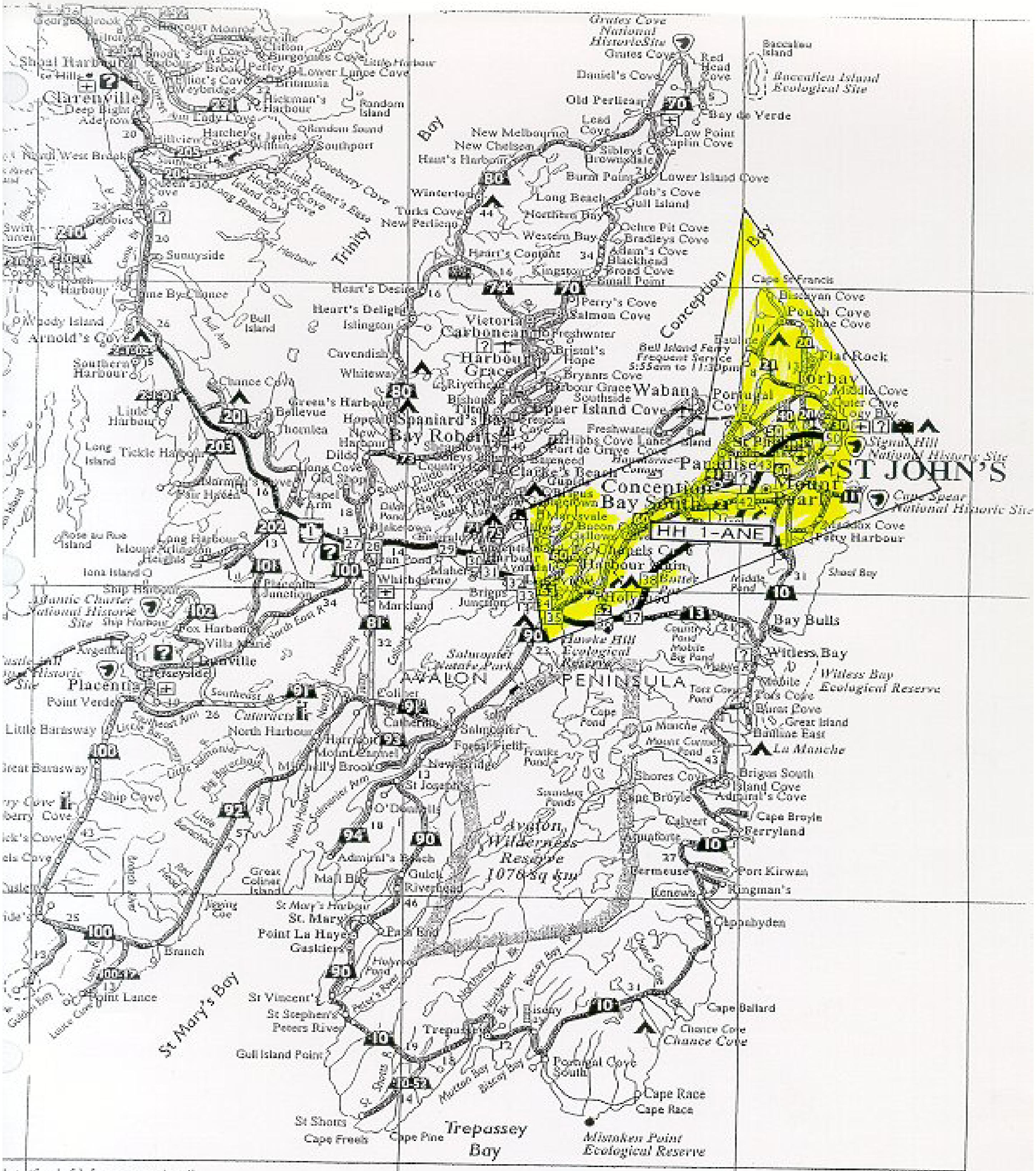
HH Pricing Zone 14 - Northern Labrador - (6 Isolated Coastal Communities)

	A. Use all Single Axle Tank Wagons for deliveries to homes				B. Fill 205 litre Drums for customers at marine Depot		
	Winter Dec-Mar 70% Annual Volume	Remaining Months	Full Year Avg/Totals			Full Year Avg/Totals	
Total Volume by Zone for Heating Fuel for Year (Litres)	538,650	230,850	769,500			769,500	
Average Drop Amount per Household (Litres)	**Use of tank wagon vehicles for home heat delivery is generally not feasible in the wintertime with unplowed local roads. Most Heating Fuel deliveries are made by drums via ATV or snowmobile trailers by the customers themselves picking up product at the Depot.**						
Capacity per Vehicle (Litres)							
Capacity of each Drum Filled at Marine Depot						205	
Number of Drums Filled per period						3,754	
Number of weeks per period						52	
Cost of Filling / Handling each drum						$20.50	
Total cost of Filling/ Handling Drums						$76,950	
Loading Time per Vehicle Load (Minutes)							
Average # Drops Per Vehicle Load							
Estimate of Kms Traveled Per Return Trip for Zone							
Time for Each Drop (Mins)							
Total Drop Time per Load (Minutes)							
Average Speed Attained for Travel Time (kms /hr)							
Total Travel Time per Load (Minutes)							
Total Average Delivery Time for Each Load (Hours)							
Assumed Working Hours per Day per Vehicle							
Average days for delivering each load							
Average Delivery Rate Litres/Working Day							
Volume Delivered During Period for area							
# of Working Days during Period							
# of Working Days Required during Period 5 T/Ws							
Average Volume Delivered per Working Day for period							
Average Required Total Trips per Day							
Total Hours Required per day During Period							
Assumed Working Hours per Day per Vehicle							
Indicated Number of Vehicles Required							
Average Volume delivered by each TW for period							
Average Volume delivered by each TW per day.							
Actual Number of Vehicles required to be on hand							
Number of vehicles required full-time per community							
Volume delivered by full time vehicle(s)							
Volume left to be delivered by part time Vehicle							
Part time Operation vehicle (Days)							
Idle time for full time vehicles -(Days)							
Full Time Cost per vehicle per Day							
Idle Time Cost per vehicle per Day							
Cost of Full Time Vehicles for period							
Cost of Part Time Vehicles for period per community							
Cost of Idle Time for part time Vehicles for period							
Total Cost for vehicles for period per community							
Cost per Period Cents per Litre (CPL)						**10.00**	

Average Single Axle Tank Wagon Delivery Cost - CPL **N/A** **Drum filling cost at Depot** **10.00**

APPENDIX I Figure I–1

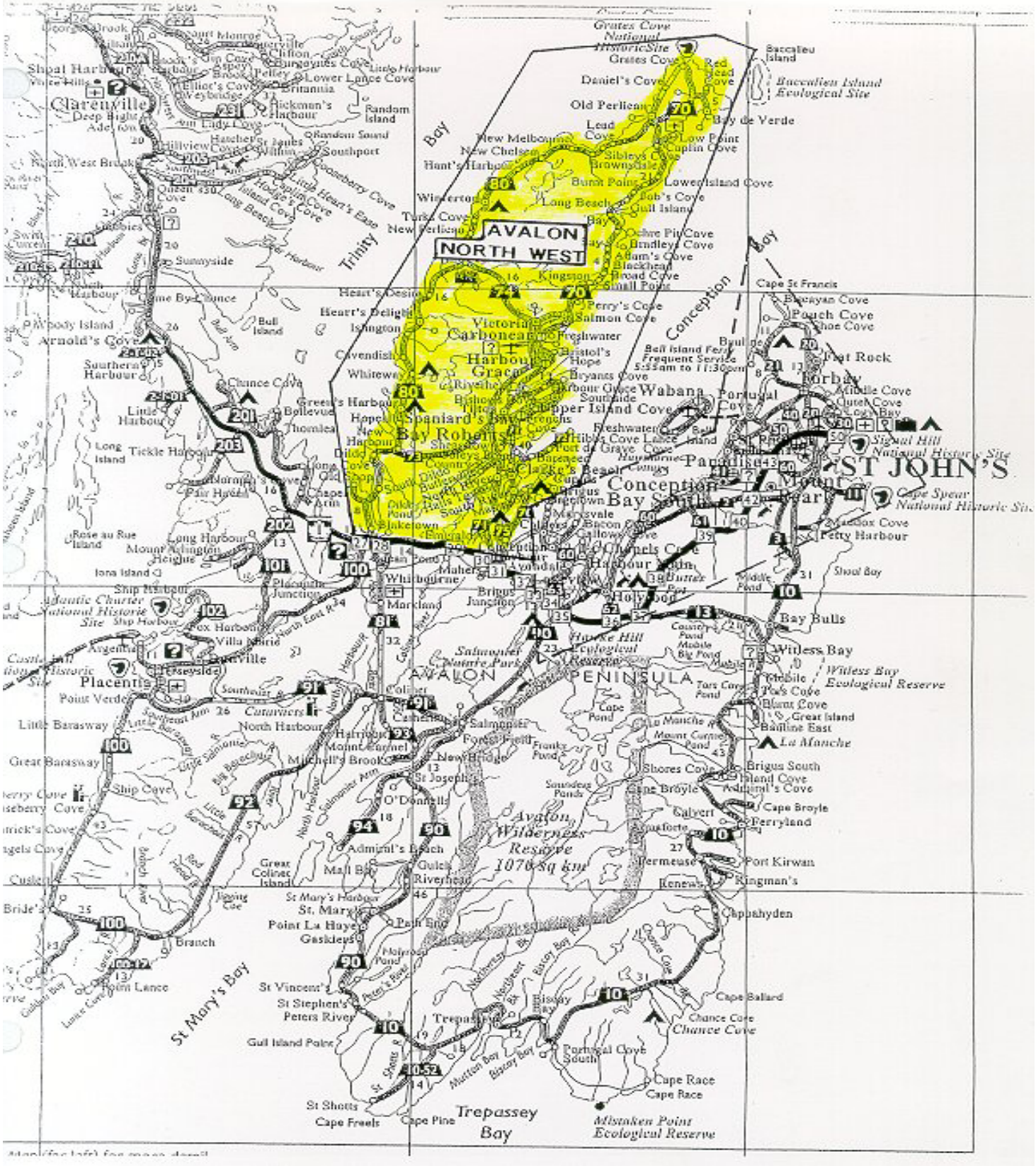
Home Heat Pricing Zone 1 – Avalon North East



lop (far left) for more detail

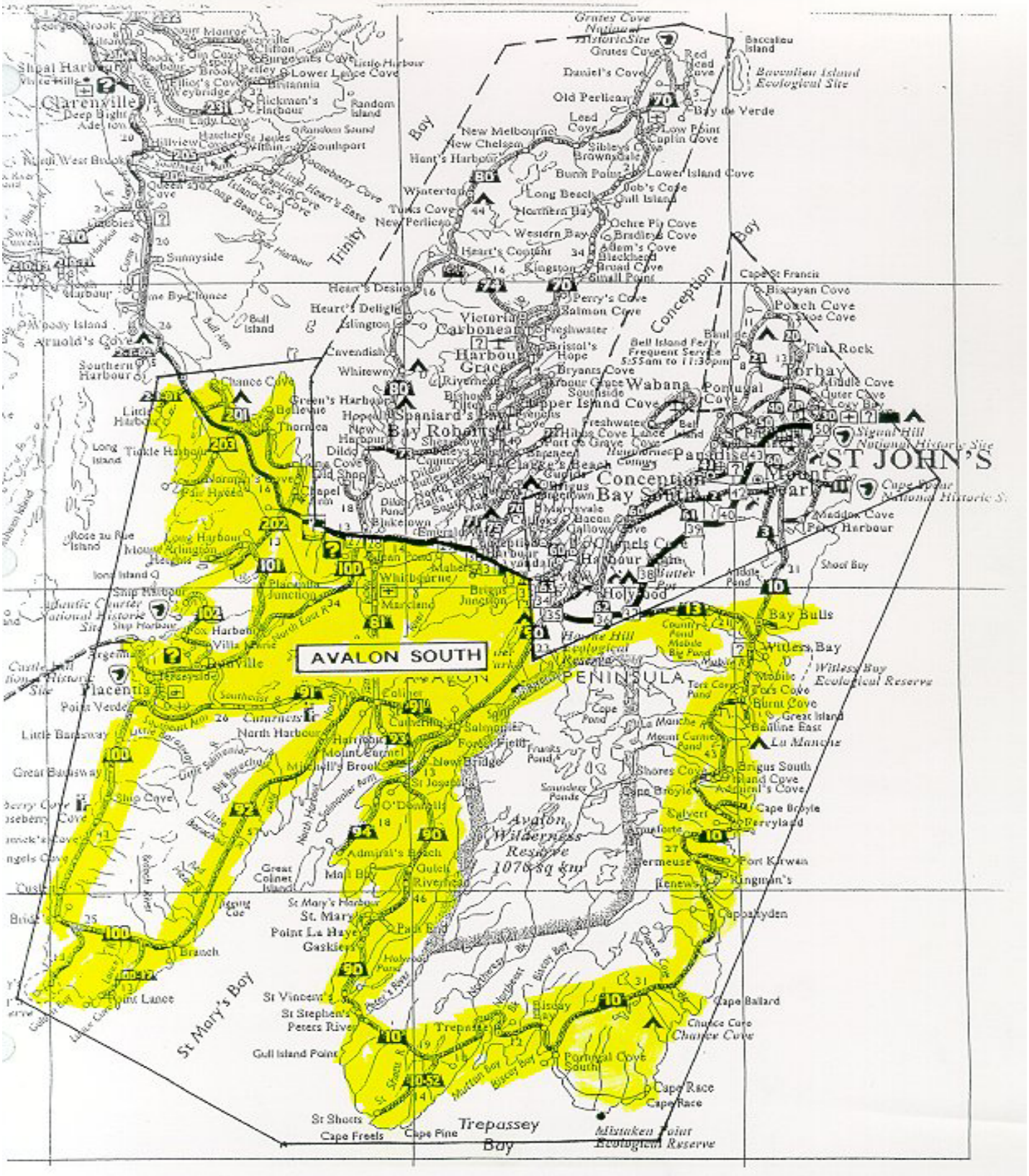
APPENDIX I Figure I–2

Home Heat Pricing Zone 1 – Avalon North West



APPENDIX I Figure I–3

Home Heat Pricing Zone 1 – Avalon South



APPENDIX J

Table J-1

Storage and Distribution Study

PROPANE

Full Load Tractor Trailer Propane Deliveries to Bulk Depots

Source Terminal	Bulk Plant Location	To PPPC Zone	Distance One Way Kms	Total Overall Trip Cost $	Calculated T/T Rate To Bulk Plant CPL	Add Diesel Fuel Surcharge at Rate 7.00%	Total Calculated Delivery Rates Including DFS CPL
Come By Chance	St. John's	1	146	$565.00	***1.284***	7.00%	**1.374**
Come By Chance	Grand Falls	3	279	$865.00	***1.966***	7.00%	**2.104**
Come By Chance	Pasadena	6	512	$1,506.00	***3.423***	7.00%	**3.662**

55,000 Litres Full Trailer Loads Loaded at 80% = 44,000 litres

APPENDIX-J

TABLE J-2

Home Deliveries of Propane via Tank Wagon - Estimated Costs

Home Heat operation Based on 250 days per year operational availability

Tandem Axle Tank Wagon - 20,000 Liquid Litres Capacity
Delivery Cost Per Annum and per Day

	Estimated Cost	Assumed Operating Days Per Year	Cost per Average Operating Day	Cost Per day when Idle with Driver	Cost Per day when Idle Laid-Up
Direct Operating Expenses	**$/Annum**	**Days**	**$/Day**	**$/Day**	**$/Day**
Driver salary and benefits	$35,900	250	$144	$144	$22
Helper salary and benefits (Part Year)	8,300	250	$33	$33	$0
Interest- Vehicle financing	19,500	250	$78	$78	$78
Depreciation- Vehicle*	35,000	250	$140	$140	$140
Fuel consumed	12,000	250	$48	$0	$0
Repairs and maintenance	12,000	250	$48	$48	$10
Insurance	5,000	250	$20	$20	$16
Licence	1,000	250	$4	$4	$3
Miscellaneous	300	250	$1	$1	$0
Annual Operating Cost	**$129,000**	250	**$516**	**$468**	**$268**
Equivalent Cost per Hour - 8 hour working day - 5 days per week			**$64.50**	**$58.50**	**$33.52**

*Based on a tandem at a cost of $225,000 less an estimated residual value of $50,000 after 5 years with straight line depreciation.

Single Axle Tank Wagon - 13,000 Liquid Litres Capacity
Delivery Cost Per Annum and per Day

	Estimated Cost	Assumed Operating Days Per Year	Cost per Average Operating Day	Cost Per day when Idle with Driver	Cost Per day when Idle Laid-Up
Direct Operating Expenses	**$/Annum**	**Days**	**$/Day**	**$/Day**	**$/Day**
Driver salary and benefits	$35,900	250	$144	$144	$17
Helper salary and benefits (Part Year)	8,300	250	$33	$33	$0
Interest- Vehicle financing	16,000	250	$64	$64	$52
Depreciation- Vehicle**	30,000	250	$120	$120	$90
Fuel consumed	11,500	250	$46	$0	$0
Repairs and maintenance	12,000	250	$48	$48	$8
Insurance	5,000	250	$20	$20	$16
Licence	1,000	250	$4	$4	$3
Miscellaneous	300	250	$1	$1	$0
	$120,000		**$480**	**$434**	**$186**
Equivalent Cost per Hour - 8 hour working day			**$60.00**	**$54.25**	**$23.30**

**Based on a single-axle at a cost of $185,000 less an estimated residual value of $35,000 after 5 years with straight line depreciation..

APPENDIX-J

TABLE J-3

Heating Fuels - Residential Propane
Maximum Tank Wagon Prices - Effective October 15, 2004

Zone	Geographic Area	Residential Propane CPL	Differential From Zone 2
1	St. John's & Avalon	**69.5**	**2.0**
1a	Bell Island	70.5	**3.0**
2	Clarenville/ Burin-Bonavista Peninsulas	**67.5**	**0.0**
3	Central Newfoundland - Glovertown to Buchans	**70.0**	**2.5**
3a	St. Brendan's (Island)	N/A	N/A
3b	Fogo Island	N/A	N/A
3c	Change Islands	N/A	N/A
4	Connaigre Peninsula	71.0	**3.5**
4a	Gaultois to Francois / Rencontre East	N/A	N/A
5	Springdale & Baie Verte Peninsula	71.0	**3.5**
5a	Long Island	N/A	N/A
5b	Little Bay Island	N/A	N/A
6	Deer Lake - Corner Brook Areas	**71.5**	**4.0**
7	Gallants to Port aux Basques / Burgeo	72.5	**5.0**
7a	Ramea	N/A	N/A
7b	Grey River/ Grand Bruit / La Poile	N/A	N/A
8	Northern Peninsula - Gros Morne National Park, to Belburns	72.5	**5.0**
9	Northern Peninsula - to Englee and St. Anthony	73.5	**6.0**
10	Labrador Straits - L'Anse au Clair to Red Bay	N/A	N/A
10a	Mary's Harbour to Cartwright (road access)	N/A	N/A
11	Coastal Labrador - South	N/A	N/A
12	Central Labrador - Goose Bay Area	N/A	N/A
13	Western Labrador - Labrador City / Wabush	N/A	N/A
13a	Churchills Falls	N/A	N/A
14	Coastal Labrador - North	N/A	N/A

APPENDIX-J

TABLE J-4

TW Delivery of Propane to Bell Island - Extra Cost from Zone 1

Full time vehicle operating cost calculation	Single Axle	Tandem
Volume delivered per full load	13,000	20,000
Annual Operating cost of Vehicle	$120,000	$129,000
Assumed operating days per year	250	250
Vehicle Operating Cost per day	$480	$516
Standard Operating Hours per day	8.0	8.0
Vehicle cost per hr	$60.00	$64.50
Vehicle cost per hr Idle with Driver	$51.75	$58.50

Zone 1a - Bell Island

From Donavans Depot (Reduced Load Tandem)		Extra Cost Return Ferry Crossing
Location		Ferry
Supplier		Any
Tank Wagon		Tandem
Capacity (litres)		16,000
Distance one way (kms)		N/A
Less Average Dist for Avalon areas one way(kms)		
Net Extra Distance to Portugal Cove		
Avg Speed of TW (kms/hr)		N/A
Load Time at Bulk Plant (Per Delivery)		N/A
Discharge time (Per household)		N/A
Round trip Driving time (Minutes)		N/A
Ferry Crossing Time (Return)		40
Allowance for delays		30
Total Extra time for return trip (hours)		1.17
Operating cost $/hr		$58.50
Ferry Crossing Charge Return + Driver		$111.50
Meals and Overnight for Driver		
Total Extra Cost for load delivered		$179.75
Delivered cost in cents per litre		**1.12**

Average Extra Delivery Cost to Bell Island CPL **1.12**

APPENDIX-J

TABLE J-5

TW Delivery of Propane to Connaigre Peninsula - Extra Cost from Zone 3

Full time vehicle operating cost calculation	Single Axle	Tandem
Volume delivered per full load	13,000	20,000
Annual Operating cost of Vehicle	$120,000	$129,000
Assumed operating days per year	250	250
Vehicle Operating Cost per day	$480	$516
Standard Operating Hours per day	8.0	8.0
Vehicle cost per hr	$60.00	$64.50
Vehicle cost per hr Idle with Driver	$51.75	$58.50

Zone 4 - Grand Falls to Households in Connaigre Peninsula Using Tandem TW

From Bulk Plant at:	Grand Falls	Grand Falls	Grand Falls
To:Outlet	Households	Households	Households
Location	St. Alban's	Hr. Breton	ST. Jaques-Coomb's Cove
Tank Wagon	Tandem	Tandem	Tandem
Capacity (litres)	20,000	20,000	20,000
Distance one way (kms)	179	225	217
Less Average Dist for Zone 3-Central one way(kms)	81	81	81
Net Extra Distance to Connaigre Location	98	144	136
Avg Speed of TW (kms/hr)	65	65	65
Load Time at Bulk Plant (Per Delivery)	N/A	N/A	N/A
Discharge time (Per household)	N/A	N/A	N/A
Round trip Driving Extra time (Minutes)	90	133	126
Allowance for delays	30	30	30
Total Extra time for return trip (hours)	2.01	2.72	2.59
Operating cost $/hr	$64.50	$64.50	$64.50
Total Extra Cost for load delivered	$129.50	$175.14	$167.20
Delivered cost in cents per litre	**0.65**	**0.88**	**0.84**

Average Extra Delivery Cost to Area **0.79** CPL

APPENDIX-J

TABLE J-6

TW Delivery of Propane to Springdale Areas from Zone 3

Full time vehicle operating cost calculation	**Single Axle**	**Tandem**
Volume delivered per full load	13,000	20,000
Annual Operating cost of Vehicle	$120,000	$129,000
Assumed operating days per year	250	250
Vehicle Operating Cost per day	$480	$516
Standard Operating Hours per day	8.0	8.0
Vehicle cost per hr	$60.00	$64.50
Vehicle cost per hr Idle with Driver	$51.75	$58.50

Zone 5 - Grand Falls to Households at Triton - Springdale - Baie Verte Areas

From Bulk Depot at	Grand Falls	Grand Falls	Springdale Area
To:Outlet	Households	Households	Households
Location	Triton	Springdale	Baie Verte
Tank Wagon	Tandem	Tandem	Tandem
Capacity (litres)	20,000	20,000	20,000
Distance one way (kms)	125	104	177
Less Average Dist for Central one way(kms)	81	81	81
Net Extra Distance to Area Location	44	23	96
Avg Speed of TW (kms/hr)	75	85	75
Load Time at Bulk Plant (Per Delivery)	N/A	N/A	N/A
Discharge time (Per household)	N/A	N/A	N/A
Round trip Driving Extra time (Minutes)	70	32	154
Allowance for delays	30	30	30
Total Extra time for return trip (hours)	1.67	1.04	3.06
Operating cost $/hr	$64.50	$64.50	$64.50
Total Extra Cost for load delivered	$107.93	$67.16	$197.37
Delivered cost in cents per litre	**0.54**	**0.34**	**0.99**

Average Extra Delivery Cost to Area **0.62** CPL

APPENDIX-J

TABLE J-7

TW Delivery of Propane to Stephenville / Port aux Basques/ Burgeo Areas from Zone 6 - Corner Brook Depot

Full time vehicle operating cost calculation	**Single Axle**	**Tandem**
Volume delivered per full load	13,000	20,000
Annual Operating cost of Vehicle	$120,000	$129,000
Assumed operating days per year	250	250
Vehicle Operating Cost per day	$480	$516
Standard Operating Hours per day	8.0	8.0
Vehicle cost per hr	$60.00	$64.50
Vehicle cost per hr Idle with Driver	$51.75	$58.50

Zone 7 - Corner Brook to Households in Stephenvile / Port aux Basques/ Burgeo Areas

From Bulk Depot at	Corner Brook	Corner Brook	Corner Brook
To:Outlet	Households	Households	Households
Location	Stephenville / Port au Port	Port aux Basques	Burgeo
Tank Wagon	Tandem	Tandem	Tandem
Capacity (litres)	20,000	20,000	20,000
Distance one way (kms)	106	219	213
Less Average Dist for Corner Brook Area one way (kms)	48	48	48
Net Extra Distance to Location	58	171	165
Avg Speed of TW (kms/hr)	70	85	75
Load Time at Bulk Plant (Per Delivery)	N/A	N/A	N/A
Discharge time (Per household)	N/A	N/A	N/A
Round trip Driving Extra time (Minutes)	99	241	264
Allowance for delays	30	30	30
Total Extra time for return trip (hours)	2.16	4.52	4.90
Operating cost $/hr	$64.50	$64.50	$64.50
Total Extra Cost for load delivered	$139.14	$291.77	$316.05
Delivered cost in cents per litre	**0.70**	**1.46**	**1.58**

Average Extra Delivery Cost to Area **1.24** CPL

APPENDIX-J

TABLE J-8

TW Delivery of Propane to Sourthern Part of Northern Peninsula from Zone 6 - Corner Brook Depot

Full time vehicle operating cost calculation	Single Axle	Tandem
Volume delivered per full load	13,000	20,000
Annual Operating cost of Vehicle	$120,000	$129,000
Assumed operating days per year	250	250
Vehicle Operating Cost per day	$480	$516
Standard Operating Hours per day	8.0	8.0
Vehicle cost per hr	$60.00	$64.50
Vehicle cost per hr Idle with Driver	$51.75	$58.50

Zone 8 - Corner Brook to Households in Southern Part of Northern Peninsula

From Bulk Depot at	Corner Brook	Corner Brook	Corner Brook
To:Outlet	Households	Households	Households
Location	Rocky Harbour	Trout River	Belburns
Tank Wagon	Tandem	Tandem	Tandem
Capacity (litres)	20,000	20,000	20,000
Distance one way (kms)	121	134	218
Less Average Dist for Corner Brook Area one way (kms)	48	48	48
Net Extra Distance to Location	73	86	170
Avg Speed of TW (kms/hr)	75	85	80
Load Time at Bulk Plant (Per Delivery)	N/A	N/A	N/A
Discharge time (Per household)	N/A	N/A	N/A
Round trip Driving Extra time (Minutes)	117	121	255
Allowance for delays	30	30	30
Total Extra time for return trip (hours)	2.45	2.52	4.75
Operating cost $/hr	$64.50	$64.50	$64.50
Total Extra Cost for load delivered	$157.81	$162.77	$306.38
Delivered cost in cents per litre	**0.79**	**0.81**	**1.53**

Average Extra Delivery Cost to Area **1.04** CPL

APPENDIX-J

TABLE J-9

TW Delivery of Propane to Northern Peninsula Areas (North) form Zone 6 - Corner Brook Depot

Full time vehicle operating cost calculation	Single Axle	Tandem
Volume delivered per full load	13,000	20,000
Annual Operating cost of Vehicle	$120,000	$129,000
Assumed operating days per year	250	250
Vehicle Operating Cost per day	$480	$516
Standard Operating Hours per day	8.0	8.0
Vehicle cost per hr	$60.00	$64.50
Vehicle cost per hr Idle with Driver	$51.75	$58.50

Zone 9 - Corner Brook to Households in Nothern Part of Northern Peninsula

From Bulk Depot at	Corner Brook	Corner Brook	Corner Brook
To:Outlet	Households	Households	Households
Location	Port Au Choix	Roddicton	St. Anthony
Tank Wagon	Tandem	Tandem	Tandem
Capacity (litres)	20,000	20,000	20,000
Distance one way (kms)	282	401	467
Less Average Dist for Corner Brook Area one way (kms)	48	48	48
Net Extra Distance to Location	234	353	419
Avg Speed of TW (kms/hr)	75	75	80
Load Time at Bulk Plant (Per Delivery)	N/A	N/A	N/A
Discharge time (Per household)	N/A	N/A	N/A
Round trip Driving Extra time (Minutes)	374	565	629
Allowance for delays	30	30	30
Total Extra time for return trip (hours)	6.74	9.91	10.98
Operating cost $/hr	$64.50	$64.50	$64.50
Total Extra Cost for load delivered	$434.73	$639.41	$707.89
Delivered cost in cents per litre	**2.17**	**3.20**	**3.54**

Average Extra Delivery Cost to Area **2.97** CPL

APPENDIX K

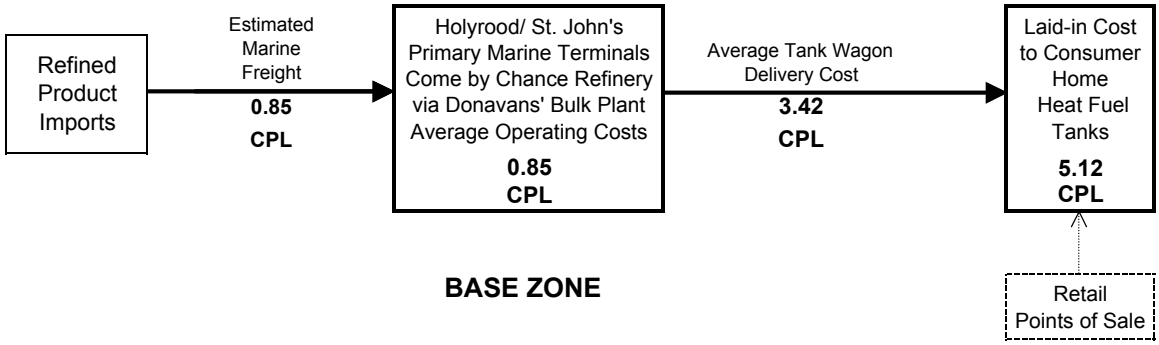
Figure H1-ANE

SUPPLY CHAIN COST DIAGRAM

Home Heating Fuels

Zone 1-ANE - Avalon North East

Product from Avalon Terminals and Come by Chance Refinery



BASE ZONE

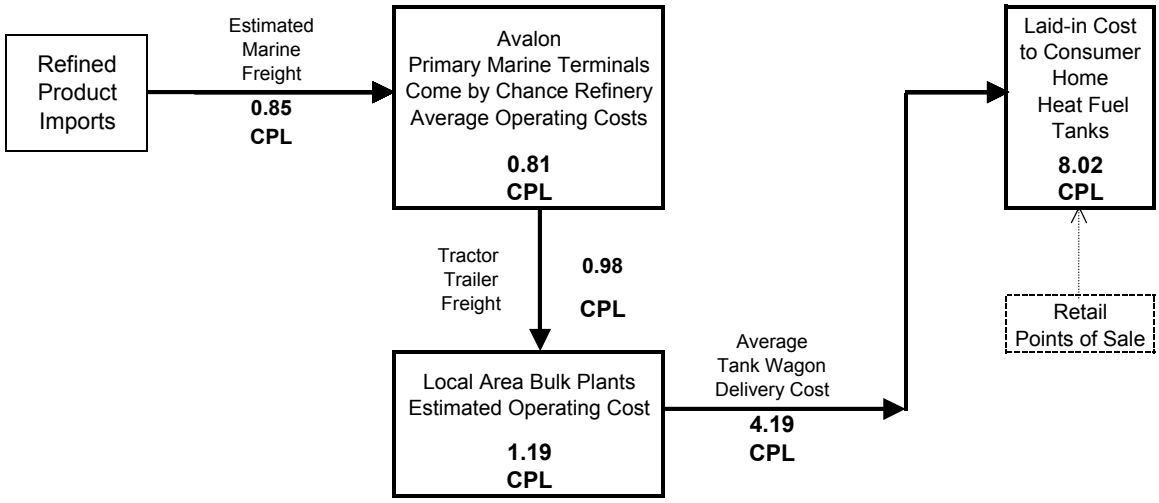
Figure H1-ANW

SUPPLY CHAIN COST DIAGRAM

Home Heating Fuels

Zone 1-ANW - Avalon North West

Product from Avalon Terminals and Come by Chance Refinery



APPENDIX K

Figure H1-AS

SUPPLY CHAIN COST DIAGRAM

Home Heating Fuels

Zone 1-AS - Avalon South

Product from Avalon Terminals and Come by Chance Refinery

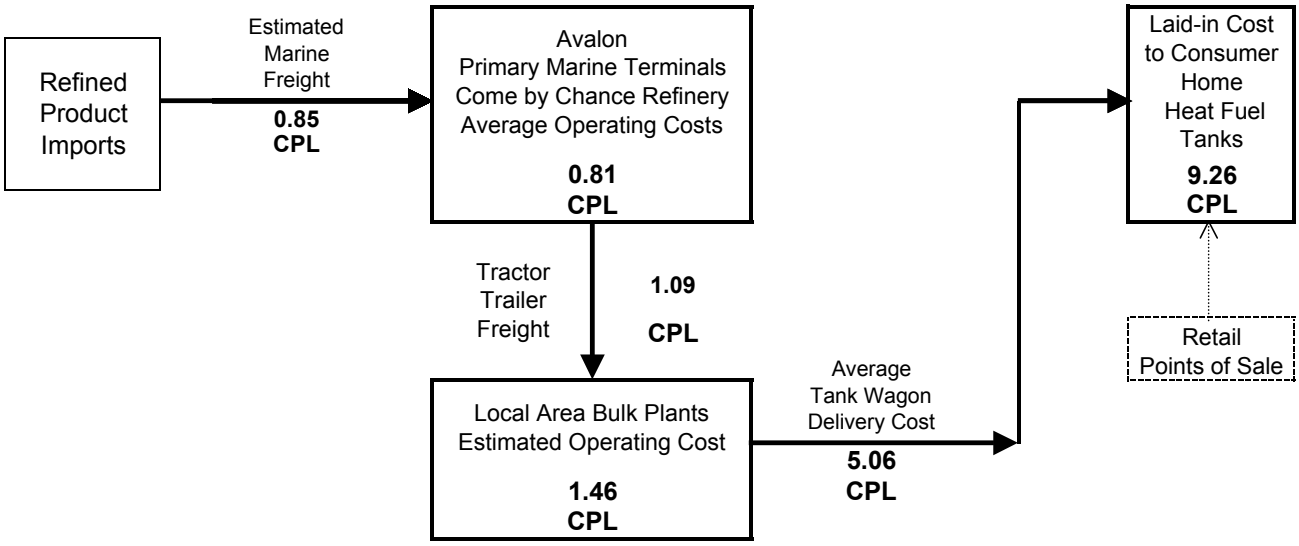


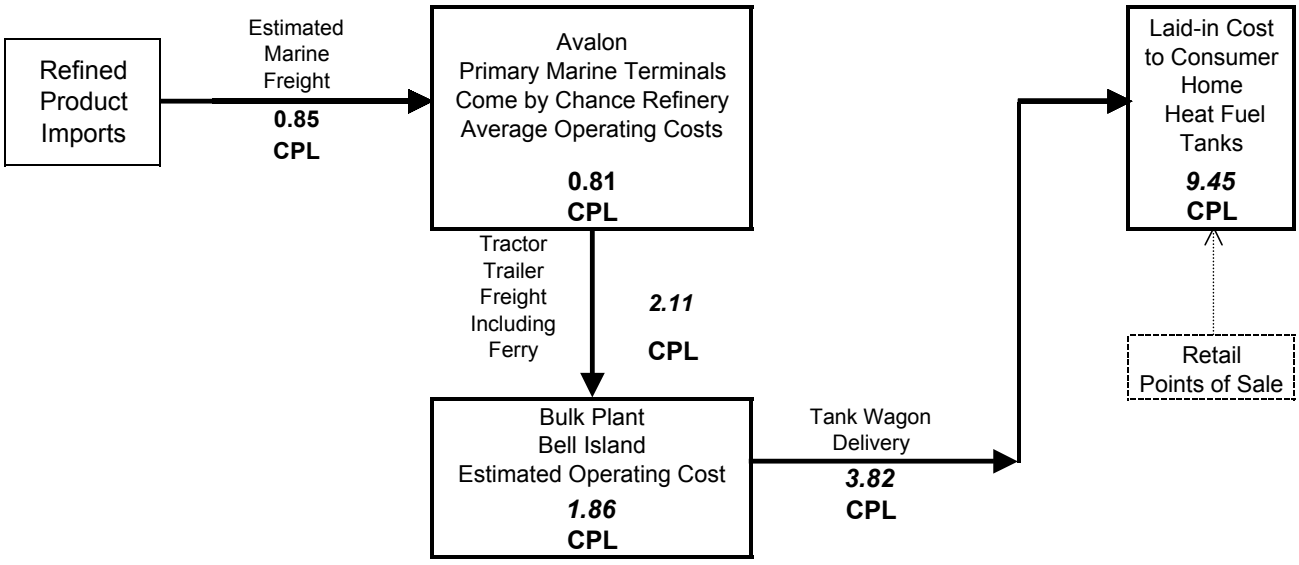
Figure H1-a

SUPPLY CHAIN COST DIAGRAM

Home Heating Fuels

Zone 1a - Bell Island

Product from Avalon Terminals and Come by Chance Refinery



APPENDIX K

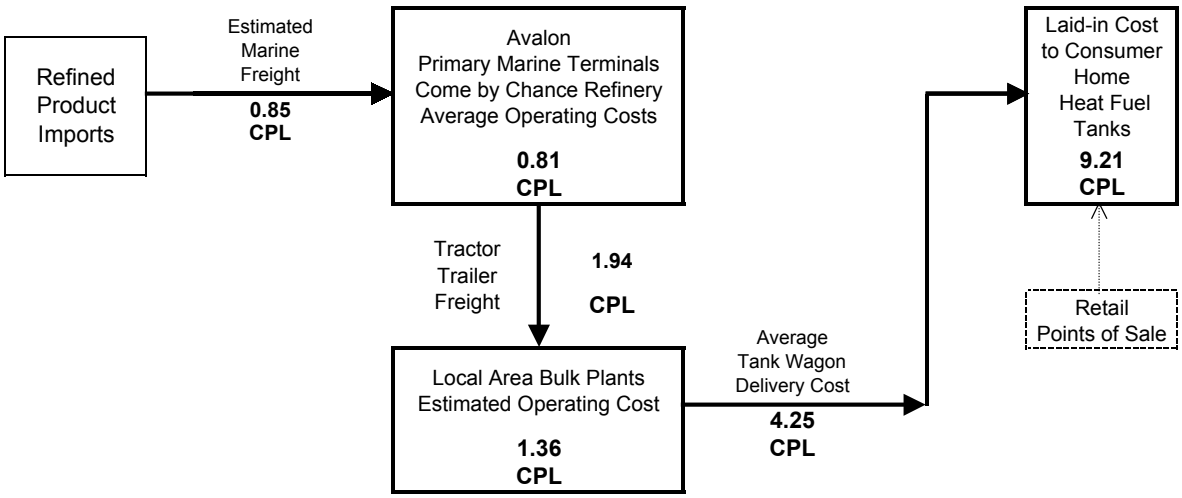
Figure H2

SUPPLY CHAIN COST DIAGRAM

Home Heating Fuels

Zone 2 - Burin-Bonavista Peninsulas

Product from Avalon Terminals and Come by Chance Refinery



APPENDIX K

Figure H3

SUPPLY CHAIN COST DIAGRAM

Home Heating Fuels

Zone 3 - Central Newfoundland

Product from Avalon Terminals and Come by Chance Refinery

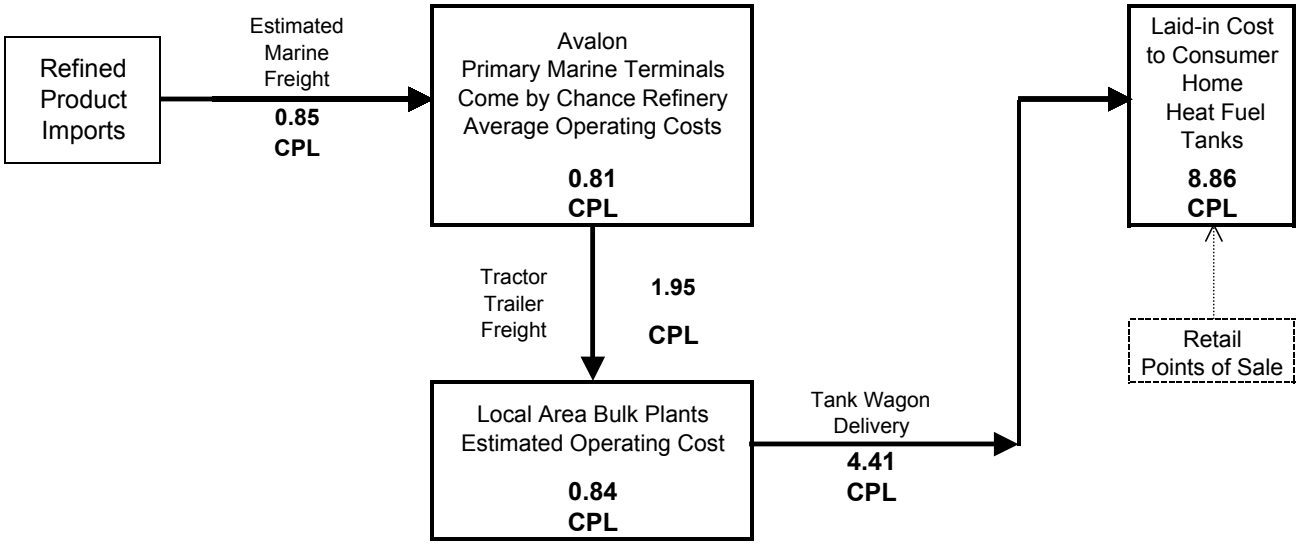


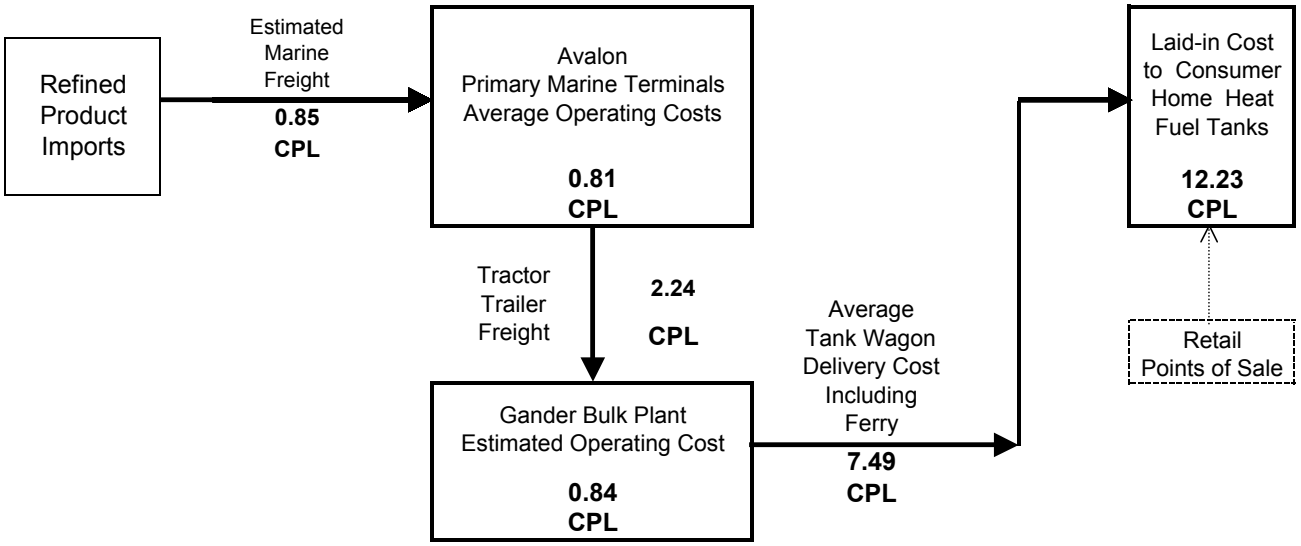
Figure H 3a

SUPPLY CHAIN COST DIAGRAM

Home Heating Fuels

Zone 3a - St. Brendan's (Island)

Product from Avalon Terminals



APPENDIX K

Figure H 3b
SUPPLY CHAIN COST DIAGRAM
Home Heating Fuels
Zone 3b - Fogo Island
Product from Avalon Terminals and Come by Chance Refinery

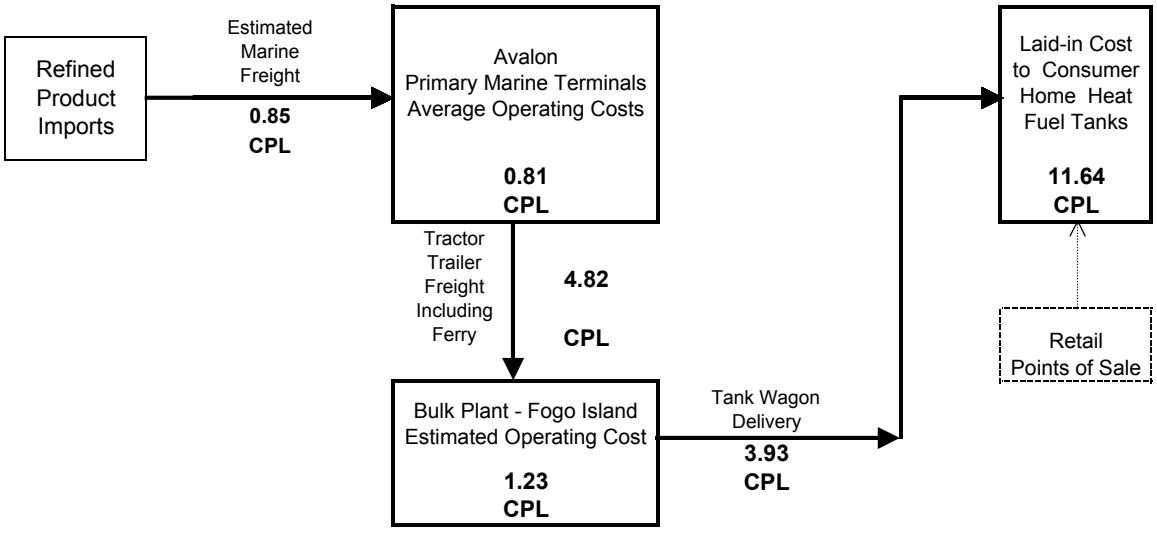
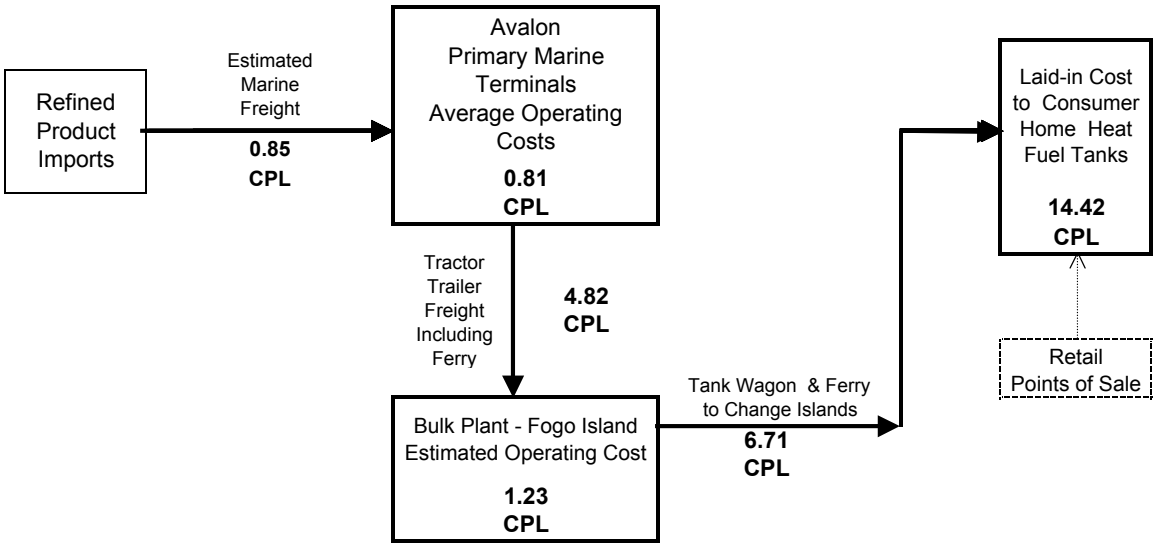


Figure H 3c
SUPPLY CHAIN COST DIAGRAM
Home Heating Fuels
Zone 3c - Change Islands
Product from Avalon Terminals via Fogo Bulk Plant



APPENDIX K

Figure H4
SUPPLY CHAIN COST DIAGRAM
Home Heating Fuels
Zone 4 - Connaigre Peninsula

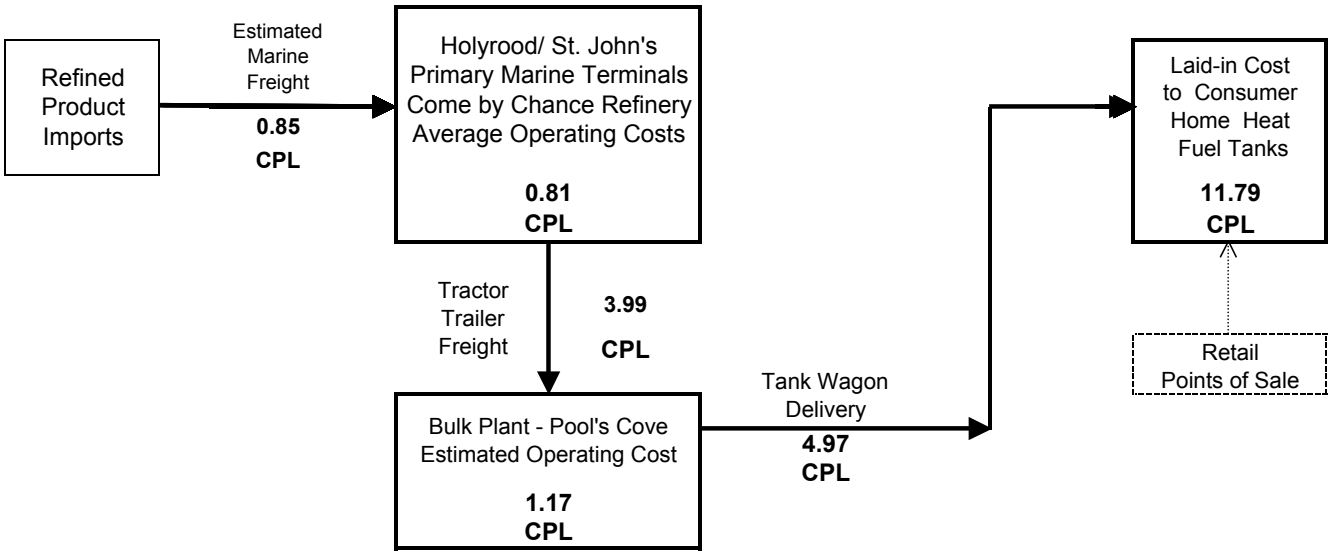
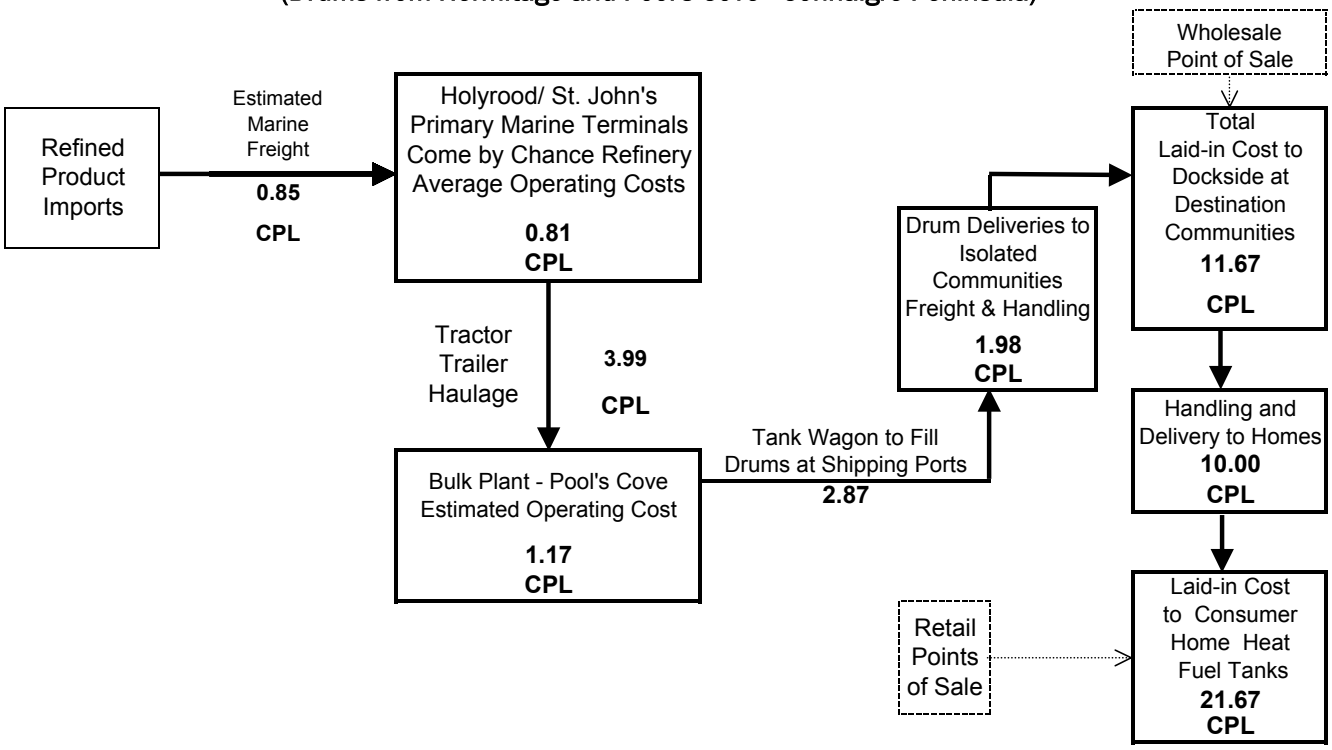


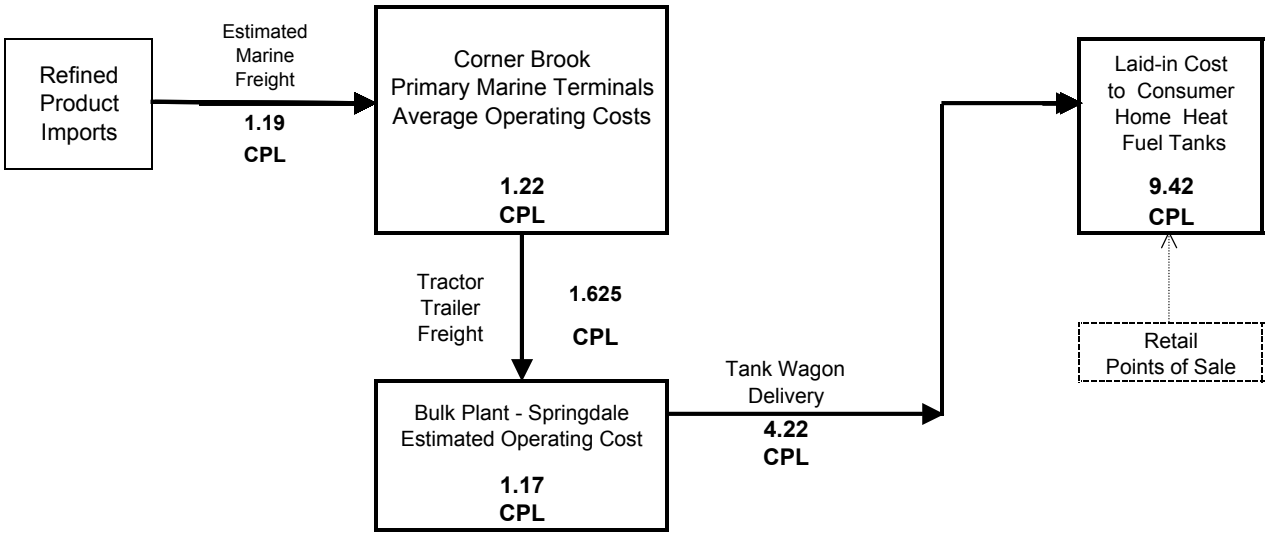
Figure H4-a
SUPPLY CHAIN COST DIAGRAM
Home Heating Fuels
Zone 4a - Gaultois-McCallum / Rencontre East
(Drums from Hermitage and Pool's Cove - Connaigre Peninsula)



APPENDIX K

Figure H5
SUPPLY CHAIN COST DIAGRAM

Home Heating Fuels
Zone 5 - Springdale and Baie Verte areas via Bulk Plant at Springdale



APPENDIX K

Figure H5-a
SUPPLY CHAIN COST DIAGRAM
Home Heating Fuels
Zone 5a - Long Island via Bulk Plant at Springdale

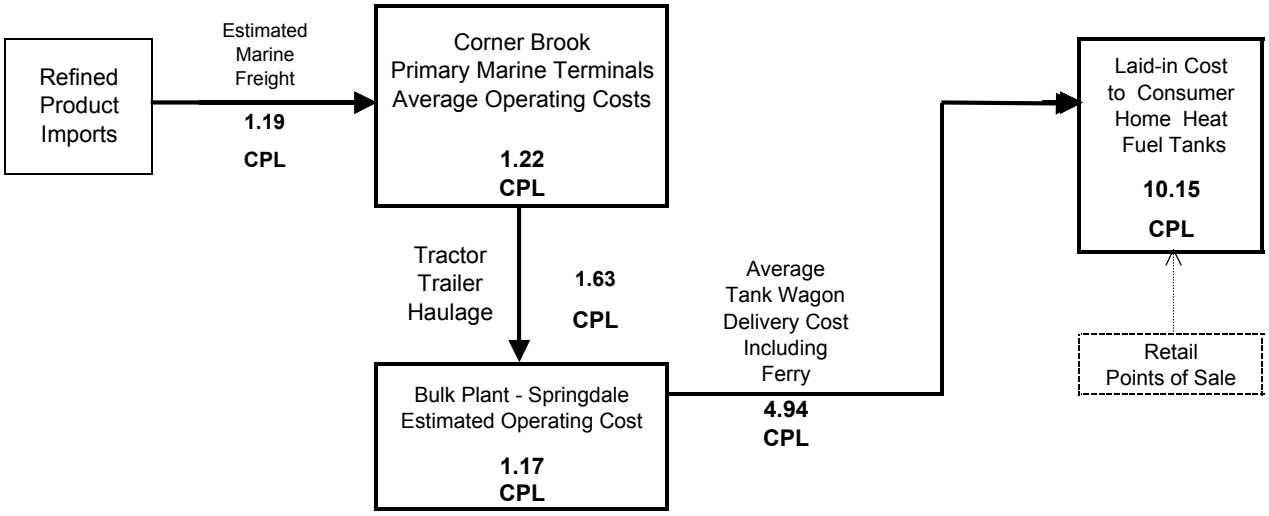
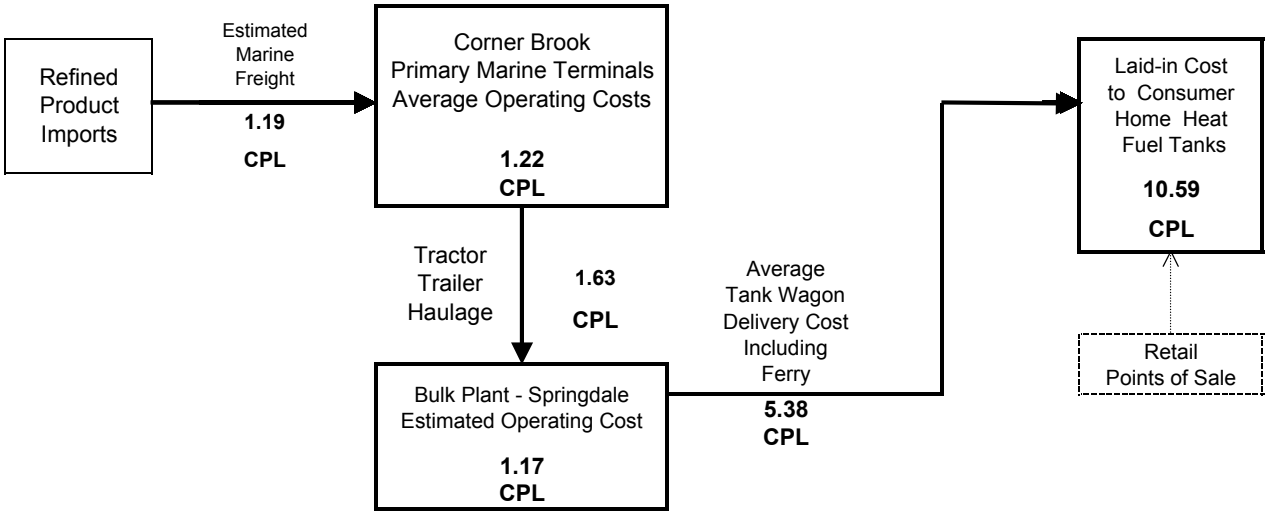


Figure H5-b
SUPPLY CHAIN COST DIAGRAM
Home Heating Fuels
Zone 5b - Litle Bay Islands via Bulk Plant at Springdale



APPENDIX K

Figure H6

SUPPLY CHAIN COST DIAGRAM

Home Heating Fuels

Zone 6 - Corner Brook and Area

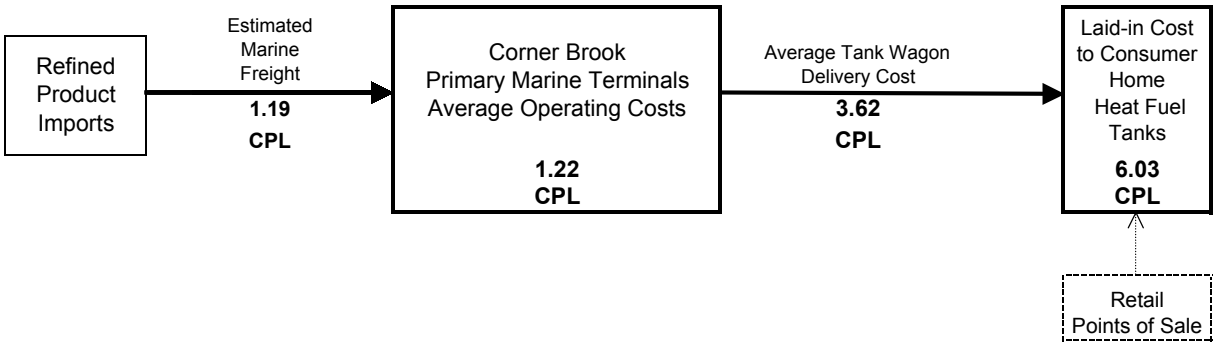


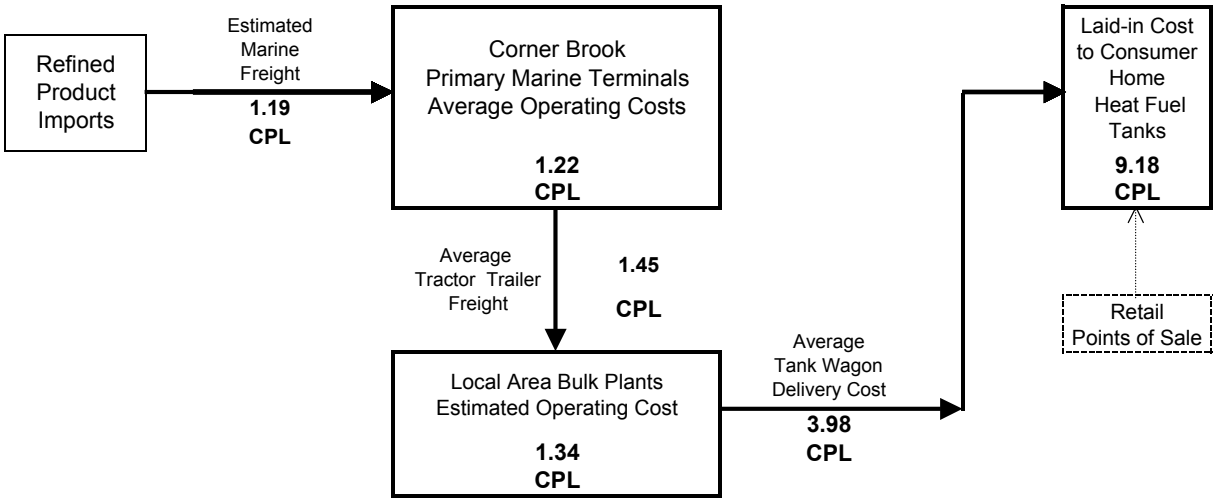
Figure H7-W

SUPPLY CHAIN COST DIAGRAM

Home Heating Fuels

Zone 7-W - Stephenville - Port aux Basques

Product from Corner Brook Marine Termiinals



APPENDIX K

Figure H7-SE

SUPPLY CHAIN COST DIAGRAM

Home Heating Fuels

Zone 7-SE - Burgeo

Product from Corner Brook Marine Termiinals

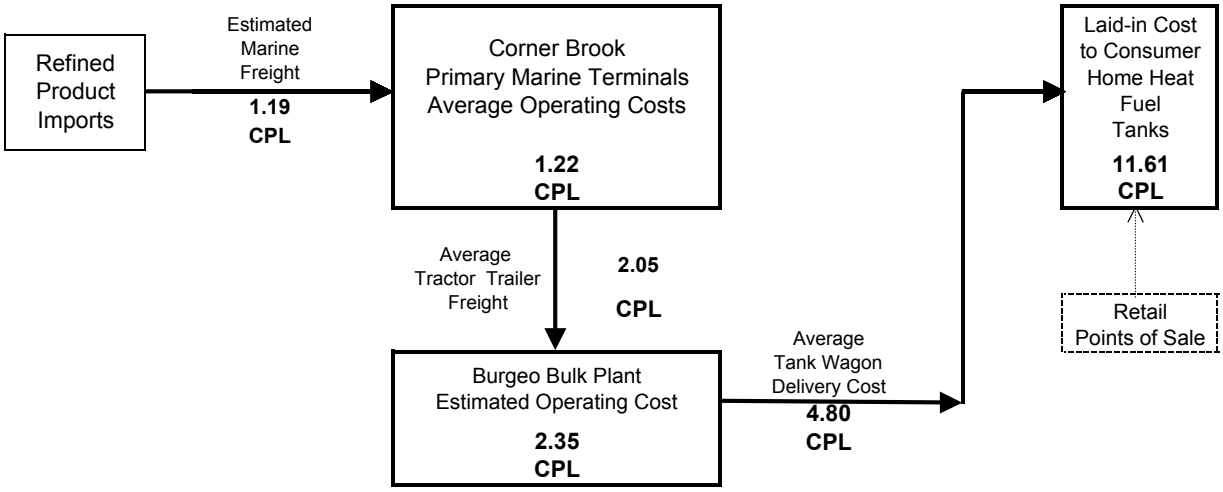


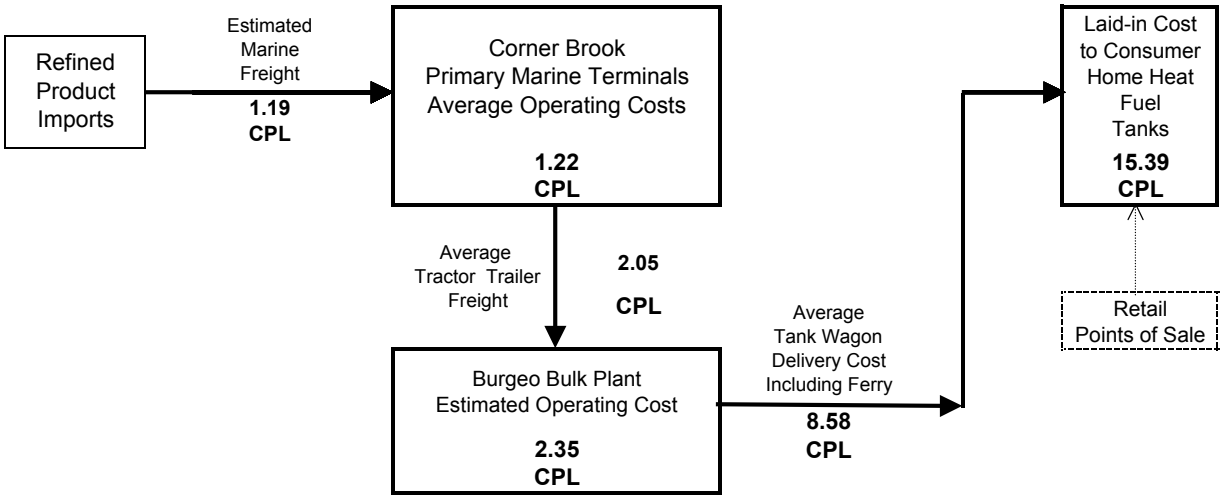
Figure H7-a

SUPPLY CHAIN COST DIAGRAM

Home Heating Fuels

Zone 7a - Ramea (Island)

Product from Corner Brook Marine Termiinals



APPENDIX K

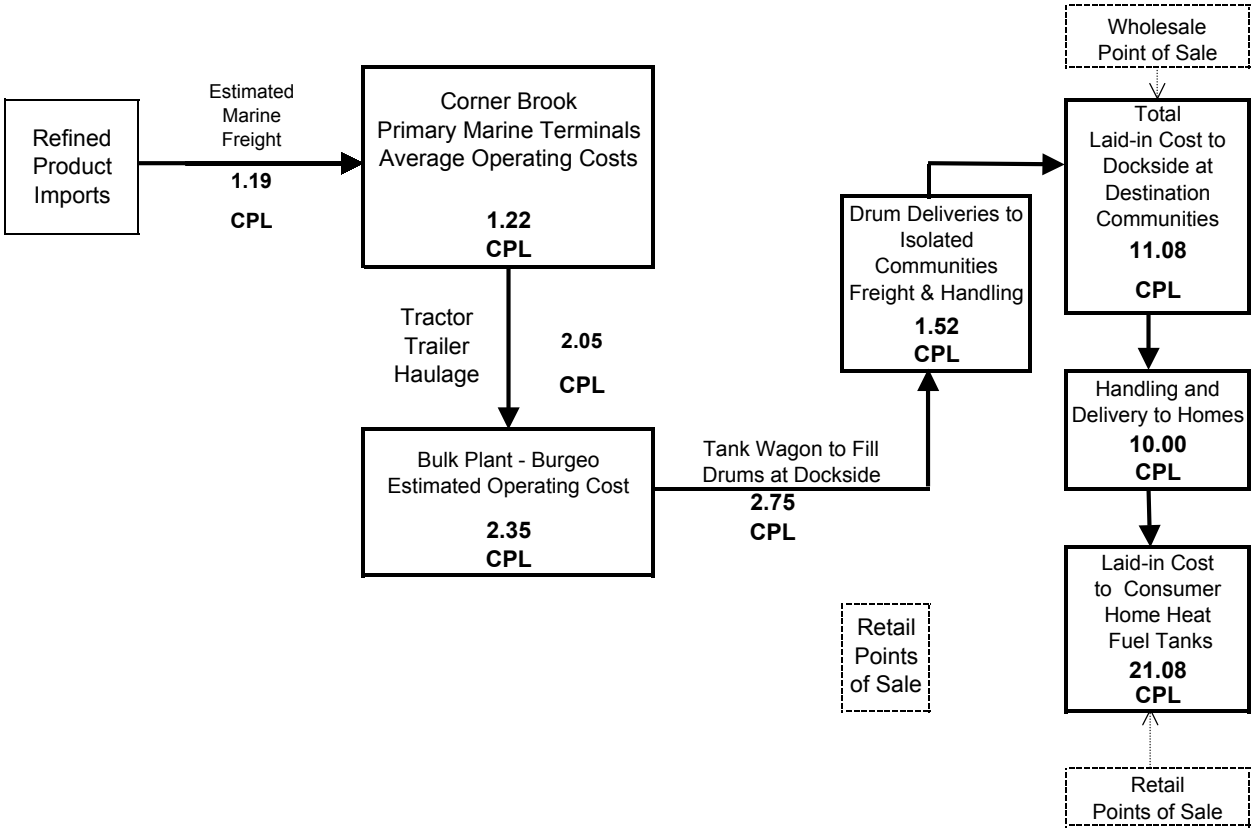
Figure H7-b

SUPPLY CHAIN COST DIAGRAM

Home Heating Fuels

Zone 7b - Grey River & Francois / La Poile & Grand Bruit

(Drums from Burgeo Shipped via Freight Ferry)*



* Also applicable to Automotive Diesel Fuel delivered in drums to these communities via Freight Ferry

APPENDIX K

Figure H8

SUPPLY CHAIN COST DIAGRAM

Home Heating Fuels

Zone 8 - Northern Peninsula South

Product direct from Corner Brook Marine Terminals

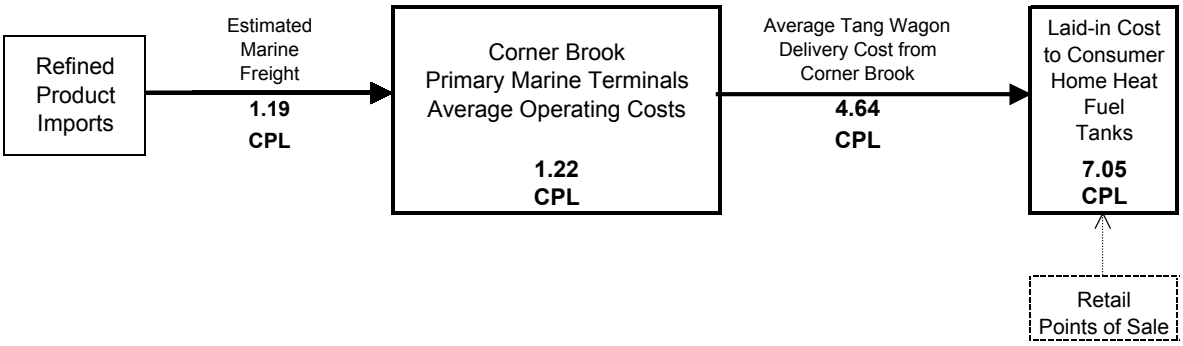


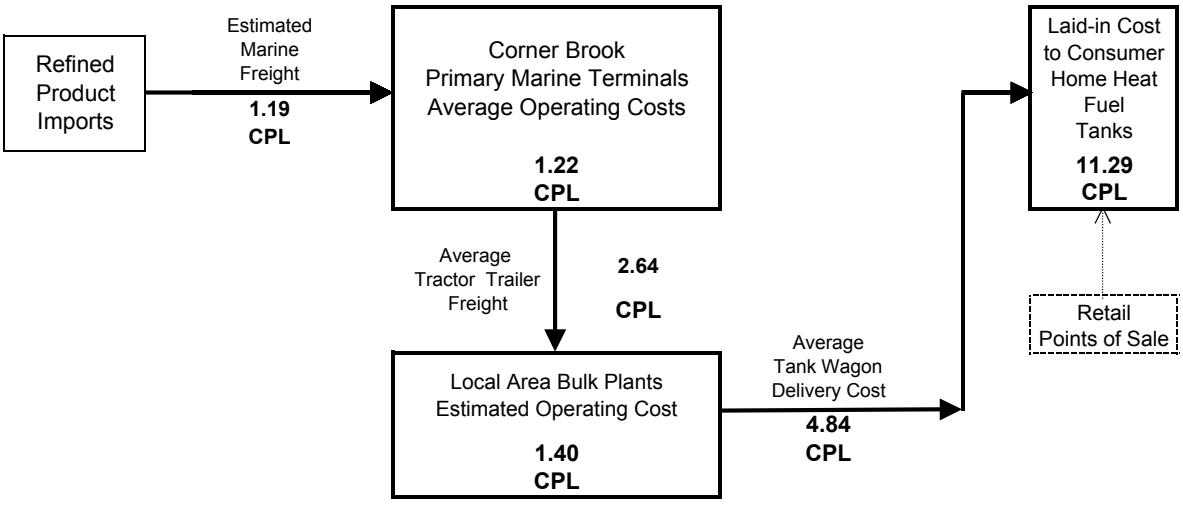
Figure H9

SUPPLY CHAIN COST DIAGRAM

Home Heating Fuels

Zone 9 - Northern Peninsula North

Product from Corner Brook Marine Terminals



APPENDIX K

Figure H10

SUPPLY CHAIN COST DIAGRAM

Home Heating Fuel (Stove Oil)

Zone 10 - Labrador - The Straits

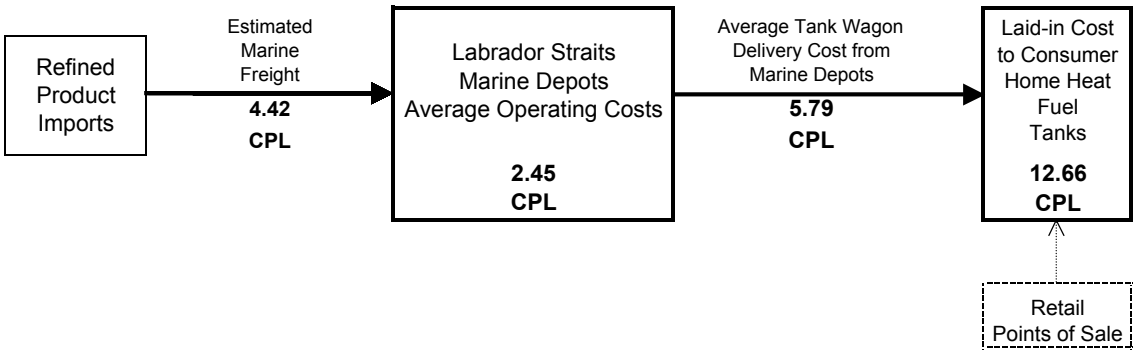
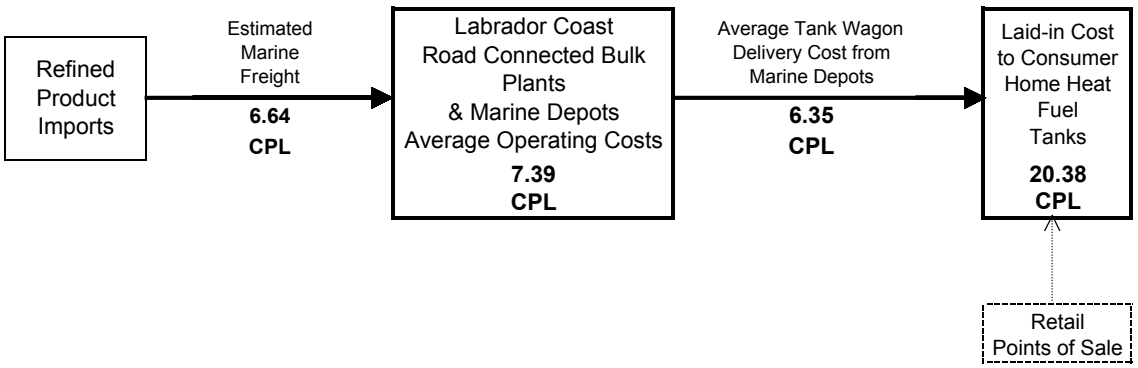


Figure H11

SUPPLY CHAIN COST DIAGRAM

Home Heating Fuel (Stove Oil)

Zone 11 - Labrador Coast - Lodge Bay to Cartwright



APPENDIX K

Figure H11-a

SUPPLY CHAIN COST DIAGRAM

Home Heating Fuel (Stove Oil)

Zone 11a - Labrador Coast South - (Isolated Communities)

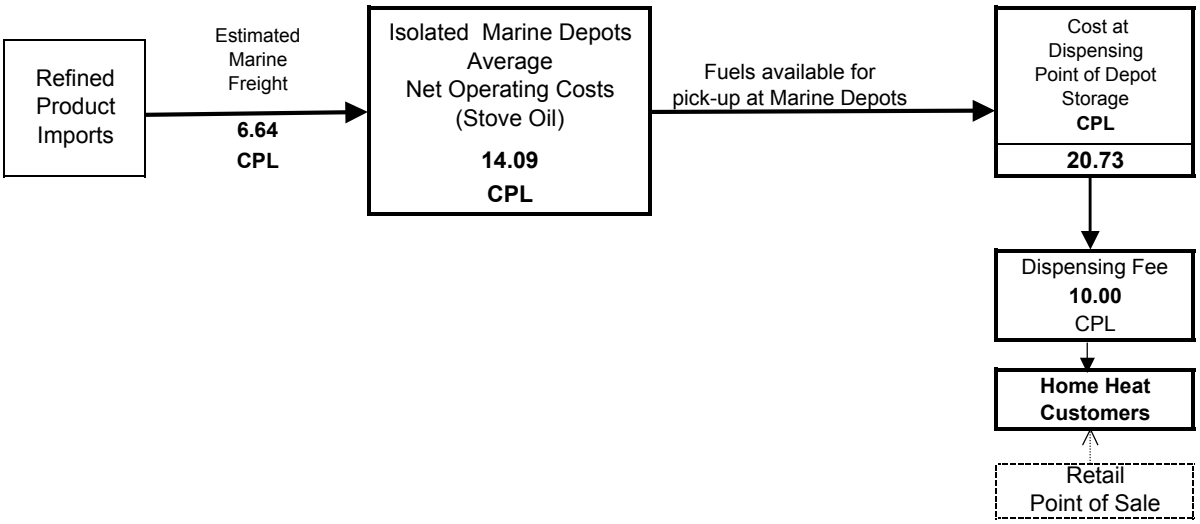


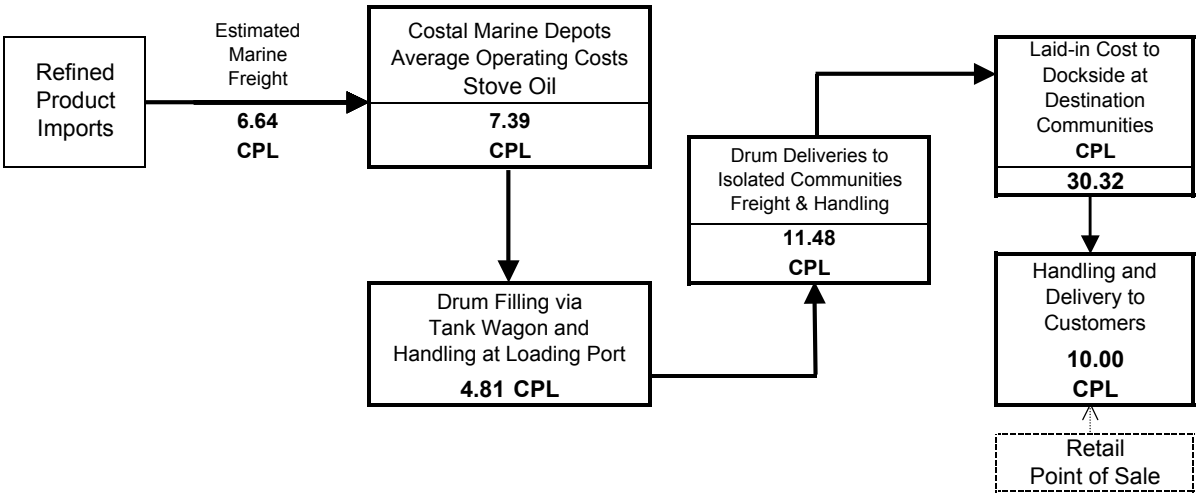
FIGURE H11-b

SUPPLY CHAIN COST DIAGRAM

Home Heating Fuel (Stove Oil)

Zone 11b - Williams Harbour - Norman Bay - Other Isolated Coastal Communities

(Drums from Charlottetown or Post Hope Simpson shipped via Freight Ferry)



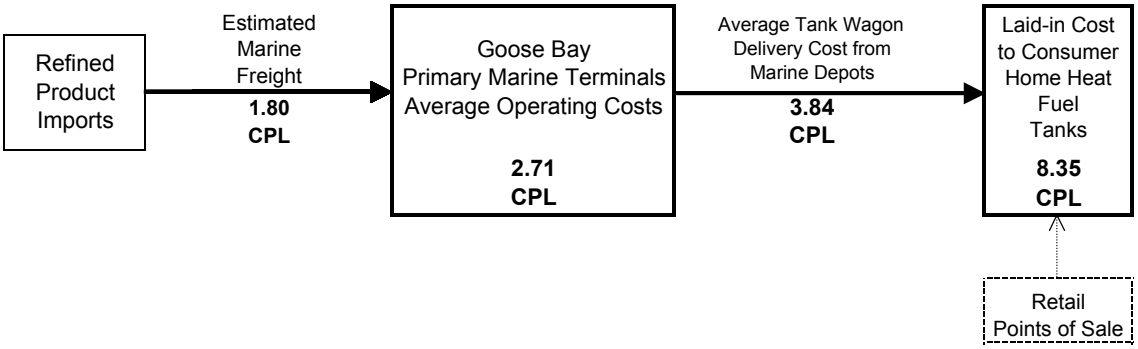
APPENDIX K

Figure H12

SUPPLY CHAIN COST DIAGRAM

Home Heating Fuel (Stove Oil)

Zone 12 - Central Labrador (Goose Bay and Area)



APPENDIX K

FIGURE H13

SUPPLY CHAIN COST DIAGRAM

Home Heating Fuel (Stove Oil)

Zone 13 - Western Labrador (Labrador City and Wabush)

Product from Labrador City Rail Bulk Plant

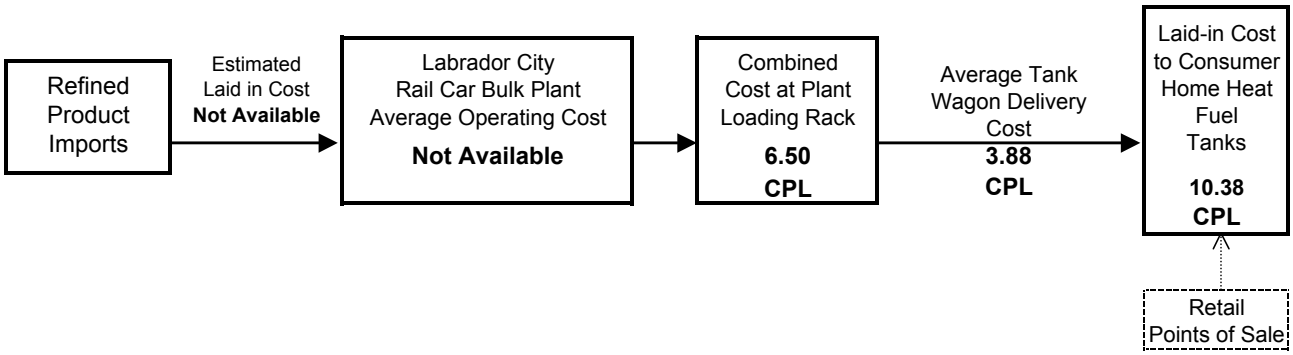


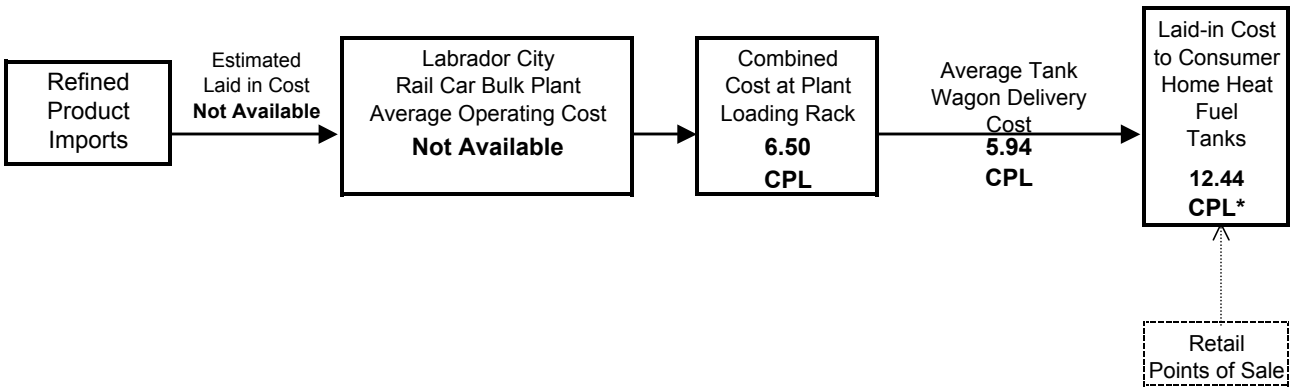
FIGURE H13a

SUPPLY CHAIN COST DIAGRAM

Home Heating Fuel (Stove Oil)

Zone 13a - Churchill Falls - Western Labrador

Product from Labrador City Rail Bulk Plant



**** Hypothetical numbers since there is no home heating fuel oil demand at Churchil Falls - All electrically heated homes***

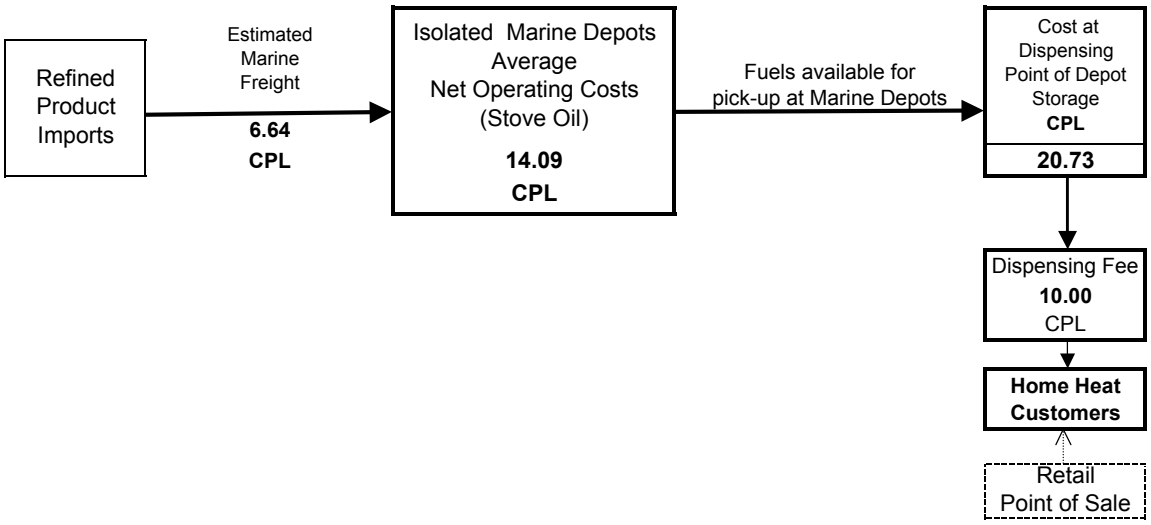
APPENDIX K

Figure H14

SUPPLY CHAIN COST DIAGRAM

Home Heating Fuel (Stove Oil)

Zone 14 - Labrador Coast North - (Isolated Communities)



APPENDIX L Table 1

Storage and Distribution Study

Petroleum Product Storage Facilities - Newfoundland and Labrador - 2004

Region	Location	Type of Facility	Owner/ Operator	Feeder Terminal(s)	Visitation Status	Photos	Photo ID #	Notes
Avalon	South Side St. John's Harbour	Primary Marine Terminal	Irving	Marine Tanker	Viewed	Yes	1	Primary Terminal for Eastern Newfoundland - Thruputs for Imperial Oil
Avalon	Donovans	Bulk Plant	North Atlantic	Come By Chance	Completed	Yes	2	Used by North Atlantic, Harvey's Oil and others for heating oil deliveries.
Avalon	Bell Island	Bulk Plant	Irving	-N/A-	NV	Yes	3	***Not Visited or Viewed - Decommissioned Home Heat Bulk Plant.***
Avalon	Aquaforte	Bulk Plant	Ultramar	Holyrood	Completed	Yes	4	Used by Ultramar's Home Heat Delivery Agent for area.
Avalon	Holyrood	Primary Marine Terminal	Ultramar	Marine Tanker	Completed	Yes	5	Ultramar Primary Marine Terminal for Eastern/ Central Newfoundland
Avalon	Long Pond	Secondary Marine Terminal	Woodward	Marine Tanker	Viewed	Yes	6	Product trucked from Come by Chance and picked up via Woodward Coastal Tanker for marine deliveries to Coastal Depots.
Avalon	Bay Roberts	Bulk Plant	Maple Leaf Fuels	St.John's	Completed	NO	7	45,461 Litres Underground Storage Tank for Furnace Oil drops.
Avalon	Harbour Grace	Bulk Plant	Ultramar	St.John's	Completed	Yes	8	Used by area Home Heat Delivery Agent and Reseller Pickup.
Avalon	Harbour Grace	Bulk Plant	Irving	St.John's	Viewed	Yes	9	Underground storage on Service Station site.
Avalon	Dunville	Bulk Plant	Irving	-N/A-	Viewed	Yes	10	***Decommissioned but still standing.***
Eastern	Come By Chance	Refinery	North Atlantic	-N/A-	Viewed	Yes	11	North Atlantic Primary Terminal for Newfoundland
Eastern	Grand Bank	Bulk Plant	Irving	St.John's	Viewed	Yes	12	In active operation. Supplied ex St. John's fro Home heat Agent in Area.
Eastern	Marystown	Sec Marine Terminal	Ultramar	Marine Tanker	Completed	Yes	13	Mainly supplied via marine tanker ex-Holyrood.
Eastern	Marystown	Sec Marine Terminal	Irving	Marine Tanker	Viewed	Yes	14	***Decommissioned but still standing.***
Eastern	Marystown	Bulk Plant	North Atlantic	Come By Chance	Completed	Yes	15	Supplied from Come by Chance Refinery.
Eastern	Clarenville	Bulk Plant	Irving	St. John's	Viewed	NO	16	***Decommissioned.***
Eastern	Bonavista	Bulk Plant	North Atlantic	Come By Chance	Completed	Yes	17	Distillate storage only
Eastern	Bonavista	Bulk Plant	Ultramar	Holyrood	Completed	Yes	18	Distillate storage only
Eastern	Lethbridge	Bulk Plant	R&B Services	Holyrood	Viewed	Yes	19	Under construction by Ultramar Reseller Eli Russell.
Central	Gander	Bulk Plant	Ultramar	Holyrood	Completed	Yes	20	Was fed from Botwood terminal before it was closed in 2002. Now supplied ex Holyrood Terminal - Gasoline and Distillates.
Central	Gander	Bulk Plant	North Atlantic	Come By Chance	Completed	Yes	21	Supplied from Come by Chance. Distillates only.
Central	Gander	Bulk Plant	Irving	-N/A-	Viewed	Yes	22	***Decommissioned but still standing.***
Central	Lewisporte	Primary Marine Terminal	Imperial	Marine Tanker	Completed	Yes	23	Primary Terminal for Central Newfoundland - Thruputs for Irving
Central	Lewisporte	Bulk Plant	Ultramar	-N/A-	Completed	Yes	24	***Being Decommissioned-*** Agent picks up from Imperial Marine Terminal in Lewisporte.
Central	Botwood	Marine Terminal	Ultramar	-N/A-	Viewed	Yes	25	***Decommissioned but still standing.***
Central	Botwood	Marine Terminal	Irving	-N/A-	Viewed	Yes	26	***Decommissioned but still standing.***
Central	Fogo	Bulk Plant	Ultramar	Holyrood	Completed	Yes	27	Bulk Plant operated by Agent Gerald McKenna. Gasoline and distillate storage for retail outlet and home heat deliveries
Central	Fogo	Bulk Plant	K & S Rowe	Come By Chance	Completed	Yes	28	Independent Reseller - Buys from North Atlantic - Distillate Storage only.
Central	Buchans	Bulk Plant	Irving	-N/A-	NV	NO	29	***Not Visited or Viewed -Reported to be decommissioned.***
Central	Bishops Falls	Bulk Plant	North Atlantic	Come By Chance	Completed	Yes	30	Distillate tanks only for local Home Heat Delivery.
Central	Hr. Breton /Pool's Cove Crossroads	Bulk Plant	Ultramar	Holyrood	Completed	Yes	31	Regular Unleaded Gasoline storage as well as Distillates.
Central	English Hr. West	Bulk Plant	Irving	St. John's	Viewed	Yes	32	Operated by Petite. Probably now fed ex Lewisporte.
Central	Gaultois	Marine Depot	Irving	Marine Tanker	(PPPC)	NO	33	Reported ***Decommissioned*** , Assumed to be supplied via drums ex-Hermitage
Central	Francois	Marine Depot	Irving	Marine Tanker	(PPPC)	Yes	34	Supplied by Coastal Tanker-Reported to become ***decommissioned*** by Irving.
Western	Corner Brook	Primary Marine Terminal	Imperial	Marine Tanker	Completed	Yes	35	Primary Terminal for Western Newfoundland - Thruputs for Irving
Western	Corner Brook	Primary Marine Terminal	Ultramar	Marine Tanker	Completed	Yes	36	Primary Terminal for Western Newfoundland
Western	Corner Brook	Primary Marine Terminal	Irving	Marine Tanker	Completed	Yes	37	Was Primary Terminal for Western Newfoundland - ***Being Decommissioned***
Western	Springdale	Bulk Plant	Ultramar	Corner Brook	Completed	Yes	38	Bulk Plant used by Ultramar and others for local area deliveries.
Western	Baie Verte	Bulk Plant	Irving	Corner Brook	NV	NO	39	***Not Visited - Decommissioned but still standing.***
Western	Pasadena	Bulk Plant	North Atlantic	Come By Chance	Completed	Yes	40	Relative new Bulk Plant for local distillate deliveries.
Western	Stephenville	Bulk Plant	Ultramar	Corner Brook	Viewed	Yes	41	Owned by Ultramar - Operated by Western Petroleum.
Western	Stephenville	Bulk Plant	Irving	Corner Brook	Completed	NO	42	Underground storage behind Service Station for local distillate deliveries.

APPENDIX L Table 1

Storage and Distribution Study
Petroleum Product Storage Facilities - Newfoundland and Labrador - 2004

Region	Location	Type of Facility	Owner/ Operator	Feeder Terminal(s)	Visitation Status	Photos	Photo ID #	Notes
Western	Stephenville	Bulk Plant	North Atlantic	Come By Chance	Completed	Yes	43	Bulk Plant for Local Distillate Deliveries.
Western	Burgeo	Bulk Plant	Western	Corner Brook	Viewed	Yes	44	Formerly Irving. Reported recently sold to Western Petroleum.
Western	Burgeo	Bulk Plant	Western	Corner Brook	Completed	Yes	45	***Geep Units to be decommissioned.***
Western	Port aux Basque	Bulk Plant	Ultramar	Corner Brook	Completed	Yes	46	Owned by Ultramar - Operated by Western Petroleum.
Western	Port aux Choix	Bulk Plant	Irving	Corner Brook	Viewed	Yes	47	***Decommissioned.***
Western	Port aux Choix	Bulk Plant	Independent	Corner Brook	Completed	Yes	48	Owned and operated by Northern Petroleum for local Distillate deliveries.
Western	St. Barbe	Marine Depot	Ultramar	Marine Tanker	Completed	Yes	49	Serves as Ultramar supply terminal for Northern Peninsula. Supplied via Marine Tanker.
Western	St. Anthony	Bulk Plant	Ultramar	St. Barbe	Completed	Yes	50	Operated by Ultramar Branded Reseller for local distillate deliveries.
Labrador	L'Anse au Clair	Marine Depot	Woodward	Coastal Tanker	Viewed	Yes	51	Serves as Woodward's Marine Depot for supply to Labrador Straits Area.
Labrador	L'Anse au Loup	Marine Depot	Ultramar	Marine Tanker	Completed	Yes	52	Serves as Ultramar supply terminal for Labrador Straits Area and in recent years for the road connected South Labrador Coast form Lodge Bay to Cartwright.
Labrador	St. Lewis	Marine Depot	Woodward	Coastal Tanker	Viewed	Yes	53	Reported being ***decommissioned*** with deliveries planned from Port Hope Simpson.
Labrador	Mary's Harbour	Marine Depot	Woodward	-N/A-	Viewed	Yes	54	***To be decommissioned*** in 2004 and supplied via T/W ex Port Hope Simpson main Marine Depot.
Labrador	Port Hope Simpson	Marine Depot	Woodward	Coastal Tanker	Viewed	Yes	55	Upgraded in 2003 as primary Marine Supply Depot for section of Labrador South Coast - Lodge Bay to Charlottetown.
Labrador	Charlottetown	Bulk Plant	Normore	L'Anse au Loup	Completed	Yes	56	Primary Supply Depot for Normore for South Labrador Coast (Road connected communities). Supplied via Tank Truck from L'Anse au Loup Marine Terminal
Labrador	Cartwright	Marine Depot	Woodward	Coastal Tanker	Completed	Yes	57	Apparently to remain Woodward Marine Depot for local supply.
Labrador	Cartwright	Bulk Plant	Normore	L'Anse au Loup	Completed	Yes	58	***Decommissioned.*** Tanks to be removed.
Labrador	Black Tickle	Marine Depot	Woodward	Coastal Tanker	Completed	Yes	59	To remain Woodward Marine Depot for local supply to this isolated community.
Labrador	Rigolet	Marine Depot	Town Council	Coastal Tanker	Completed	Yes	60	Tanks belong to Normore - Currently operated by Town Council of Rigolet.
Labrador	Makkovik	Marine Depot	Woodward	Coastal Tanker	Completed	Yes	61	Marine Depot owned and operated by Woodward Oil.
Labrador	Postville	Marine Depot	Woodward	Coastal Tanker	Completed	Yes	62	Marine Depot owned and operated by Woodward Oil.
Labrador	Hopedale	Marine Depot	Normore	Coastal Tanker	Completed	Yes	63	Marine Depot owned and operated by Normore Ltd.
Labrador	Nataushish	Marine Depot	Band Council	Coastal Tanker	Viewed	NO	64	**Run by Band Council**
Labrador	Davis Inlet	Marine Depot	Band Council	Coastal Tanker	Not Viewed	NO	65	***Presumed Decommissioned***
Labrador	Nain	Marine Depot	Woodward	Coastal Tanker	Completed	Yes	66	Marine Depot owned and operated by Woodward Oil.
Labrador	Goose Bay	Primary Marine Terminal	Imperial	Marine Tanker	Completed	Yes	67	Primary Supply terminal for Imperial Oil and Woodward for Airport and local area.
Labrador	Goose Bay	Primary Marine Terminal	Ultramar	Marine Tanker	Completed	Yes	68	Primary Supply terminal for Ultramar for retail Gasoline and distillates for local area.
Labrador	Labrador City	Bulk plant	Shell Oil	Sept Isles	Completed	Yes	69	Supplied via railway tank cars from Sept Isles. Also Used by Ultramar and Imperial for gasoline and distillate supply for Labrador City and Churchill Falls areas.

Count **69**

52 Storage Facilities Total in Operation	Primary Marine Terminals plus 1 Refinery	8
	Secondary Marine Terminals	5
	Marine Depots	11
	Bulk Plants	28
Decommissioned or in process of being decommissioned		17
		69

APPENDIX L Table 2

Storage and Distribution Study

Propane Storage Facilities - Newfoundland and Labrador - 2004

Region	Location	Type of Facility	Owner/ Operator	Feeder Terminal(s)	Visitation Status	Photos	Photo ID #	Notes
Avalon	St. John's	Propane Storage Plant	Superior	Come By Chance	Completed	Yes	70	
Avalon	Donovans	Propane Storage Plant	North Atlantic	Come By Chance	Completed	Yes	71	
Avalon	Donovans	Propane Storage Plant	Irving	Come By Chance	Completed	Yes	72	
Eastern	Come by Chance	Refinery	North Atlantic	-N/A-	Completed	No	73	
Eastern	Clarenville	Propane Storage Plant	Superior	Come By Chance	Completed	No	74	
Central	Grand Falls-Windsor	Propane Storage Plant	Superior	Come By Chance	Completed	Yes	75	
Central	Grand Falls-Windsor	Propane Storage Plant	Irving	Come By Chance	Completed	Yes	76	
Western	Pasadena	Propane Storage Plant	Superior	Come By Chance / Mainland Sources	Completed	Yes	77	
Western	Corner Brook	Propane Storage Plant	Irving	Come By Chance / Mainland Sources	Completed	Yes	78	

Count	**9**	**9 Storage Facilities in Operation**	Refinery Bulk Storage	1
			Bulk Storage Plants	8

Photo ID # 1

IRVING OIL – Primary Marine Terminal
South Side Hills – St. John's Harbour

Photo ID # 2

North Atlantic Bulk Plant – Donovans – Mount Pearl

North Atlantic Bulk Plant – Loading Rack - Donovans – Mount Pearl

Photo ID # 3

Irving Oil – Decommissioned Bulk Plant Tanks – Bell Island

Photo ID # 4

Ultramar - Home Heat Bulk Plant – Aquaforte

Southern Shore – Avalon Peninsula

Photo ID # 5

Ultramar Primary Marine Terminal – Holyrood

Ultramar Holyrood Terminal – Loading Rack

Photo ID # 6

Woodward's Oil – Marine Terminal – Long Pond

Woodward's Oil – Marine Terminal – Long Pond – Dock in Background

Photo ID # 7

Maple Leaf Fuels

Underground Storage Tanks

Bay Roberts

NO PHOTO AVAILABLE

Photo ID # 8

Ultramar Bulk Plant (Distillates Only) – Harbour Grace

Ultramar Bulk Plant – Loading Rack – Harbour Grace

Photo ID # 9

Irving Oil – Drop-Off Underground Heating Fuel Storage – Harbour Grace

Photo ID # 10

Irving Oil – Distillate Bulk Plant – Dunville - Reportedly Decommissioned

Photo ID # 11

North Atlantic Refinery – Come By Chance

North Atlantic Refinery – Come By Chance – Loading Rack Area

Photo ID # 12

Irving Bulk Plant – Grand Bank

Photo ID # 13

Ultramar – Secondary Marine Terminal - Marystown

Photo ID # 14

Irving – Secondary Marine Terminal – Marystown - Reportedly Decommissioned

Photo ID # 15

North Atlantic Petroleum – Bulk Plant - Marystown

Photo ID # 16

Irving Oil Bulk Storage Plant

Clarenville

Reported Decommissioned

NO PHOTO AVAILABLE

Photo ID # 17

North Atlantic Petroleum – Bulk Plant – Bonavista

Photo ID # 18

Ultramar Bulk Plant - Bonavista

Photo ID # 19

New Bulk Plant –R &B Services (Eli Russell) -Lethbridge

Photo ID # 20

Ultramar – Bulk Plant – Gander (Distillates and Gasoline Storage)

Photo ID # 21

North Atlantic – Bulk Plant - Gander

Photo ID # 22

Irving Bulk Plant – Gander – (Reportedly Decommissioned)

Photo ID # 23

Imperial - Primary Marine Terminal - Lewisporte

Photo ID # 24

Ultramar - Bulk Plant – Lewisporte – Reportedly Being Decommissioned

Photo ID # 25

Ultramar – Marine Terminal – Botwood

(Decommissioned and being dismantled)

Photo ID # 26

Irving – Marine Terminal – Botwood - Decommissioned

Photo ID # 27

Ultramar Bulk Plant – Fogo Island – Distillate and Gasoline Storage

Photo ID # 28

Island Petroleum – Bulk Plant - Fogo Island

Photo ID # 29

Irving Oil Bulk Storage Plant

Buchans

Reported Decommissioned

NO PHOTO AVAILABLE

Photo ID # 30

North Atlantic – Bulk Plant – Bishop's Falls

Photo ID # 31

Ultramar–Bulk Plant–Connaigre Peninsula–Gasoline and Distillate Storage

Photo ID # 32

Irving – Bulk Plant – English Harbour West – Connaigre Peninsula

Photo ID # 33

Irving Oil Marine Bulk Storage Depot

Gaultois

(South Coast of Island)

Reported Decommissioned

NO PHOTO AVAILABLE

Photo ID # 34

Irving - Marine Depot – Francois – South Coast

Reportedly Being Decommissioned

Photo ID # 35

Imperial Oil – Primary Marine Terminal – Corner Brook

Imperial Oil – Primary Marine Terminal - Corner Brook - Dock

Photo ID # 36

Ultramar – Primary Marine Terminal – Corner Brook

Ultramar – Primary Marine Terminal – Dock

Photo ID # 37

Irving Oil – Marine Terminal – Corner Brook – Being Decommissioned

Irving Oil – Marine Terminal – Corner Brook – Loading Rack

Photo ID # 38

Ultramar – Bulk Plant – Springdale – Gasoline and Distillate Storage

Photo ID # 39

Irving Oil Bulk Plant

Baie Verte

Reported Decommissioned

(Some tanks still standing)

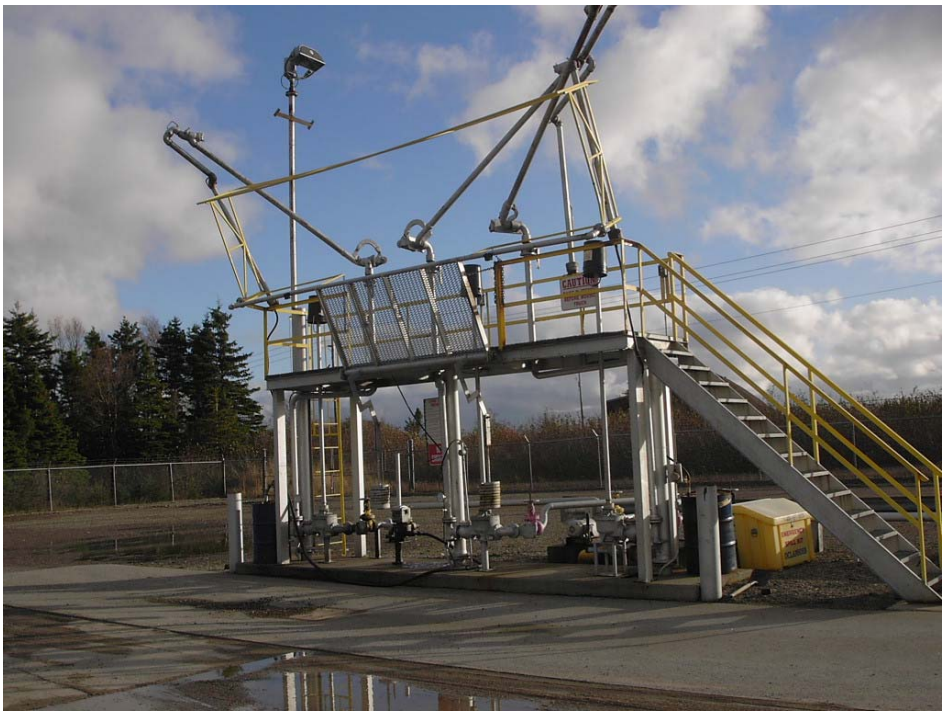
NO PHOTO AVAILABLE

Photo ID # 40

North Atlantic – Bulk Plant - Pasadena

Photo ID # 41

Ultramar – Bulk Plant – Stephenville - Tankage



Ultramar – Bulk Plant – Stephenville – Loading Rack

Photo ID # 42

Irving Oil Bulk Plant

Stephenville

Underground Storage Tanks

(Reportedly Similar to Harbour Grace Bulk Plant)

NO PHOTO AVAILABLE

Photo ID # 43

North Atlantic – Bulk Plant - Stephenville

Photo ID # 44

Western Petroleum - Bulk Plant – Burgeo

Formerly owned by Irving - Purchased by Western -2004

Photo ID # 45

Former Western Petroleum – Bulk Plant – Burgeo – Being Decommissioned

Photo ID # 46

Ultramar – Bulk Plant – Port aux Basques – Tankage

Ultramar – Bulk Plant – Port aux Basques – Loading Rack

Photo ID # 47

Irving – Bulk Plant – Port au Choix - Decommissioned

Photo ID # 48

Independent Operator – Terry Cornick – Bulk Plant – Port au Choix

Photo ID # 49

Ultramar – Secondary Marine Terminal – St. Barbe – Tankage

Ultramar – Secondary Marine Terminal – St. Barbe – Loading Rack

Photo ID # 50

Ultramar – Bulk Plant – St. Anthony

Photo ID # 51

Woodward – Marine Depot – L’Anse au Clair

Photo ID # 52

Ultramar – Marine Depot – L’Anse au Loup

Photo ID # 53

Woodward – Marine Depot – St. Lewis

(Reportedly being decommissioned with product supply from Port Hope Simpson)

Photo ID # 54

Woodward – Marine Depot – Mary's Harbour

(Reportedly being decommissioned with product supply from Port Hope Simpson)

Photo ID # 55

Woodward – Marine Depot – Port Hope Simpson

Photo ID # 56

Normore – New Bulk Plant – Charlottetown – Labrador

(Gasoline and Heating Fuel Storage)

Photo ID # 57

Woodward – Marine Depot - Cartwright

Photo ID # 58

Normore – Decommissioned tankage from Marine Depot - Cartwright

Photo ID # 59

Woodward – Marine Depot – Black Tickle

Photo ID # 60

Marine Depot – Rigolet

Tanks owned by Normore

Depot currently operated by Town Council

Photo ID # 61

Woodward – Marine Depot – Makkovik

(Newfoundland and Labrador Hydro Tankage in left background)

Photo ID # 62

Woodward – Marine Depot - Postville

Photo ID # 63

Normore – Marine Depot – Hopedale

(Newfoundland and Labrador Hydro Plant in foreground)

Photo ID # 64

Marine Storage Depot

Nataushish

Labrador Coast

Run by Band Council

NO PHOTO AVAILABLE

Photo ID # 65

Marine Storage Depot

Davis Inlet

Labrador Coast

Town Relocated to Nataushish

Depot Presumably Decommissioned

NO PHOTO AVAILABLE

Photo ID # 66

Woodward – Marine Depot – Nain
(Newfoundland and Labrador Hydro tankage in background)

Photo ID # 67

Imperial – Primary Marine Terminal – Goose Bay

Photo ID # 68

Ultramar – Primary Marine Terminal – Goose Bay

Photo ID # 69

Rail Car Bulk Plant – Labrador City

Photo ID # 70

Superior - Propane Storage Plant – Kenmount Road – St. John’s

Photo ID # 71

North Atlantic – Propane Storage Plant - Donovans

Photo ID # 72

Irving – Propane Storage Plant - Donovans

Photo ID # 73

North Atlantic Petroleum

Come by Chance Refinery

Propane Storage Tanks

NO PHOTO AVAILABLE

Photo ID # 74

Superior Propane

Propane Storage Tanks

Clarenville

NO PHOTO AVAILABLE

Photo ID # 75

Superior – Propane Storage Plant – Grand Falls-Windsor

Photo ID # 76

Irving – Propane Storage Plant – Grand Falls-Windsor

Photo ID # 77

Superior - Propane Storage Plant – Pasadena

Photo ID # 78

Irving – Propane Storage Plant – Corner Brook