INDEPENDENT CONSUMER & COMPETITION COMMISSION

PETROLEUM INDUSTRY PRICING REVIEW

FINAL REPORT

August 2004

Table of Contents

EXECUTIVE SUMMARY

1. FORWARD………………………………………………………………………….…………. 7

2. INTRODUCTION………………………………………………………………………….. 10

2.1. Legislative requirements………………………………………………………… 10
2.2. Process of Review….……………………………………………………………11
2.3. Structure of the Industry…………………………………………………………11
2.4. Balancing consumer and producer interests…………………………………….12

3. SUPPLY OF REFINED PETROLEUM PRODUCTS…………………………………...13

3.1. Issues…………………………………………………………………………….. 13
3.2. Draft Report Recommendations……….……………………………………… 14
3.3. Submissions on Draft Report……………….…………………………………….. 14
3.4. Summary of Commission's Decisions…………………………………………..…16

4. PETROLEUM PRODUCTS WHOLESALING AND DISTRIBUTION ………………….. 18

4.1. Issues…………………………………………………………………………...18
4.2. Draft Report Conclusions………………………………………………………… 20
4.3 Submission on the Draft Report…………………………………………………21

4.3.1 Wholesale Margin……………………………………………………….....21

4.3.2 Sea Freight from Napa Napa…………………………………………..34

4.3.3 All Other Freight Charges………………………………………………… 37

4.3.4 Summary of Decision…………….……………………………………… 39

5. RETAILING ACTIVITIES………………………………………………………………. 41

5.1. Issues…………………………………………………………………………….. 41
5.2. Draft Report Conclusions………………………………………………………… 42
5.3. Submission on Draft Report………………………………………………………. 43
5.4. Summary of Decision……………………………………………………………… 47

6. ATTACHMENTS……………………………………………………………………………………

- Attachment 1: Section 21 (2A) of the Prices Regulation Act ………………………....... I
- Attachment 2(a): Public Announcement - initial……………………………………………II
- Attachment 2(b): Public Announcement – extension …………………………..……. III
- Attachment 3(a): List of Submissions received to the Issues Paper …….……….... IV
- Attachment 3(b): List of Submissions received to the Draft Report …………………… V
- Attachment 4: Glossary of terms and acronyms used. ……………………..……..... VI
- Attachment 5: Medium Range (MR) Tanker Cost Template …………………………VII
- Attachment 6: Local Coastal Tanker (LCT) Cost Template.…………………………. VIII
- Attachment 7: Indicative Freight Rates.……………………………..……………….. IX
- Attachment 8: Draft General Prices Order 2004 ……………………………….…. XVI

EXECUTIVE SUMMARY

The Commission has undertaken a review of the pricing regulation of the petroleum industry under the provisions of Sections 25 A (6) of the *Prices Regulation Act*. The review is to determine:

- whether price regulation is still required
- if it is to continue, should it do so:
    - in its present form, or
    - in some other form

This Final Report provides information on the Commission's final decisions as to the form of regulation and the price directions that should be applied. These final decisions are summarised below:

SUPPLY OF REFINED PETROLEUM PRODUCTS

Decision 1:

The Commission will recommend to the Minister for Finance and Treasury that the pricing of mogas, diesel and kerosene ex the Napa Napa refinery be declared under Section 32A of the *Price Regulation Act* for price monitoring purposes. Monitoring by the Commission will be undertaken according to the formula set out in the InterOil Project Agreement.

Decision 2:

Under the price monitoring arrangement to apply for Mogas, Diesel and Kerosene supplied from the Napa Napa refinery, the refinery operator will notify oil industry distribution companies no later than close of business on the seventh day of each month the new IPP to apply from the eighth day of the month and wholesalers and retailers will pass through these price changes from the eighth day of the month.

Decision 3:

Should any error or adjustment be required in the monthly notified ex Napa Napa refinery IPP price, the price is to be amended within 24 hours of the notification of the error and any further adjustment to reflect a financial compensation, will be made under the Commission's supervision in the following month.

Decision 4:

The Commission will recommend to the Minister for Finance and Treasury that the pricing of mogas, diesel and kerosene that is imported directly into PNG during a period in which the Napa Napa refinery can not meet supply, be declared for prices monitoring purposes under Section 32A of the *Price Regulation Act*. The Commission will use the current landed cost review formula to monitor landed cost prices in these circumstances with initially the invoice price being accepted as the appropriate base for this calculation. However if the inability to supply extends beyond three months, the Commission will convene a meeting of relevant parties with a view to adopting the lower of invoice price, company posted price, or MOPS price for individual shipment price calculations.

PETROLEUM PRODUCTS WHOLESALING AND DISTRIBUTION

Decision 5:

The Commission will amend the General Prices Order 2000 to set a cap on the wholesale margin for mogas, diesel, kerosene and avgas and a formula for the adjustment of the cap on the margin over a period from 8 September 2004 until 31 December 2009.

a. The Margin for the first year has been determined by the Commission at 24 toea per litre for mogas, diesel, kerosene and avgas.

b. The CPI – X formula will result in no change in the wholesale margin until January 2006 and the X factor for each of the years 2006, 2007, 2008, and 2009 will be 1 (that is CPI- 1).

c. The margin adjustments will occur automatically from the first of January each year of the price path from January 2006 – 2009.

d. An additional charge of 3 toea per litre will be allowed for Mogas, diesel and kerosene that is sold in drum form and the CPI – X formula applied to the standard wholesale margin will apply to this charge also.

Decision 6:

The Commission will recommend to the Minister for Finance and Treasury that the freight charges for sea freight from Napa Napa to the Main Ports of Lae, Rabaul, Madang, and Kimbe, and from the Main Ports to the Out Ports of Alotau, Oro Bay, Lihir, Wewak, Kavieng and Manus will be subject to prices monitoring under the provisions of Section 32A of the Prices Regulation Act.

a. The prices monitoring will use a cost template for the charter of two vessels by the oil industry to freight the products from Napa Napa and the Main Ports to the Out Ports.

b. The transport cost for freight to the Main Ports will be averaged across the four main ports, and thus retained the 'common price' approach that currently applies in three of those Main Ports.

c. The freight rates to the Out Ports will reflect the actual cost of the shipments to Lae or Rabaul (at the averaged price for these Main Ports) plus the cost of transfer and shipment to the Out Ports on the LCT.

d. Under the cost template model, the industry will advise the Commission the actual cost that it incurs on a three monthly basis and the freight charge for the next three months will be adjusted for any unders or overs in the freight costs over the previous three months.

e. This will be an interim arrangement and the Commission will undertake a review of the impact of this arrangement within 12 months of the new arrangements being implemented with a view to improving pricing arrangements and adding an incentive element to the price path if at all possible.

Decision 7:

The Commission will recommend to the Minister for Finance and Treasury that the freight cost ex the depot gate of the wholesalers will be subject to a monitoring arrangement under Section 32A of the Prices Regulation Act.

a. The Commission will use a Freight Cost Index (FCI) to monitor movements in the freight rates.

b. Oil companies and distributors will be required to report their negotiated freight rates to the Commission on a quarterly basis and the Commission will monitor movements in these rates over time.

c. Where there is evidence of significant divergence from the Commission's FCI, the Commission will request an explanation, and if not satisfied with the explanation will consider whether to recommend to the Minister that the freight charges be declared under Section 10 of the Prices Regulation Act for Price Control.

RETAILING ACTIVITIES

Decision 8:

The Commission will amend the General Prices Order 2000 to set a cap on the retail margin for mogas, diesel, and kerosene and a formula for the adjustment of the cap on the margin over a period from 8 September 2004 until 31 December 2009.

a. A CPI – X price path will apply to the retail margin with the CPI being the adjusted Consumer Price Index provided by NSO for the Commission to use, and X is set at one for each year of the price path.

b. The CPI – X formula will apply for a period of five years to 31 December 2009 and adjustments to the retail margin will occur on the first day of January for each year till 31 December 2009.

c. The initial retail margin will be 15 toea per litre to apply to Mogas, Diesel and Kerosene sales at the retail stage.

The Commission has provided at Attachment 8 a Draft of the General Prices Order 2004 that it will issue which will implement aspects of the decisions as summarised above. The Commission's decision including the move to Import Parity Price for mogas and kerosene will take effect from 8th September 2004

1. FORWARD

The Independent Consumer & Competition Commission (Commission) is a statutory body, established by Parliament under the provisions of the *Independent Consumer and Competition Commission Act 2002,* which has been given responsibility for the promotion of competition and fair trading, the regulation of prices for certain goods and services, and the protection of consumers' interests and other related purposes.

In its role of regulating prices of certain goods and services, the Commission has the responsibility to regulate prices of certain oil based refined petroleum products such as Petrol (Mogas), Distillate (Diesel), Kerosene and Aviation Gasoline (Avgas). These fuel products are imported into the country and supplied mainly by three major oil companies operating in PNG; Mobil Oil New Guinea Ltd, Shell PNG Ltd and Interoil Products Limited (previously known as BP Papua New Guinea Ltd) . A fourth company, Niugini Oil Company (NOC) is locally-owned and also purchases and distributes petroleum products. NOC mainly holds a small share of the domestic fuel market but a larger share of the lubricants market.

Under the provision of Section 25A (6) of the *Prices Regulation Act,* the Commission has decided to undertake a major review into the pricing regulatory arrangements affecting price-controlled petroleum products.

Briefly, the current regulatory arrangements under the *Prices Regulation Act (Chapter 320)* for the pricing of petroleum products incorporate the following tasks:

- Review of the Landed Cost of imported fuel products, undertaken on a monthly basis;
- Annual reviews of the Wholesale Margin and Distribution costs for the oil companies;
- Determination of the Freight Differential for fuel supplied to centres and locations other than the Main Ports;
- Setting of the Retail Margin for service station operators.

This review has been undertaken in the context of legislative changes resulting in the enactment of the *Independent Consumer & Competition Act 2002* and amendment of the *Prices Regulation Act, Chapter 320.* The review is also to accommodate changes in supply arrangements within PNG with the commencement of the InterOil refinery at Napa Napa which is producing diesel and is expected to commence full commercial operation by September 2004.

The *Independent Consumer & Competition Act 2002* incorporated a number of amendments to the *Prices Regulation Act* under which the prices for oil based products are controlled. In particular, the *Prices Regulation Act* was amended to introduce the following new provisions and powers for the Commission:

- Section 20A requires the ICCC to notify its intention to determine a maximum prices order under Section 21 at least 30 days in advance of that order being made and requires full public disclosure of the reasons for any new price determination.
- Section 21(2A) introduces specific requirements on the ICCC in terms of the matters that it must consider when making a pricing order including encouraging greater efficiency within the regulated industry, ensuring an appropriate rate of return, ensuring appropriate safeguard for quality, reliability and safety for the supplying industry, and protecting consumers from the misuse of market power by suppliers of declared goods and services.

- Sections 25A, 25B and 25C specify the process by which a review of a Pricing Order can be undertaken and specify the deadlines that must be met, the requirement for the Commission to publish details of its decisions and the form of its decision.

    - Section 25A (6) allows the Commission of its own volition to initiate a review.

    - Section 25C (3) specifies that in response to a review, the Commission may determine to:

        - Continue to operate the existing price control arrangements in their present form.
        - Vary the existing price control arrangements, or
        - Terminate the present price control arrangements.

- Section 32(A) provides for declaration of goods or services for price monitoring purposes as an alternative to price control. This is a less stringent form of regulation, which effectively allows the Commission to oversee the prices being charged for the declared goods or services, without requiring the industry to incur the cost of a more heavy-handed direct price control including obtaining pre approval of price changes.

These amendments to the *Prices Regulation Act* increase the flexibility of the Commission in terms of its overall price control tasks. They also allow for appropriate mechanisms to be developed and implemented that meet the objectives of the Government in terms of price control while minimising the cost of undertaking the price control tasks, thereby ensuring that price control does not of itself create other unintended economic consequences.

The Commission currently regulates the prices of a wide range of goods and services under the provisions of Sections 10 and 21 of the *Prices Regulation Act.* The requirements of Sections 20A and 20B of that Act now require the Commission to enter into extensive public consultation and reporting each time a new price is set for any of these goods and services. This is designed to provide the industry and the general community with every opportunity to participate in discussions on a new price determination. However it can also mean that there is an extensive delay between the time that a new price is proposed by a regulated business and the decision by the Commission on that proposal.

Within the spirit of the legislation and to provide an opportunity for wider community consultation on the pricing of declared goods and services (and whether they should be declared for price control, price monitoring or simply not regulated at all), the Commission is undertaking a series of studies into those goods and services which are currently subject to price declaration. This current study into certain oil based products is the first of what is expected to be series of studies to be undertaken by the Commission during 2004 and 2005.

The Commission has embarked on this review of the oil based products in PNG at a time of considerable change in the industry. InterOil's commissioning of the Napa Napa refinery will result in complete new environment for the supply of oil based products in PNG. In addition it will change the pervious arrangements for the freighting of products to the Main Ports (Port Moresby, Rabaul, Lae and Madang) and will require new freight arrangements for supply of products to Out Ports (other ports currently serviced from the Main Ports).

In addition, there are significant changes occurring within the industry. InterOil has acquired the assets and operations of, BP Papua New Guinea Limited in PNG.

A proposal by Shell and InterOil to enter into a joint arrangement whereby InterOil will acquire and lease back the wholesale business of Shell in PNG, has been widely announced and is currently the subject of a formal notification to the ICCC. A decision by the Commission on whether to authorize this proposal is currently under consideration.

It is in this context that this review is currently being undertaken.

A Draft Report was released in March 2004 and submissions have been received on this Draft (see Attachment 3(b)). The Final Report which was to have been released in May has been delayed to allow time for consideration of the latest information on proposed freight arrangements for shipping product from Napa Napa, and to confirm the commencement of commercial supply from Napa Napa. The Commission also wanted to allow sufficient time for responses from interested parties, and in the context of other inquiries underway was forced to delay the release of this Draft Report.

A list of submissions received by the Commission is at Attachment 3 (b).

Submissions to the Commission are available for public inspection unless the Commission agrees that all or part of the submission should remain confidential. However, in accordance with the provisions of the *ICCC Act*, it is intended that the review process is as transparent as possible and to this end, submissions will normally be available for public inspection unless there are exceptional commercial-in-confidence reasons why submissions be held in confidence.

With the release of this report, the Commission proposes to have the Minister for Finance and Treasury (the Minister) declare certain services relating to the transportation of petroleum products and the supply of product from the InterOil refinery facility to be Declared Monitored Services under Section 32A of the *Prices Regulation Act.* The Commission will amend the current General Prices Order 2000 such that the wholesale margin and the retail margin for the sale of mogas, diesel, kerosene, and where applicable avgas, will be set under an incentive based price path to apply for a five year period till 31st December 2009. The Price Monitoring and new price control arrangement will come into effect from 8th September 2004.

2. INTRODUCTION

2.1 Legislative Requirements

The Independent Consumer and Competition Commission is undertaking this review in accordance with PART III and X of the *ICCC Act* and the amended provisions of the *Prices Regulation Act (Ch. 320)*. In undertaking this review, the Commission is to have regard to the following:

- Sections 10, 20(A&B), 21, 25(A,B&C) and 32A of the amended *Prices Regulation Act*,
- Confidentiality and public disclosure provisions of the Act on information received from submissions,
- The current prospective outlook on the oil industry in PNG,
- Prevailing economic conditions of the PNG economy.

Under Section 10 of the *Prices Regulation Act (Chapter 320),* the Government has declared the following petroleum products for price control purposes.

- Motor Spirit (Petrol or Mogas)
- Distillate (Diesel)
- Kerosene (Home cooking Kerosene)
- Aviation Gasoline (Avgas)

The former *Prices Regulation Act* was silent on a number of matters that might reasonably be expected to appear in such an Act. In particular, it made no reference to matters that should be considered by the Price Controller when undertaking a review of a prices order.

In the absence of any legislated guidelines, determinations by the Price Controller were made without legislative guidelines and therefore may not have taken into account all matters relevant to an inquiry of this nature. Amendments made to the *Prices Regulation Act* in 2002 established a list of issues that must be considered by the ICCC when making a determination on an application to review a prices order.

Under the *ICCC Act* and the *Prices Regulation Act*, the Commission is to have regard to the following objectives in reaching decisions on prices:

- the enhancement of the welfare of the people of Papua New Guinea through the promotion of competition, fair trade and the protection of consumers' interests;
- the promotion of economic efficiency in industry structure, investment and conduct; and
- the protection of the long term interests of the people of Papua New Guinea with regard to the price, quality and reliability of significant goods and services.

In addition, when making a pricing order under the Act or an amendment to such an order, the Commission is to have regard to the provisions of the amended Section 21(A) of the Act (Attachment1). These requirements specify in some detail the matters that must be considered by the Commission.

2.2 Process of Review

Under the provisions of Sections 25B and C, the Commission is required to undertake a review of this nature in a manner which is open and transparent.

Public submissions and input into these review process are welcomed, and the Commission is required to inform the public through public notices in the daily newspaper of details of the review, the availability of the Draft Report and the reasoning behind the final decision that is taken by the Commission.

The Commission is to be independent in its review processes and is not subject to direction from any interested groups. However, the Commission is to have regard to the requirements of the relevant legislation as discussed in the previous section and is to consider submissions made to it by interested persons or groups.

Various time limits apply to the conduct of a review where this has been initiated by the Minister or by the Industry. However, these time limits do not apply where the Commission has itself initiated the review. Nonetheless, the Commission is aware of the need to progress the review in such a way as to allow adequate time for contributions from the wider community and appropriate considerations of these submissions. The Commission has sought throughout this review to provide ample opportunity for contributions from various interested groups.

Significant changes that are currently occurring or are foreshadowed in the industry are also relevant to the timing and process of this review. The Commission is conscious of the current state of flux within the domestic industry and the need for the Commission to consider carefully information obtained from the industry as circumstances are likely to change over the near future.

2.3 Structure of the Industry

For purposes of this review, the Commission has examined the industry in the following three parts:

- supply of oil based products ex refinery
- wholesale and distribution activities
- retailing activities

This broadly reflects the current structure of the industry. Oil products are supplied either ex the Napa Napa refinery or imported from overseas[1]. The underlying price for oil based products supplied into PNG therefore will represent either the price for product ex Napa Napa or landed in PNG after the inclusion of freight, insurance and various handling charges ex port of shipment.

For the wholesaling/distribution sector there are a number of individual functions which are encapsulated in the wider concept of the wholesale/distribution mark-up. These include

- freight to Main Ports from Napa Napa
- freight ex port of entry to local depots
- freight to Out Ports
- freight to Outer Locations including Inland Depots
- freight from local depots to retail outlets
- the wholesaling functions including bulk storage at Main Port and Out Port depots

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[1] Oil Search operates two small refineries in the southern highlands associated with their oil operations. A small amount of product from these refineries that is not required for Oil Search's own activities is sold to local landowner companies for use in the area.

Finally, retailing costs for relevant declared products are considered. The Commission has had to have regard to the inclusion of both declared and non declared product in the range of products sold by retail outlets, and consider the appropriate allocation of costs between these activities.

In considering the structure of the industry, the Commission is also to have regard to the requirements of Section 21(2A) of the Act and in particular the need to ensure that prices provide a recovery of efficient costs for each of the stages in the production and delivery of product to the final consumer. With the emergence of InterOil as a major participant in the oil based products industry in PNG and the emergence of new roles for the existing four wholesaling businesses, there is a need for the Commission to consider not only the setting of cost reflective prices, but the appropriate level of efficient costs within the industry in PNG.

2.4 Balancing Consumer and Producer Interests

Ultimately the Commission is concerned to ensure that the consumers of PNG have access to product at appropriate prices and with an appropriate standard of service. The Commission is aware of the dangers that inappropriate prices can create, particularly where these prices do not allow for the recovery of efficient costs.

There is ample evidence both within PNG and overseas of ‘black markets’ forming when regulated prices are insufficient to recover efficient prices. The dangers in PNG are self evident should consumers be forced to source product through illegal means as the only way of buying product, the regulated price for which has been set below the efficient cost levels. With highly flammable product such as Mogas, Kerosene and Avgas, the dangers for physical injury are all too apparent.

At the same time, pricing product at levels above efficient cost recovery only serves to generate monopoly profits which advantage a few at the expense of the wider economy and consumers in general.

The Commission believes that in its consideration of the facts and final decision on the form of regulation to apply in this Industry, it has struck an appropriate balance between these two extremes.

3. SUPPLY OF REFINED PETROLEUM PRODUCTS

3.1 Issues

The Commission currently regulates the price of the declared petroleum products imported into the country under the *Prices Regulation Act*. Each of the three major oil companies makes monthly submissions for review of the major components of the products' Landed Costs. On the basis of the review, the Commission approves monthly price adjustments and these adjustments flow into the maximum prices that can be charged by the wholesalers which are passed through to the retailers' pump-price and eventually to the consumers.

The major components of the Landed Cost template are the products' FOB prices and related freight rates which vary on a monthly basis and are benchmarked against external sources. The product costs are taken directly from the shipping documentation for product supplied into PNG although there is a process whereby the FOB price is determined as the lower of the invoice or a posted price set by the oil companies internationally. Some of the parameters under which the other components of the Landed Cost are calculated were originally based on the best competitive information available to the Price Controller in the early 1980s. Some of these components are now out of date or require refinement if they are to be used in the future.

The prices control mechanism that has been adopted for review of the landed cost has resulted in delays in the pass through of adjustments to price. On occasions, to offset the under-recoveries of costs experienced by the importing firms, the Commission has provided a 'catch-up' adjustment to the costs allowed to be passed through to consumers This has served to add further confusion to the price setting arrangements and outcomes as effectively it adds another component to the 'cost build-up' which is ultimately reflected in prices.

With the start up of the InterOil refinery at Napa Napa, there is a need to reconsider the way in which the landed cost of oil based products is determined. The InterOil Project Agreement virtually requires the oil companies in PNG to acquire all fuel requirements from the InterOil refinery. Under Clause 19.1 of the Agreement it states that the domestic oil industry will acquire all its oil based products ex refinery (Gate Price) at the equivalent of internationally benchmarked import parity prices landed in PNG[2]. For price regulation purposes, the products to be considered for the review from the refinery are Unleaded Petrol, Diesel and Kerosene. Avgas will not be produced by the Napa Napa refinery at this time.

Under the InterOil Agreement entered into by the PNG Government, a formula has been established which links the prices of oil based products ex-refinery in Port Moresby to world parity prices ex-Singapore for these products plus appropriate transport (freight) and associated charges for the notional delivery of the refined product to Port Moresby. As per the Agreement, InterOil is required to report details of its Import Parity Price (IPP) calculation monthly to the Commission for verification.

The Commission therefore has two options to consider in terms of how it might appropriately regulate the landed cost of oil based products. Under Sections 10 and 21 of the Act, the Commission can regulate the prices of products ex refinery by setting a declared price. This will require the Commission meeting the requirements of Section 20A and B each time prices are altered.

[2] The Agreement allows product from the Oil Search mini refineries (mainly naptha and diesel) to be sold domestically at IPP or prices agreed by Oil Search. The volume of product supplied in this way is minor.

Under Section 32(A) of the amended *Prices Regulation Act*, a less intrusive method for price regulation is available whereby, as part of a monitoring process, the landed cost price of products ex refinery in Port Moresby can be checked against the pricing formula that has been specified in the Agreement with InterOil.

This would allow the Commission to monitor the prices being charged by the domestic refinery against accepted international benchmarks for oil based products. The Agreement specifies the use of the Singapore Refinery Product Postings and various international benchmarks for sea freight, demurrage, insurance and handling in deriving the IPP. These individual cost components would be the benchmarks used as part of a monitoring process.

Should InterOil not abide by the provisions of the Agreement in terms of the price adjustments which are being monitored, the Commission has powers under Section 32A (3) of the Prices Regulation Act to have the Minister declare the ex-refinery price for price control purposes with its associated administrative requirements. It is open to debate as to whether the InterOil Agreement would override the review and due process provisions of Section 20A of the Act. However, this may be an issue that would need to be considered by the Courts if the circumstances arose. It is not anticipated at this time that InterOil will not abide by the Agreement.

For product which will continue to be supplied from overseas or that will be supplied at times that the Napa Napa refinery can not meet demand, the Commission must consider the appropriate way in which these prices should be determined. There is already an existing Landed Cost verification procedure which links the prices of product in PNG back to invoice or ‘posted’ prices.

3.2 Draft Report Recommendations

In its Draft Report, the Commission indicated that it proposed to recommend that the Minister for Finance and Treasury declare the price of mogas, diesel and petroleum for monitoring purposes under the provisions of Section 32A of the *Price Regulation Act.* Under this arrangement InterOil would have the right to adjust prices for such products on a monthly basis in accordance with the formula set out in the Agreement. Any error in the application of the formula requiring an adjustment in the price would need to be made within 24 hours of the notification of the error and a financial adjustment for the period in which the wrong price was applied to be made in the following month’s price adjustment. The price adjustment each month, in accordance with the Agreement would be made on the eighth day of the month.

The Commission also indicated its preferred approach should the Napa Napa refinery be unable to supply product at any time in the future. The Commission indicated that it proposed to use a prices monitoring approach for mogas, diesel and kerosene. Under this monitoring arrangement, it was proposed that the FOB price would be the lower of the invoice price, the company posted price or the Mean of Platts Singapore (MOPS) price. Importers would be able to adjust the prices for fuel as soon as it had been landed in PNG subject to the Commission being informed of the substitution of the directly imported product for Napa Napa product together with advice on existing stocks of ex Napa Napa refinery supplied product. Should the Commission assess that the prices have not tracked the benchmark used for determining FOB price or freight charges, the Commission would move to reintroduce direct price control.

The treatment of Avgas, which will continue to be fully imported, is discussed under Section 4 of this report.

3.3 Submissions on Draft Report

Submissions were received from the major oil companies, InterOil, Ok Tedi Mining Ltd, and the Department of Treasury. The submissions primarily endorsed the general thrust of proposed monitoring arrangement to apply to the pricing of product ex the Napa Napa refinery.

One point of clarification relates to the process whereby change in price will be announced. InterOil is to advise the Commission by the seventh day of the month of the proposed price change which will take effect from the eighth day of the month.

The Commission is not required to Gazette this price under the monitoring arrangements and InterOil has confirmed that it will advise the oil companies of the new price to apply from the eighth day of the month. The wholesaler and retailer will be required to pass through the new ex-refinery price from the eighth day of the month.

Concern has been raised about the use of an international price for diesel which is of a lower sulphur content than is included in diesel currently supplied in PNG. The Commission has sought official policy advice from the National Institute of Standards and Industrial Technology as regards the likely policy position on sulphur in diesel. The Commission has been advised that while currently there is no restriction on the level of sulphur content, PNG will be moving to adopt the international standards of 0.05% sulphur content in the near future. In this context, the Commission is satisfied that the use of the lower sulphur content diesel price is an appropriate benchmark to use in the pricing formula under the InterOil Agreement.

Some questions were also raised concerning the pricing of imported product during the initial start up stage for the Napa Napa refinery and during a period in which Napa Napa is unable to supply product in the future. The Commission has been particularly concerned about the delayed timetable for the coming on-stream of the Napa Napa refinery. However, the Commission has decided to adopt a process whereby it will move to the IPP Pricing arrangements under the Agreement on a progressive basis reflecting the unavailability of product from the refinery. Thus, the Commission has already announced that the IPP arrangements for diesel will come into effect from 8th July 2004. In effect, the price of diesel is set from that date at the ex-refinery price set out under the Agreement. This decision has been taken in anticipation of commercial quantities of diesel being released from the refinery in July.

On advice from InterOil, it is not currently expected that commercial quantities of kerosene and mogas will be available until September. Thus the Commission will authorize movement to the IPP price for kerosene and mogas from the eighth day of September 2004. In the interim, the landed cost for these products will be determined using the existing Landed Cost Review (LCR) methodology.

Questions have been raised concerning the use of posted prices in the ex-refinery pricing formula. Under current arrangements the lower of MOPS, posted or invoice price is used in determining the Landed Imported Price under the LCR arrangement. The Commission is aware of possible differences between the previous practice of using the lowest independently set international price versus the proposed use of 'posted prices' which may in some circumstances be higher than the prices currently used by the Commission. However, the Commission must abide by the wording of the Agreement between the Government and InterOil which in this area requires use of the posted price. The Commission has examined the pricing outcomes of using the LCR methodology and the monthly average price methodology used under the IPP approach. The Commission has found that there is around a 1 to 2 toea increase in the final price over time from the use of the IPP methodology. For diesel, the increase is slightly higher than as around 3 to 4 toea per litre reflecting the lower sulphur content, and for kerosene there is no difference. The Commission therefore proposes to use the pricing formula as set under the Agreement.

In terms of the supply of product during those periods where Napa Napa can not supply, submissions to the Commission have argued that major users should be able to source product as cheaply as possible (OK Tedi) and also that oil companies may be forced to source product at short notice and therefore at penalty prices (rather than more favourable spot prices or long term contract prices). It has also been proposed that the Commission should designate a "supplier of last resort" in circumstances where Napa Napa can not supply, although this approach has not been supported in all submissions received.

The Commission is concerned to ensure that in a situation where Napa Napa can not supply, there will be access to appropriate quantities of fuel products to meet PNG's needs.

The Commission also wants to avoid a situation where PNG consumers are held to ransom in terms of price and conditions of supply in such circumstances, while at the same time providing the oil industry with sufficient certainty of the pricing arrangements that it is prepared to arrange supplies at short notice if required.

The Commission does not believe it is appropriate that it set either a default price as such or that it specify the arrangements that the industry should adopt to meet a shortfall in supply. These are purely commercial matters, which the industry should resolve in a manner which does not raise other competition policy issues. The Commission believes that its role should be to give a clear understanding of the basis upon which prices will be approved under conditions where Napa Napa can not supply.

Recognising that there will be some uncertainty regarding the availability of alternative supplies of fuel products at short notice and the need to protect consumers from the misuse of monopoly power at a time of supply shortages, the Commission proposes to adopt a two step process. The steps will be as follows:

1. Should InterOil declare that it is unable to guarantee supply for some period, the Commission will allow as a pass through of the invoice price of landed product using the landed cost review method at present in use. Should InterOil agree with the other oil industry companies that it will act as the 'supplier of last resort', the pass through price will be the IPP as calculated under the Agreement.

2. Should Napa Napa be unable to supply for a period of more than three months, the Commission will convene a meeting of all relevant parties to discuss the supply arrangements with the view to adopting, as the basis for the LCR price, the lower of the invoice price, company posted price or the MOPS for individual shipments required until Napa Napa is operational.

The Commission believes that this approach provides the necessary degree of certainty required by the industry while at the same time protects the long term interest of the PNG consumer and economy.

The Commission also notes that this arrangement will not prevent the Oil Search mini refineries from selling surplus of requirement production to local landowner companies and the like at prices below IPP and for use primarily in the Southern Highlands region.

3.4 Summary of Commission's Decisions

The following provides a summary of the Commission's final decisions in relation to the pricing of mogas, diesel and kerosene at the refinery gate and if necessary, at the point of importation into PNG.

Decision 1:	**The Commission will recommend to the Minister for Finance and Treasury that the pricing of mogas, diesel and kerosene ex the Napa Napa refinery be declared under Section 32A of the *Price Regulation Act* for price monitoring purposes. Monitoring by the Commission will be undertaken according to the formula set out in the InterOil Project Agreement**

Decision 2:	**Under the price monitoring arrangement to apply for Mogas, Diesel and Kerosene supplied from the Napa Napa refinery, the refinery operator will notify oil industry distribution companies no later than close of business on the seventh day of each month the new IPP to apply from the eighth day of the month and wholesalers and retailers will pass through these price changes from the eighth day of the month.**

Decision 3:	**Should any error or adjustment be required in the monthly notified ex Napa Napa refinery IPP price, the price is to be amended within 24 hours of the notification of the error and any further adjustment to reflect a financial compensation, will be made under the Commission's supervision in the following month**

Decision 4:	**The Commission will recommend to the Minister for Finance and Treasury that the pricing of mogas, diesel and kerosene that is imported directly into PNG during a period in which the Napa Napa refinery can not meet supply, be declared for prices monitoring purposes under Section 32A of the *Price Regulation Act*. The Commission will use the current landed cost review formula to monitor landed cost prices in these circumstances with initially the invoice price being accepted as the appropriate base for this calculation. However if the inability to supply extends beyond three months, the Commission will convene a meeting of relevant parties with a view to adopting the lower of invoice price, company posted price, or MOPS price for individual shipment price calculations.**

4. PETROLEUM PRODUCTS WHOLESALING AND DISTRIBUTION

4.1 Issues

Papua New Guinea is currently primarily serviced by three main oil/petroleum wholesalers and distributors namely Shell PNG Limited, Mobil Oil New Guinea Limited and InterOil Products Limited. Niugini Oil Company (NOC) based in Lae also distributes oil based products to a small customer base. The approximate proportion of the wholesale market held by each company is:

- **Shell - 43%**
- **Mobil - 33%**
- **InterOil - 20%**
- **NOC - 4%**

Prior to the commencement of operations of the InterOil facility in Port Moresby and the supply of PNG's oil based products needs from the refinery, the oil companies represented in PNG have been the importers and suppliers of all oil based products within PNG[3]. With the commissioning of production from the InterOil facility, the only products that will continue to be imported directly by the oil companies will be Avgas and oil based lubricants.

Currently each oil company is responsible for distributing its own oil based products from the place of landing (i.e. Main Port) to other smaller ports and outer locations. Typically each of the three companies is a wholesaler with the physical distribution of product undertaken either by themselves or by contractual arrangements with established road freighters and coastal shipping companies.

Until now, the oil companies have been subjected to price control in terms of their wholesaling and distribution activities under Sections 10 and 21 of the *Prices Regulation Act*. The form of price control that has been adopted has required the oil companies to make a submission to the Commission seeking an adjustment to the landed cost of oil based products shipped into PNG on a monthly basis and the setting of the distribution/wholesaling margins on an annual basis. In addition to setting the wholesale margin, the Price Controller has set a freight differential for the delivery of product from the Main Ports to other locations within PNG.

The methodology that has been adopted for setting the wholesale margin and the transport charges has involved use of actual operating costs incurred by the oil companies plus a 'profit' allowance based upon a set percentage return on depreciated historic value of assets used in the industry (adjusted for any revaluation of assets). The Price Controller has in the past not always allowed full price adjustments to occur in accordance with the formula, and with delays in the pass through of price changes in the landed cost into PNG of oil based products, there has been a backlog of 'un-recovered' price increases which has accumulated over several years.

The formula for setting the wholesale margin was originally established in the 1970s and still largely reflects the assumptions adopted at that time. This includes the 'profit' margin which was set at that time and has continued to be applied for over 20 years. The practice of not allowing full recovery of price adjustments determined by the formula, and the timing delays in certain cost adjustments being recognized by the approval process, has caused the oil industry companies some difficulty in terms of their ability to plan for new investments, anticipate price adjustments and generally manage their businesses.

From a regulatory perspective, the process of conducting price reviews has been less than fully transparent and the justification for particular price adjustments has not always been fully explained to all parties including consumers. In terms of the amended *Prices Regulation Act*, there is now a greater imperative upon the ICCC to be transparent and more timely in its decisions on these matters.

[3] NOC has obtained some supplies of diesel from PNG sources, primarily for supply in the highlands.

Furthermore, the Commission is to have regard to the efficient cost of providing the wholesaling and distribution services and to ensure that the suppliers of these services receive an appropriate return on their investment.

In addition, with the commencement of product supply from the Napa Napa Refinery and the associated revised transportation arrangements within PNG, reconsideration of the appropriate operating costs and asset values that should be reflected in the wholesaling/distribution margin applied to oil based products also needs to be undertaken. The oil companies will continue to need to import some products, principally Avgas and lubricants. The industry has advised that they now need to change the manner in which they import Avgas in PNG, moving from periodic bulk shipments to importation using drums. This has been made necessary by the decline in the demand for Avgas (greater use now being made of Jet A1), the need to keep supplies of Avgas ‘fresh’ to meet technical and safety standards, and the inability of InterOil to provide this product from the Napa Napa refinery at this time. Potentially this change in shipping arrangements to PNG will have an impact upon the costs of Avgas across the country.

Under the InterOil arrangements for the operation of the Napa Napa refinery, supplies of oil based products will be held at the Port Moresby refinery prior to shipping to other ports in PNG. This has the potential to reduce the volume of product held in storage by the oil companies as they will now have shorter supply routes from the refinery to their main storage facilities (vis-à-vis previous supply ports of Geelong and Singapore). A reduction in stored product potentially reduces the holding cost that distributors incur.

InterOil has also indicated that it believes that there are efficiencies that can be achieved within PNG and desirably these efficiency savings should ultimately flow through to consumers.

Transport arrangements from the Napa Napa refinery have also been a matter of some debate. Desirably these arrangements should reflect an efficient and cost effective solution to the need to move product from the refinery to all parts of PNG. The industry has been examining various options with a view to adopting a model which meets the efficiency test that the Commission would apply.

Until the present, the wholesale margin and prices in Main Ports have been set at the same level. This reflects a pricing methodology which essentially allowed the oil companies to average their costs for the transport and delivery of product from overseas across the four main ports of Port Moresby, Lae, Madang and Rabaul. However for the future, prices ex the Port Moresby refinery will need to reflect the cost of freight from Napa Napa to the other Main Ports. If a cost reflective approach is taken, this would mean that prices in Main Ports other than Port Moresby would be higher than the Port Moresby price.

The issue of transport charge beyond the Main Ports has also been a matter of some contention. While a ‘freight differential’ has been allowed in the regulated retail price to date, it is evident that this differential has not kept up to date with the actual freight cost. Desirably these freight adjustment factors should reflect the appropriate competitive price for the transport of the products either by coastal shipping or road transport. However, there are concerns about the ‘competitive’ nature of prices being quoted given the limited competition for transport services in PNG. Furthermore, it has been argued that the freight allowances made previously have been insufficient in some instances to cover costs, thereby resulting in lack of supply to these areas, cross subsidization of costs and revenue between different locations, and the necessity for suppliers into these areas to sell products at prices above the cap set under regulation. The emergence of a ‘black market’ to meet the demand for fuel but at prices above those set by the Commission could result in physical dangers for consumers as illegal suppliers may not meet the relevant safety standards for the handling of this hazardous product.

A fundamental issue which the Commission also must consider as part of this review is whether or not some form of Price Control (price declaration) or Prices Monitoring should continue to apply to the wholesale and distribution functions. With the introduction of the InterOil Agreement and the procedures under which prices for oil based products ex the Port Moresby refinery will be set, it might be argued that there is sufficient competition or contestable behaviour in the wholesale market to justify the removal of all forms of price control at the wholesale/distribution level or alternatively that some lesser form of regulation is warranted.

4.2 Draft Report Conclusions

In its Draft Report, the Commission initially considered whether some form of price regulation for wholesaling and distribution activities should continue in PNG. The Commission having considered the level of existing and likely future competition in the wholesaling sector, came to the conclusion that some form of price control should continue to apply to the wholesalers margin on mogas, diesel, kerosene and avgas. The Commission was concerned to ensure that price control on the wholesale margin was not interpreted as an absolute margin below which wholesalers could not discount if they so wished. Thus the Commission concluded that while a cap would be set on the wholesale margin, this would not prevent discounting to larger customers in response to market demand. However the Commission signalled that it would not set a wholesale margin that effectively allowed discounts on the wholesale margin on large customer sales to be cross subsidized by the margin charged on sales through normal retail outlets. The Commission's Draft Report also confirmed that the Commission did not propose to implement any form of price regulation on greases and Jet A1 fuel (although when sold as kerosene, this product essentially will have its wholesale margin regulated). The Commission indicated that it would give further consideration to the regulation of marine fuel in Out Ports in response to submission from the Fishing Industries Association.

On the form of regulation that should be applied, the Commission concluded that:

- The landed cost of avgas into PNG should be regulated under the prices monitoring prices provisions of Section 32A of the *Prices Regulation Act*; and
- The wholesale margin (excluding any freight components) for mogas, diesel, kerosene and avgas should be declared for purposes of Section 10 of the *Price Regulation Act* and under the provisions of Section 21 of that *Act*, a wholesale margin should initially be set, and an incentive based form of regulation using a CPI +/- X price formula should be used over the next five years under which the margin can be adjusted annually to reflect movements in underlying costs.

The Commission also gave consideration to the treatment of freight costs from the Napa Napa refinery initially to the Main Ports and then to other locations. In its Draft Report the Commission divided these cost components into three parts:

- sea freight from the Napa Napa refinery to the Main Ports
- sea freight from the Main Ports to the Out Ports
- all other freight to service Outer Locations and where relevant to service retail outlets in the Out Ports or Outer Locations

In this disaggregation of freight costs, the Commission had initially included the freight costs from the depot gates to the retail outlets in the Main Ports as being part of the wholesale margin (see further discussion below)

In terms of these freight components, the Commission reached the following conclusions in its Draft Report:

- the freight rate for delivery of product to the Main Ports should be subject to price control under the provisions of Section 10 of the *Price Regulation Act*, and in terms of Section 21 of that *Act*, a CPI +/-X incentive form of regulation be used over a five year period
- the Main Ports freight charge should be averaged on a per litre basis across the Main Ports of Lae, Madang, Rabaul and Kimbe
- the Minister should declare the freight charges for Avgas to the Main Ports for price monitoring purposes under Section 32A of the *Price Regulation Act*
- for those periods when the Napa Napa refinery can not supply product, the freight charges to the Main Ports for imported mogas, diesel and kerosene from overseas Ports be subjected to prices monitoring under Section 32A of the *Act*
- freight charges from the Main Ports to the Out Ports be subject to price control under Section 10 of the *Price Regulation Act* and that under the provisions of Section 21 of the *Act* a CPI +/-X incentive form of regulation be applied for a period of five years
- the freight charges from the Main Ports or Out Ports to all other locations be declared under Section 32A of the *Prices Regulation Act* for price monitoring purposes and the Commission will monitor freight charges against a cap price adjustment indicator to the devised by the Commission

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4.3 Submission on the Draft Report

The Commission has received a number of submissions on the Draft Report in relation to the wholesale margin and the freight costs. Some of these submissions go to the principles of price regulation that the Commission proposed. Others went to particular factual issues that required consideration in any final decision. The Commission has also received extensive financial and other factual financial information from the four companies engaged in wholesaling activities. This financial information has allowed the Commission to review and improve upon its draft conclusions and also to develop appropriate financial models around which price control or price monitoring can be applied over the next five years.

For purposes of this Final Report, the main issues of wholesale margin and freight will be dealt with separately.

4.3.1 Wholesale Margin

The Draft Report defined wholesale costs (to be recovered through the wholesale margin) as

- all marketing, administration and facility operating costs incurred by the oil companies
- while excluding freight costs from the Napa Napa refinery to the Main Ports and from the Main Ports to all other locations, the Commission did specifically include in the wholesale costs road freight costs for delivery of product within Port Moresby and from the main storage facilities within the Main Ports to the retailers in those centers.

Following submissions on the inclusion of this freight element in its wholesale margin, the Commission has decided to exclude all forms of freight from the wholesale margin. This effectively removes potential anomalies in the setting of the wholesale margin and allows the continuation of the previous arrangement under which the wholesale margin excluded these costs (which were treated as a separate 'freight differential' allowance). The Commission did not receive any submissions arguing against a move towards a forward looking 'price path' for the wholesale margin. On the contrary, the industry itself welcomed the certainty that this approach provided, and the opportunity to have margins set which gave them the incentive they needed, to invest in new equipment where needed. This approach also offered the opportunity to remove the old catch-up arrangements which apply under the current 'margin and distribution cost recovery' system.

Recognition of the incentive nature of the proposed approach was also supportive of the Commission's preferred option. Thus, the Commission has concluded that it will proceed with an incentive formula of the CPI +/-X type to set the wholesale margin over the next five years and that this will form part of the Section 21 compliant price adjustment mechanism for the wholesale service which will be declared under Section 10 of the *Price Regulation Act.*

Each of the four companies provided requested relevant information[4] and this formed the basis for analysis and forward projection of a 'price path' for the wholesale margin for the next five years. The Commission has used a building blocks approach to calculating the costs of the industry over the next five years. The 'building blocks' used have been:

- operating costs
- return of investment(depreciation)
- return on investment(including a return on product held in stock)

Operating costs

Operating costs for each of the companies were reviewed and evaluated on the basis of;

- the methodology used to allocate common and shared costs between regulated and unregulated products; and
- the benchmark of the average operating cost per litre calculated from the data provided by each of the businesses.

The Commission noted that there was a reasonable degree of consistency between the businesses in terms of the allocation of costs between regulated and unregulated activity. In this process the Commission also sought to disaggregate from reported costs, those operating costs relating to the servicing of very large customers, primarily mines. As noted in the Draft Report, the Commission has adopted as a general principle that any discounts offered to these larger clients (reflecting the significant volume of product taken and the economies of scale in dealing with these clients) should not be cross subsidised by the wholesale margin applied to other customers (primarily retail customers).

In considering the average cost of wholesaling between the oil companies, the Commission had to examine the projected demand scenarios presented by each of the companies. The projections effectively reflected projections of the future growth and economic activity of the PNG economy. This presents some difficulties in that the overall performance of the economy in recent years has resulted in some decline in demand for oil based products. The Commission had to guard against projections of demand being overly pessimistic with the potential outcome being that higher than expected demand using a price cap form of regulation, will result in the actual revenue (and profit) being generated by the oil companies being significantly higher then projected in the modelling. As this is the first time a price cap mechanism has been used for this industry, the Commission will examine closely the projections accepted for this price review and the final outcome when the price cap is being reviewed again in five years. If it appears that the Commission has been gamed by the industry, the Commission will need to give some consideration to some other form of regulation, possibly a revenue cap.

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[4] The Commission has primarily used aggregate information for the three largest wholesalers to arrive at an average cost of wholesaling mogas, diesel and kerosene on a per litre basis.

The demand projections used for purposes of this analysis are provided in Table 4.1

Table 4.1 Demand Projections (a) 2004 – 2009 (Litres/ million)						
	2004	**2005**	**2006**	**2007**	**2008**	**2009**
Total fuel sales	733.1	658.4	583.3	589.4	596.1	603.5
Growth rate %		-10.2	-11.4	1.0	1.1	1.2

(a) Includes all wholesalers

The average wholesale operating costs per litre for each of the businesses were compared. It was apparent that there was some difference between the average costs for individual companies. This in part reflects the treatment of certain costs within these organisations, and the location and type of business undertaken. The Commission did not believe that there was justification in simply taking the lowest average cost as the benchmark to set the wholesale margin. While there is merit in adopting this approach, the Commission was also conscious that there had been an extensive period where cost recovery across the whole wholesale and retail sector had been influenced by pricing decisions which had effectively declined to pass through legitimate cost increase and forced extensive cross subsidisation between the wholesale and retail sectors. The oil companies themselves had handled this problem in different ways, and the ultimate impact had been in terms of failure to invest in new infrastructure and efficiency improvements.

The Commission therefore has effectively treated the industry as a single entity and summed the relevant operating costs over the main businesses. This recognises that some firms are more capital intensive than others and thus have different cost structures between capital costs and operating costs. By combining the estimates for each company and treating the industry as a single “entity” for purposes of determining an average cost per litre the Commission has allowed each individual business to determine its own appropriate balance between more or less capital intensive operations.

In developing the forward projections of operating costs, the Commission has also included in these projections an efficiency factor of one percent (cumulative) on operating costs over the five year period. Thus, while the margin adjustment formula will reflect movements in underlying costs over the five years, there will be an added incentive on the businesses applied through the X adjustments to improve on their efficiency over this period.

Regulated Asset Base

The return on capital element of the ‘building block’ approach requires the Commission to determine both an appropriate ‘asset value’ upon which the return on capital (and return of capital or depreciation) can be calculated and an appropriate rate of return that can be applied to that ‘asset value’.

The asset value or ‘Regulated Asset Base’ (RAB) as it will be referred to in this report reflects the ‘economic value’ of the business. Under the form of regulation that will be applied by the Commission, the RAB will essentially be a financial concept, based upon the economic value of the business.

These businesses have extensive physical assets located throughout the country, but these assets have different economic values depending on their location, current operating condition and state of repair, and potential for continuing use once the Napa Napa refinery and new sea freight shipping arrangements are operational.

Essentially what the Commission is seeking to determine is what is the value of these assets in terms of the future income that they can be expected to generate over their remaining operational life. In part, this is a circular problem as the Commission is trying to set the revenue base upon which any future economic value of these assets will be determined.

The historic book values of these assets is not necessarily the best estimate of the economic value as it incorporates values set at different times when the assets were purchased and may not reflect the future income earning capacity of these assets if they no longer have a useful purpose (not withstanding their continuing value in the books of the business).

The current replacement cost of these assets is another approach to valuation that the Commission considers. However, there are issues of the remaining physical life of the assets and to what extent these assets are still needed for future operations. A replacement cost approach would represent an upper limit on the value of the assets and would potentially overestimate the economic value of the businesses.

For the purposes of this current review, the Commission has been able to access information on the value of the businesses from the public details of the recent sale of the BP petroleum assets in PNG to InterOil. In effect, this sale has provided a market test of the disposal value of the assets. After adjusting the price paid for the BP petroleum business for the value of stocks of fuel held by the business at the time of sale, a value of the remaining part of the business can be determined, reflecting in effect the economic deprival value that BP Petroleum was prepared to accept for the sale of its business in PNG.

Comparison of this economic deprival value with the re-valued book value of BP's assets in PNG suggests a closer approximation between the re-valued book value and the independently set market value. Based on this, the Commission has been prepared to accept as a reasonable approximation of the economic value of the businesses in PNG, the re-valued book values.

In arriving at an estimate of this value, the Commission noted that included in this value are assets associated with the operation of many of the retail sites located throughout PNG. These assets which extend from the pumps and storage tanks to include in some instances the total service station facility which is then leased out to operators, would normally be treated as part of the retailing sector rather than as part of the 'wholesaling sector'. However, following consideration of submissions made to the Commission, the view has been taken that it is not readily possible to separate all aspects of the retailing activity from the wholesaling activity. This includes the practice that has developed of the oil companies supporting individual service stations, particularly those with small turnover, in order to maintain a presence in a particular location and overall product throughput. Thus, the Commission has included these assets where appropriate in the asset value of the wholesale business. However, the Commission is conscious of the need to avoid any form of 'double counting' in the setting of the wholesale margin and the retail margin. In terms of the 'rent' or 'lease' fees that the wholesalers receive for the use of these assets, they have been netted out against the total costs incurred by the wholesale businesses, leaving a net cost of these facilities which is effectively recovered through the wholesale margin. On the basis of the Commission's analysis, the RAB determined for the wholesale industry (excluding NOC) is K42.0 million at the commencement of the 2004 year.[4]

Depreciation of the asset base has been determined on a straight line basis using information provided by the businesses of the remaining economic lives of their existing assets and the normal asset lives of the different types of assets. In the modelling, the margin incorporates a recovery of depreciation for the period in question. In their submissions to the Commission, the participants in the wholesale industry had not sought a recovery of depreciation on their physical assets.

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[4] The book value of NOC's assets as at 1 January 2004 was slightly less than K10 million although some of these assets relate to non-regulated products. NOC estimates were excluded from the analysis because of their late arrival. However from an average cost per litre of fuel perspective these results form a small part of the industry and will not influence the final outcome of the analysis.

Rather they proposed a practice adopted in other countries whereby a rate of return is set at a level which fully compensates the businesses for a return of their asset value by way of depreciation

The Commission has decided not to follow this approach, preferring to adopt an approach which more accurately reflects the actual costs that the industry needs to recover rather than less transparent means of combining different cost elements. The depreciation estimates have therefore been prepared and incorporated in the forward modelling for the industry

In order to determine the value of the RAB each year of the regulatory price path, the Commission must included new capital expenditure (capex) being undertaken each year of the regulatory period. The Commission required each of the companies to provide information on new capital expenditure projected over the five year period. The Commission noted that the industry is anticipating an increase in capex activity in the first few years of the regulatory period. This increase in capex reflects a catch up on replacement capital expenditure that has been delayed because of uncertainty regarding the ongoing regulation of prices in this industry, and new capital expenditure designed to address some of the industry changes that are expected in conjunction with the establishment of the Napa Napa refinery.

The Commission had anticipated some redundancy of capital equipment over time as fuel supplies could more readily be sourced from the Napa Napa facility. The industry has noted however, that it is not simply a matter of ceasing the use of existing storage tanks as even at potentially lower levels of use, these tanks will still need to be used to store product between shipments from Napa Napa to the Main Ports and from there to Secondary Ports. In Port Moresby where there may be some potential optimisations of storage facilities, the existing facilities will continue to be used for the immediate future. This is to allow the holding of product from the refinery on the opposite side of the harbour from Napa Napa as part of a solution to the transport and handling problem caused by poor roads from Napa Napa to the Moresby urban area. Initially product will be transferred by vessel across the harbour to the existing tank storage facilities. There will also be a need to continue to store product that will be fully imported such as Avgas and lubricants.

The Commission has accepted with some minor modification of the forward capex proposed by the industry. It is important to note however, that at the time of resetting the wholesale margin after this initial five year regulatory price path the Commission will review the performance of the industry in terms of its capex program and will have regard to the extent to which the industry has either under spent its allowable capex program or has undertaken imprudent new investment. While the Commission will not adopt a policy of clawing - back revenue that has been captured by the industry for capital works that have not occurred, in rolling forward the RAB, the Commission will use the actual capital expenditure that has been spent by the industry over the five years, and in setting the forward capex program for the following five years, the Commission will have regard to the level of under spending or imprudent spending by the industry in the current period.

Under the building blocks approach, the Commission needs to determine the RAB for each of the five years of the regulatory price path. It does this by a process known as 'roll forward of the capital base'. Essentially this involves the following steps:

Opening value at the beginning of the year

Plus capital expenditure/additions to the capital base

Less depreciation/disposable of assets

Plus indexation of the asset base to maintain its real value in nominal terms

Equals Closing value at the end of the year.

Under this process, the Commission includes an indexation adjustment reflecting the level of inflation assumed in the forward modelling used to project cost changes. The effect of this process is that the value of the asset base is expressed in nominal terms using the value of the Kina for the year shown.

Having used a nominal asset value, the Commission must then apply a real rate of return in order to arrive at an appropriate value for the return on investment.

Table 4.2 provides a summary of the asset values that have been used in the modelling. These estimates are based on information from the three main oil industry wholesalers operating in PNG.

Table 4.2 **Total Asset base (Nominal values) K'000**						
	2004	**2005**	**2006**	**2007**	**2008**	**2009**
Opening value	42,045	49,836	60,716	72,098	82,785	94,018
Capex/additions	94,86	10,368	10,278	9,000	8,914	8,829
Depreciation	6,374	4,990	5,481	5,973	6,405	6,776
Indexation	4,679	5,502	6,585	7,660	8,724	9,843
Closing value	49,836	60,716	72,098	82,785	94,018	10,5914

Note: Assumed inflation rate of 10 percent per annum

In addition to the RAB, the industry sought a return on its holdings of fuel stock. Potentially the value of this stock can exceed the value of the RAB. This was demonstrated in publicly released figures for the value of the sale of the BP business in PNG to InterOil where the price paid for the value of stock was greater then the price paid for the fixed assets of BP Petroleum in PNG.

The Commission obtained from each of the companies their anticipated holding of stocks of fuel products over the five year regulatory period. As to be expected the volume of stocks held is projected to decline significantly over this period reflecting the ability of the wholesalers more readily to access supplies from the Napa Napa refinery.

Table 4.3 provides a summary of anticipated stockholding of fuel.

Table 4.3 **Projected Fuel Stockholding (Averaged monthly) Litres ('000)**						
	2004	**2005**	**2006**	**2007**	**2008**	**2009**
Total Litres	97,484.3	38,105.7	28,459.1	28,459.1	28,459.1	28,459.1
% change in stock		-60.9%	-25.3%	0	0	0

The modelling undertaken by the Commission effectively applies a value to the stocks of fuel and then the regulated rate of return is applied in order to determine a return to the industry for the holding of these stocks.

Rate of Return

The rate of return provided in the pricing model is intended to reflect the rate of return that a competitive industry might generate. The standard approach used by regulators to calculate an appropriate rate of return is to use a weighted cost of capital (WACC) developed using a cost of equity established from the capital asset pricing model (CAPM).

In general, the WACC is the weighted average of the return on debt and the return on equity. The weights are determined by the relative levels of debt and equity funding. The WACC calculation is affected by taxation. The Commission first calculates a nominal pre-tax WACC and then adjusts the WACC for the impact of tax, which is given by the following formula:

$$\text{Nominal WACC} = R_d \times \frac{D}{V} + \frac{R_e}{1-t} \times \frac{E}{V}$$

where:

- R_e is the nominal pre-tax cost of equity
- R_d is the nominal pre-tax cost of debt
- E is the total equity
- D is the total debt
- V is debt plus equity.
- t is the tax rate

The nominal WACC is then transformed into a real WACC by using the market transformation whereby the nominal WACC is adjusted for inflation.

The following equation demonstrates this transformation:

$$WACC = \frac{1 + Nominal\,WACC}{1 + CPI} - 1$$

where; CPI is the forward implied annual inflation rate.

To complete the calculation of the WACC, the return on debt and return on equity calculations need to be explained. The return on debt (R_d) will be calculated by adding a debt margin including issuance costs to the risk-free market rate (R_f):

$$R_d = R_f + D_m$$

Where; D_m is the debt margin.

The return to equity (R_e) will be calculated by application of the CAPM. The CAPM formula is presented in the formula below:

$$R_e = R_f + \beta_e \times (R_m - R_f)$$

where:

- R_f is the risk-free rate
- β_e *is* a measure of the correlation between an asset's risk and that of the overall market (known as the equity beta)
- R_m is the market rate of return
- $R_m - R_f$ is the market risk premium.

The equity beta can itself be calculated in various ways. The Commission will use the Monkhouse formula, which is presented in the formula below:

$$\beta_e = \beta_a + (\beta_a - \beta_d) \times \left(1 - \left(\frac{R_d}{(1+R_d)}\right) \times t\right) \times \frac{D}{E}$$

where:

- β_a is the correlation between return to assets of the business and the market (known as the asset beta)
- β_d is the correlation between return to debt and debt generally in the market (known as the debt beta)
- *t* is the effective rate of taxation (in the PNG context this is taken as the nominal statutory rate of 30%)

For purposes determining the risk-free rate, it is normal practice to use a long term government bond rate applicable in the country in question. In the PNG context, such a long term bond does not exist. The Treasury Bills issued by the Central Bank are for relatively short periods and do not match the long term investment requirements of this industry.

In these circumstances, the alternative that has been used by the Commission for other regulated industries is to estimate a risk free rate in PNG by using as a proxy the risk-free rate within a country having a liquid government bond market with long dated maturities, adjusting this for inflation in the country concerned, adding back inflation in PNG and then incorporating the Country Risk Premium for PNG. This effectively identifies a risk free rate which reflects international markets for debt and equity while at the same time acknowledging the particular market circumstances that apply to PNG.

The Commission has previously used a thirty year US$ Treasury Bond, adjusted for inflation in the USA and in PNG and incorporating a 3 percent Country Risk Premium (CRP) for PNG. The 3 percent CRP has been estimated from observable data and discussions with international banking entities.

The formula for the return on equity therefore becomes

$$R_e = [(1 + R_f) / (1 + f_{USA}) * (1 + f) * (1 + CRP) - 1] + \beta_e * (R_m - R_f)$$

where:

- R_e is the post-tax nominal cost equity
- R_f is the risk-free rate within a country having a liquid government bond market with long dated maturities. Estimated from the yield of a thirty year US$ Treasury Bond in the USA;
- f_{USA} is the inflation rate USA
- *f* is the rate of inflation within PNG
- *CRP* is the country risk Premium, which is the estimate of the premium required on a long maturity US$ bond issued within PNG by the PNG Government. The CRP reflects the risk faced by an offshore investor investing in USA$ bonds within PNG. It incorporates matters such as the sovereign risk, country default risk, nationalisation risk and the risk that dividends or other funds cannot repatriated;
- β_e is the equity beta
- $(R_m - R_f)$ is the market risk premium.

A similar adjustment is made to the R_f to incorporate the risk free rate calculated from a country having a liquid government bond market.

Table 4.4 provides a summary of the components used in the WACC calculations and the final results.

Table 4.4 **Derivation of WACC for Wholesaling Sector**

Nominal Risk Free Rate	R_f	**16.02%**
Real Risk Free Rate	Rrr_f	**5.47%**
Inflation Rate	*F*	10.0%
Cost of Debt Margin over Rf	*Dm*	**1.2%**
Nominal pre-tax cost of debt	*Rd*	17.2%
Real pre-tax cost of debt	*Rrd*	6.6%
Market Risk Premium	*MRP*	6.0%
Corporate Tax Rate	*T*	30.0%
Gearing	*D/V*	**25.0%**
Debt Beta	*Bd*	0.12
Asset Beta	*Ba*	**0.79**
Equity Beta	*Be*	1.00
US risk free rate		4.45%
CRP		3.0%
Inflation in USA		2.0%

Post –Tax nom return on equity	$Rf + \beta e \times MRP$	22.0%
Post-tax real return on equity		10.9%
Nominal Vanilla WACC (excludes tax effects)		**20.82%**
Real Vanilla WACC		9.8%
Post-Tax Nominal WACC		19.52%
Post-Tax Real WACC		8.7%
Pre-Tax Nominal WACC		27.9%
Pre-Tax Real WACC		16.3%

As previously noted, the risk free rate has been derived from the US$ Treasury thirty year bond rate of 4.45% and a US inflation rate of 2%.

The cost of debt over the risk free rate is an observable rate although in the PNG market it is not readily possible to derive this additional cost. The 1.2% allowed is at the upper end of rates used in Australia where the debt margin has been showing signs of decline.

The market risk premium is a measure of the risk associated with holding an equity market portfolio of assets rather then a portfolio in long-dated government bonds (risk free). There is not a sufficiently sophisticated market in PNG to estimate this rate. However, from observations in other markets the Commission has used a 6% margin.

The tax rate used is the 30% legislated rate. This has been used both as an estimate of the nominal and effective rate.

The gearing ratio reflects the extent to which the business is funded by debt or equity. From an examination of international behaviour by the major oil companies, it is not readily apparent what levels of debt they are holding by comparison to the total value of the businesses. The Commission notes from some sources, debt funds held by the major oil companies may be as low as 10% of total value of funds employed. The Commission has opted to use a 25:75 debt: equity ratio for the purpose of calculating WACC.

The derivation of the asset and debt betas usually relies upon observable data. Again in the PNG context with a limited equities market it is difficult to derive these two variables. However, from international data on the oil companies, an observed asset beta of 0.79 can be derived. This has been used by the Commission. The debt beta that has been used by the Commission is 0.12. This is consistent with an equity beta (derived from the asset and debt beta) of 1. The equity beta measures the sensitivity between the return of a particular investment (in this instance, an investment in fuel products wholesaling) and the return from a market portfolio of investments. An equity beta of greater then 1 indicates that an entity has returns which are likely to be more sensitive to systematic influences than the market average. An equity beta of 1 implies that the risk for this industry is commensurate to that of all businesses in the economy as a whole. From observation, internationally the oil industry has an equity beta less than 1. However, in the PNG context an equity beta of closer to 1 would seem to be more realistic.

The WACC calculation produces a pre tax real WACC of 16.3% or a post tax real WACC of 8.7%. The Commission has used a real WACC as it has included the inflation element in the adjustment to the RAB (the indexation factor discussed above). Thus inflation has been allowed for in the forward projection of return on assets using this WACC estimate. The post tax calculation identifies the return to the business after allowance has been made for taxes paid.

Project Revenue Requirements

Based on these building block components the Commission has prepared a projected cost base for the wholesaling industry based on anticipated demand and projected efficient costs. Using this cost base, the Commission will set the initial wholesale margin and the price path adjustment for this margin over the next five years.

Table 4.5 provides a summary of the cost built up used by the Commission. NOC data has not been included in this table, although it has been considered in the context of the final decision on the average margin per litre of fuel sold.

Table 4.5 **Wholesaling Sector – Cost Build Up for Regulated Products** **K' m (Nominal)**						
Component	2004	2005	2006	2007	2008	2009
Operating Expenditure	67.4	74.2	79.5	87.3	95.7	105.0
Depreciation	6.4	5.0	5.5	6.0	6.4	6.8
Return on fixed assets (pre tax)	7.5	9.0	10.8	12.6	14.4	16.3
Return on stocks	16.0	6.8	5.6	6.1	6.8	7.4
Base Revenue	97.2	95.0	101.4	112.0	123.3	135.5

Per Litre Margin

The Commission has considered whether to apply a standard average margin per litre for all fuels subject to regulation or whether to apply a differential rate for mogas, diesel, kerosene and avgas. The Commission had indicated in its Draft Report that it favoured a standard average rate on the grounds that it was extremely difficult to derive allocated costs for individual fuel types and there was no evidence that there was a significant difference between the costs for handling different fuel types. The Commission received one submission on this issue which was in favour a single average price, and the Commission proposes to adopt a standard average per litre margin for all fuel types. However the Commission is aware of a potential additional cost faced by the wholesaling sector when fuel has to be transferred from bulk to drums. Rather than average these cost across all wholesale sales (and thus create a possible price disincentive to supply via drums) the Commission has separately considered the cost of transferring fuel to drums and supplying it in this form.

There are essentially two elements to the supply of fuel in drums. One relates to the cost of physically transferring the fuel from bulk storage to drums. The second element is the cost of the drum itself.

The Commission has examined the cost of filling drums, and from information provided by the industry, has decided upon an additional margin to the wholesale margin that should be applied on a per litre basis for fuel supplied in drums. This will reflect the direct costs to the wholesaling industry of filling drums from bulk supply. At the same time, this recovered cost will not be included in the total cost base that has been used for proposes of setting the standard wholesale margin. Thus, the drums margin is an additional amount that can be recovered on product sold in drums.

The drums' margin will apply to mogas, diesel and kerosene. It will not apply to avgas unless the industry reverts to the bulk importation of avgas or the Napa Napa refinery commences producing avgas for domestic consumption. The industry has advised the Commission that it will henceforth import avgas in drums and that this will involve an extra charge, being the cost of filling the drums in the place of export to PNG. Thus, it would be inappropriate to include an additional charge in PNG for the filling of there drums with avgas when the filling cost are already included in the landed cost for product delivered into PNG.

In addition to the cost of the filling of the drums is the cost of the drums themselves. Drums are normally used several times (subject to appropriate cleaning and other safety precautions) and thus have a life beyond one use.

For the Commission to attach a price to the use of drums, it would be necessary to have reliable information on the number of times drums are used and amortise the cost of the drum over its average useful economic life.

The Commission has considered the issue of drum costs and the way in which the industry recovers the cost of drums over multiple fillings. The Commission notes that fuel sold in drums is usually priced with a guarantee return of deposit if the drums are returned in reusable condition. The industry does have some constraints on its ability to charge for drums, particularly when the drums can be purchased direct from the manufacturer in PNG. The Commission therefore believes that a light-handed form of regulation is appropriate to the regulation of drum prices. One option would be to allow the market to set the price of the deposit that consumers pay on the drum and the return of deposit they receive upon return of the drums. Another approach would be to monitor the deposit charged and refund offered under the provisions of Section 32A of the *Price Regulation Act.*

Having considered the options and the fact that the margin for filling the drums is to be regulated along with the wholesale margin, the Commission will not formally price control or monitor the deposit paid/ deposit refund arrangement for drums but will allow contestability in the market to regulate the price. However, the Commission will review the operation of the arrangement when it next resets the wholesale margin. The Commission also notes that the deposit/return of deposit on drums does not include the cost of transporting the drums from the wholesaler's depot gate. These transport costs are a separate cost, discussed further below.

From the financial analysis undertaken by the Commission using the 'building block' outcomes as summarized in table 4.5, the Commission has determined a margin for wholesaling of 24 toea per litre. This margin will take effect from 8th September 2004 and will form part of a five year price path which will set the wholesale margin until 31st December 2009.

In summary the approved wholesale drum filling margins that will be applied will be:

- Mogas, Diesel , Kerosene and Avgas – 24 toea per litre
- Drum filling margin (additional to the wholesale margin) for Mogas , Diesel and Kerosene – 3 toea per litre.

The Commission notes that the industry is currently examining moves towards some form of prepackaged sale of kerosene (rather than the current bulk sale arrangements). This is to avoid the real dangers of kerosene being stored in inappropriate containers with potential serious health and safety ramifications. Product will be pre-packaged in small containers and sold in this from. The Commission reserves the right to vary this price decision to the extent that it may have to introduce a new margin to cover the prepackaging of this product. For the moment the margins as outlined above will apply.

Annual Adjustment of Wholesale Margin.

The Commission proposes to use a form of incentive regulation to adjust the price path moving forward over the five and a half year time period till the end of 2009. Under the arrangement an inflation related wholesale margin adjustment formula is used such that on an annual basis the wholesaling sector can adjust its margin in accordance with the formula, The formula itself is determined based on the projected annual costs of providing the wholesaling functions as summarised in table 4.5. The incentive nature of the price path is provided by the cap that is placed on the wholesale margin in toea terms, and the ability of the industry to keep any additional profits that it generates by being able to achieve efficiencies in its operations above and beyond those already included in the cost build up summarised in table 4.5.

The Commission has also decided to use a price cap for this current determination. Effectively this means that should volumes of product sold exceed those projected for purposes of calculating the average per toea margin, the industry (or individual companies) will benefit to the extent that their costs do not grow in parallel with increased throughput of product.

The Commission will reconsider the mode of price cap at the next price path reset where alternative options such as a revenue cap, will be considered.

The Commission has modelled a price path in terms of the average per litre margin implied from the cost build up modelling undertaken. This price formula for the period 8th September 2004 to 31st December 2009 is defined as;

$$MWM_t = MWM_{t-1} * (1 + (CPI_t - X))$$

where;

- MWM_t is the maximum wholesale margin in year 2004 equal to 24 toea per litre for mogas, diesel kerosene and avgas sales
- *CPI* is the Adjusted Consumer Price Index provided by the National Statistician.

The movement in the CPI will be determined by using the following formula:

$$CPI_t = \frac{CPI_{March(t-1)} + CPI_{June(t-1)} + CPI_{Sept(t-1)} + CPI_{Dec\ (t-2)}}{CPI_{March(t-2)} + CPI_{June(t-2)} + CPI_{Sept(t-2)} + CPI_{Dec\ (t-3)}} - 1$$

Where:

CPI means the Adjusted Consumer Price Index published by the National Statistical Office.

$Year_t$ is the year for which tariffs are being set.

$Year_{t-1}$ is the previous regulatory year.

$Year_{t-2}$ is the previous regulatory year two years previous.

$Year_{t-3}$ is the previous regulatory year two years previous.

The Commission will arrange with the PNG National Statistical Office for the provision of the Adjusted CPI figures to the industry.

In terms of the CPI – X formula to be is, X is set as follows;

2004	2005	2006	2007	2008	2009
N/A	X is equivalent to the movement in the adjusted CPI	1	1	1	1

In interpreting the above, in order to ensure that there is no misunderstanding, the formula sets the adjustment for 2005 as ‘no change’ on the 2004 margin of 24 toea per lire (plus 3 toea per litre for drum filling) and the change in each of the subsequent years as the movement in the adjusted CPI less 1 percent. Thus the price path is projecting a real decline in the average margin per litre over the five and a half year period.

The CPI-X formula and X values will apply to both the wholesale margin per litre and to the drum filling margin per litre.

The Commission will confirm to the industry no later than the 15th day of December each year the new margin for wholesaling and drum filling to take effect from the first day of the New Year. The Commission will make available to the industry its calculations of the movements in the CPI and the conversion of this movement in the CPI to the new margin that is to apply.

4.3.2 Sea Freight from Napa Napa

In the Draft Report the Commission indicated that it would adopt a form of price control using the CPI +/- X form of regulation of sea freight charges from the refinery at Napa Napa. Since the release of the Draft Report, the industry has sought to reach agreement on a sea freight arrangement which will optimise the use of shipping from Napa Napa while at the same time providing sufficient access to supplies of petroleum products to each of the four main wholesalers to allow competition between those wholesalers in their respective markets.

Sea freight will be required to lift product from the refinery and deliver it to the Main Ports and from there to a selected number of Out Ports. This freight charge will need to form part of the total cost that must be recovered in the final price consumers pay for petroleum products. However, the Commission has also been anxious to ensure that the sea freight charge should reflect efficient costs, thereby keeping the price paid by consumers to the lowest possible level.

A further complication has arisen in that the road linking Napa Napa with the Port Moresby urban area is in need of extensive upgrading and improvement before large fuel tankers can transport product by road from Napa Napa to the National Capital District market and beyond. In submissions made to the Commission, it has been proposed that, until such a time as the road has been upgraded to the minimum standard required, fuel products should be transported from the Napa Napa refinery by vessel across the harbour to the Idubada storage facilities. This cost will need to be recovery from the price paid by the consumers, although indirectly it will substitute for the road freight charge that would otherwise have applied.

The Commission also proposed in its Draft Report that an average price for transport of product to Main Ports (excluding Port Moresby) should be applied. This has drawn a number of submissions from the industry. Essentially their submissions have argued that if an average freight cost is to be applied, then the Port Moresby market should be excluded from this average, and care will need to be taken to be taken for other ports that by using an average the opportunity will not be created for bypass of the freight arrangements incorporating the average charge. Bypass could arise in a situation where it is possible to ship directly from Napa Napa to a port at a price below the average freight rate. At the same time, there has been support for the average charge concept on the grounds that under the existing landed cost recovery arrangements, all Main Ports were charged the same price for fuel imported from overseas.

The Commission sought and received submissions from the oil industry concerning the proposed freighting of product by sea from Napa Napa (and by road or sea within Port Moresby). The proposal developed by the industry involves the use of two special vessels:

- MR Tanker of 30,000 to 40,000 DWT capacity:
    - for use in transport of fuel products to the Main Ports of Lae, Madang, Rabaul and Kimbe.
    - also for use in the export of products from PNG to Australia or other Pacific Countries.
    - as an interim the vessel will also be used to transport product across Fairfax Harbour from Napa Napa to Idubada.
- LCT Tanker of 8,000 to 10,000 DWT capacity
    - to operate from Lae and Rabaul and to service the Out Ports of Alotau, Oro Bay, Wewak, Lihir , Kavieng and Manus.

These vessels will be chartered to transport an agreed tonnage of fuel each month. The MR is expected to make three return trips from Napa Napa to the Main Ports each month and one trip to Northern Queensland where it will need to obtain bunker fuel. It is planned that this trip to Northern Queensland will also provide the opportunity for the export of fuel products to Australia. The LCT will conduct regular round trips within PNG servicing the Out Ports.

Initially the vessels will be charted for a six months period to allow time for the new freight arrangements from the Napa Napa refinery to settle in. These arrangements will be reviewed by the industry at this time to make appropriate modifications based on the experience gained.

In considering this proposal, the Commission is concerned to ensure that only an appropriate efficient cost is passed through to consumers. At the same time, it is accepted that there is a cost to freight fuel within PNG, and this cost needs to be recovered in the sale of fuel products. The Commission has examined the form and content of the contracts that have been entered into for the chartering of the vessels. They incorporate standard terms and conditions for the charter of vessels including an agreed charter rate (expressed in $US) plus recovery of on charges such as fuel, port charges, and government licences and charges.

The vessels have been chartered on the basis that they are required to move a certain tonnage of fuel on a monthly basis with pre-agreed delivery schedules. Thus, the charterer wears the risk of a mechanical breakdown or some other reason why the vessel is unable to deliver supplies to meet projected demand. This has the advantage to PNG consumers that if there is a breakdown, PNG consumers are not required to meet the extra cost of positioning a replacement vessel in PNG waters to meet the scheduled delivery of fuel. Also, to the extent that the MR is able to be used to carry export product from Napa Napa refinery, the relevant proportion of the freight cost will be allocated to the cost of the export sales, and will not be required to be recovered from PNG consumers. There is a potential downside of a fixed charter arrangement of the type used, and that is that a reduction in domestic demand will require the fixed costs to be allocated across a smaller quantum of total sales. However in the context of the industry’s ability to project overall demand trends in PNG, this downside exposure is not seen as being significant.

Under the proposed freighting arrangements, the cost (in terms steaming time to different ports and loading and unloading time) for shipping to individual ports has been calculated. As previously noted the Commission has considered the issue of whether a single average cost should be applied across all ports, or whether the freight costs charged should be reflective of the actual cost (in terms of time required) incurred in delivering fuel products. The Commission has come to the view that a combination of both approaches should be used, viz:

- for freight to the Main Ports of Lae, Rabaul, Madang and Kimbe, an average cost per tonne should be applied . This is consistent with the previous practice whereby the price of fuel in all the Main Ports was common, although Port Moresby will not incur the same freight charges as the Main Ports of Lae, Rabaul, Madang and Kimbe.
- for freight to the Out Ports (as defined above), a cost reflective charge per tonne will apply. This avoids any potential anomalies that could arise from cross subsidisation between these ports and reflects past practice where the freight differential previously used had different rates for these ports.

The treatment of Port Moresby represents a special case. The freight charges from the refinery, be it for road or cross harbour sea freight, will not be as high as the cost of freighting product to other ports across the country. It seems appropriate therefore that the freight charged should reflect the actual costs. To adopt some form of average involving all the other Main Ports would create a situation where there would be potential for undercutting of the Port Moresby charge as it would be possible for businesses to arrange private transport of fuel from Napa Napa at prices below the overall average across all the Main Ports and Port Moresby.

This would prove to be untenable situation. In these circumstances, the Commission will proceed with a separate charge for Port Moresby reflecting the actual costs of transport from Napa Napa to other storage facilities in that city .

In its Draft Report, the Commission noted that the fishing industry faced cost constraints because of the cost of delivering fuel into remote locations and the potential the fleet had to acquire fuel from other ports outside PNG. The Commission acknowledges that there are potential opportunities for major users to make their own arrangements for the supply of product from other sources (both domestic and overseas). The InterOil Agreement places some restrictions on the acquisition of product by the main oil companies and wholesalers. However, major individual consumers could source their own supply and in the process by-pass the price regulation in PNG to the extent that they arrange freight or dealers' margins below those set or monitored by the Commission. The oil industry could of its own volition charge margins or freight costs below those regulated by the industry to address a potential by-pass situation.

In this context therefore, the Commission does not propose to put in place special rates for particular major consumers, but rather allow the industry to respond commercially to these situations.

The Commission has reviewed the proposed charter arrangements for the MR and the LCT and on an interim basis has accepted the model proposed by the industry. The industry plans to review the freighting arrangements after six months to make any amendments that are needed to better reflect operating efficiency for the transport arrangement. The Commission will therefore also review the sea freight arrangements within the first twelve months of its operation having had the benefit of seeing the operation in practice of the proposed arrangement for a period and the outcome of the industry's own review.

Under the model that will be used, costs have been allocated not only in terms of the ports serviced, but also in terms of the individual products carried. As Avgas will still be imported the freight charges relate to mogas, diesel, and kerosene. Table 4.6 provides a summary of the proposed initial charges per litre of fuel carried to the nominated port. For those ports whose product is shipped through one of the Main Ports, the shipping costs from Napa Napa to that Main Port must be added to the freight charge to the individual port to derive a final cost.

Table 4.6 **Initial Sea Freight charge to apply to shipping from Napa Napa**

	Products		
Ports	**Mogas (tpl)**	**Diesel (tpl)**	**Kerosene (tpl)**
Port Moresby	2.06	2.38	2.19
Lae	7.04	8.14	7.51
Madang	7.04	8.14	7.51
Rabaul	7.04	8.14	7.51
Kimbe	7.04	8.14	7.51
Alotau	15.6	18.0	16.6
Oro Bay	n/a	13.0	n/a
Wewak	9.9	11.5	10.6
Lihir	n/a	7.0	n/a
Kavieng	9.6	11.1	10.2
Manus	36.2	41.9	38.6

A template of the calculation of average costs for the MR tanker and the LCT vessels is in Attachments 5 and 6. These templates will form the basis of the Commission's review and adjustment of sea freight charges within PNG over the initial period prior to the Commission's review of this arrangement.

The templates summarise the main costs that have been included in the initial freight rates as outlined in Table 4.6. Under the proposed arrangement for the calculation of 'unders and overs' against the sea freight transport model, the industry will advise the Commission on a three monthly basis of the actual costs that have been incurred against the cost categories in Attachments 5 and 6. Separate advice will be provided for the MR and the LCT. The Commission will review the actual costs against the projected costs for freight (the annual estimates being adjusted to reflect an average quarterly cost). Any unders or overs adjustment required when comparing the projected

costs against the actual costs will be made in the rates to apply in each of the three months of the following quarter.

The Commission will confirm the calculations of the under or overs adjustment within 10 business days upon receiving advice from the oil companies of the actual costs for the previous three months. The oil companies will be required to provide documentary evidence in support of actual costs provided each quarter. The Commission will reserve the right to seek a separate audit of the information provided by the oil companies if this is considered necessary to verify the information.

In the context of a monitoring approach to the regulation of sea freight charges, the Commission will allow the oil industry to adjust its sea freight charges at the beginning of each quarter to take into account any unders or overs against the rates summarised in Table 4.6. However the Commission will require the oil industry to provide full details of the unders /overs adjustment no later than the 15th day of the first month of the new quarter. Any modifications to the under/overs adjustment made by the oil companies determined as a result of the Commission's review of the data will occur no later than the beginning of the second month of the new quarter and will incorporate any adjustment required to rectify any error in the rate applied by the oil industry from the beginning of the quarter.

In summary, the Commission will adopt the following approach in terms of sea freight from Napa Napa to the designated Main Ports and Out Ports:

- freight charges will be subjected to monitoring under section 32 A of the Prices Regulation Act.
- the initial rates per litre are as set out in Table 4.6
- the Commission will monitor movements in these rates against an agreed annual projection of costs using the actual cost categories as identified in the cost build up template set out in Attachments 5 and 6.
- the freight charges will be adjusted on a quarterly basis against the actual costs incurred over the previous three months with adjustments able to be made from the beginning of the new three month period, but any corrections required after the Commission reviews the adjustments to occur by the first day of the second month of the quarter.
- the Commission will review the operation of this price monitoring arrangement and the cost template used within 12 months of the release of this Final Report.

4.3.3 All Other Freight Charges.

Currently freight charges across PNG are specified under the price control mechanism. Termed 'freight differentials', these freight charges set the actual rate that is to apply for freight within metropolitan areas (such as Port Moresby and Lae) and to all locations across the country. The sea freight arrangements discussed under section 4.3.2 above in part replaces the need for a 'freight differential' specified under a price control order.

In the Draft Report, the Commission indicated that it proposed to adopt some form of price monitoring for freight charges.

The Commission's reasoning was that the previous 'freight differential' model created a more rigid approach to price regulation which did not allow for the dynamics of the freight industry particularly in those circumstances where cost imposts created by poor road conditions, the need for increased security to protect vehicles from 'rascal' gangs, and the impact of variable fuel costs themselves, all contributed to variability in the freight charges beyond the ability of a more mechanistic price control mechanism to remain up-to-date.

The Commission has been particularly concerned by the apparent inability of petroleum products to be physically delivered to some areas and locations in the country within the freight rate set by the freight differential. As a consequence fuel is being sold in these locations at technically illegal prices reflecting the higher freight costs incurred. It has been possible in come places for the oil industry to

overcome this rigidity in the freight differential arrangement by cross subsidising prices between different parts of PNG. This results in less than efficient price signals in these locations where costs are higher or lower than that which is charged, and is not a long term solution. The Commission has been particularly concerned by evidence which suggests that the oil companies are withdrawing their support for such cross subsidies and either directly withdrawing a presence from a particular area, or requiring the local independent distributor to meet all freight charges. Local distributors do not have the ability to cross subsidise these freight costs in the same way previously available to the larger oil companies.

Freight costs are a matter of some concern within PNG. They can represent a significant component of the final price paid by consumers in come locations. In part this reflects the geographic realties of PNG, a country which encompasses a large number of islands, some relatively isolated from other parts of the country, and topography and climatic conditions that causes serious maintenance problems for the upkeep of a roads network.

Ultimately consumers pay the cost of transporting fuel and other products across the country. When roads are allowed to deteriorate or law and order problems make transport operations difficult, consumers will be forced to pay higher prices to ensure delivery of required goods. The cost of maintaining public infrastructure or services such as roads and law and order is a cost that the consumer ultimately pays for through taxes (supported by direct aid funding). However if these public investments are not maintained, the community is again asked to pay in the higher freight charges that are applied in order to guarantee the delivery of goods such as fuel. The freight charges that consumers pay should reflect efficient costs for the service provided. But when these 'efficient costs' are themselves distorted by the added costs of poorly maintained infrastructure, the Commission has little choice but to allow a pass through of these additional costs notwithstanding that the cost impact may fall heavily on those who are least likely to be able to pay.

In response to the Draft Report the Commission had general support for a concept of price monitoring for freight charges to replace the freight differential. The Commission has had an opportunity to examine some of the contracts with freight companies and has noted the terms and conditions that apply. While these contracts can be for varying periods, the Commission notes that it is not unusual for these contracts to be for a number of years with built in rate adjustment mechanisms reflecting changes in underlying cost. The Commission has noted that there has been a degree of competitive tension between transport operators on some freight routes, and this has helped to keep freight charges at an appropriate cost reflective level. However, competition is not strong on all routes and the Commission believes that it is still appropriate to exercise some form of prices monitoring in support of any countervailing powers the oil industry might have in setting freight charges.

The Commission has therefore decided to adopt its draft conclusion of having the Minister declare for prices monitoring purposes under Section 32A of the Prices Regulation Act, freight charges for Mogas, Diesel, Kerosene and Avgas.

Under the prices monitoring arrangements, the Commission will require the four main oil companies and independent wholesale distributors who purchase product at the oil companies' depot gates in the Main Ports or Out Ports to report quarterly on the freight rates currently applying for product transported from the oil companies' depot gates in the Main Ports or Out Ports. Thus, this reporting will include transport within the town area of a Main Port or Out Port in addition to freight to more distant locations.

The Commission will compare movements in the freight rates for individual locations with movements in a Freight Cost Index (FCI) to be developed by the Commission in consultation with the National Statistical Office (NSO). The FCI will be comprised of a number of cost indicators involving fuel, salary cost, repairs and maintenance and general government charges and licences. The industry will be required to provide details of the freight rates paid as at the end of each quarter. Information should be provided to the Commission no later than the 21st day of the first month of the next quarter. The Commission will review movements in the freight rates over time and if a divergence between rates charged and the FCI emerge, the Commission will initially seek advice from the relevant oil company/distributor as to the reason for the difference in cost changes.

If the Commission is not satisfied with the answers provided, the Commission has the option to recommend to the Minister that the freight services involved (or all freight charges) be declared for price control purposes under Section 10 of the Prices Regulation Act.

At Attachment 7, the Commission has provided an updated listing of indicative freight charges applying at this time. This list has been based upon information provided by the oil companies. This is intended as an indicative listing. The Commission acknowledges that there may need to be some alterations to the list currently provided at Attachment 7. Therefore the Commission will allow a period of three months after the release of this Final Report during which the Commission will consider applications for any amendments to this listing based upon more up-to-date information.

The Commission has included in Attachment 7 freight charge rates for Port Moresby which include road freight from Idubada and road freight from Napa Napa. Until road transport of product from Napa Napa is possible, it is envisaged that cross harbour shipment of fuel products to Idubada will continue to be required. However once road transport from Napa Napa is possible, those rates will replace the Idubada rates with the exception of Avgas which will be imported to Idubada in drums.

Under the price monitoring arrangement that the Commission will adopt, freight rate adjustments can be made at any time without formal notification to the Commission. However the Commission will monitor these freight rate changes using the FCI as outlined above.

In summary, in its final decision on freight charges (other than sea freight to the Main Ports and the Out Ports), the Commission has determined that:

- it will recommend to the Minister that freight charges for mogas, diesel, kerosene and Avgas (other than sea freight to the Main Ports and Out Ports) will be subject to price monitoring under the provisions of Section 32A of the Prices Regulation Act .
- the four main oil companies and independent petroleum product distributors will be required to advise the Commission quarterly the freight rates applying for shipment ex the depot in the Main Ports and Out Ports to all locations required.
- the Commission will monitor movements in the freight rates charged against a Freight Cost Index to be constructed by the Commission in consultation with the NSO.
- movements in the freight rates as reported to the Commission which are outside that indicated by movements in the FCI will be subject to a request for an explanation and if the Commission is not satisfied with the explanation provided, the Commission will seek to have the freight rate (or freight rates in general) declared under Section 10 of the Prices Regulation Act for price control.
- the Commission has provided a listing of indicative freight rates currently applicable across the country and which will form the starting point for the monitoring process.

4.3.4 Summary of Decision

Having reviewed submissions and additional information provided in response to the Draft Report, the Commission's decision on the wholesale and distribution of petroleum products is as follows:

Decision 5:

The Commission will amend the General Prices Order 2000 to set a cap on the wholesale margin for mogas, diesel, kerosene and avgas and a formula for the adjustment of the cap on the margin over a period from 8 September 2004 until 31 December 2009

a. The Margin for the first year has been determined by the Commission at 24 toea per litre for mogas, diesel, kerosene and avgas.

b. The CPI – X formula will result in no change in the wholesale margin until January 2006 and the X factor for each of the years 2006, 2007, 2008, and 2009 will be 1 (that is CPI- 1).

c. The margin adjustments will occur automatically from the first of January each year of the price path from January 2006 – 2009.

d. An additional charge of 3 toea per litre will be allowed for Mogas, diesel and kerosene that is sold in drum form and the CPI – X formula applied to the standard wholesale margin will apply to this charge also.

Decision 6:

The Commission will recommend to the Minister for Finance and Treasury that the freight charges for sea freight from Napa Napa to the Main Ports of Lae, Rabaul, Madang, and Kimbe, and from the Main Ports to the Out Ports of Alotau, Oro Bay, Lihir, Wewak, Kavieng and Manus will be subject to prices monitoring under the provisions of Section 32A of the Prices Regulation Act.

a. The prices monitoring will use a cost template for the charter of two vessels by the oil industry to freight the products from Napa Napa and the Main Ports to the Out Ports.

b. The transport cost for freight to the Main Ports will be averaged across the four main ports, and thus retained the 'common price' approach that currently applies in three of those Main Ports.

c. The freight rates to the Out Ports will reflect the actual cost of the shipments to Lae or Rabaul (at the averaged price for these Main Ports) plus the cost of transfer and shipment to the Out Ports on the LCT.

d. Under the cost template model, the industry will advise the Commission the actual cost that it incurs on a three monthly basis and the freight charge for the next three months will be adjusted for any unders or overs in the freight costs over the previous three months.

e. This will be an interim arrangement and the Commission will undertake a review of the impact of this arrangement within 12 months of the new arrangements being implemented with a view to improving pricing arrangements and adding an incentive element to the price path if at all possible.

Decision 7:

The Commission will recommend to the Minister for Finance and Treasury that the freight cost ex the depot gate of the wholesalers will be subject to a monitoring arrangement under Section 32A of the Prices Regulation Act.

a. The Commission will use a Freight Cost Index to monitor movements in the freight rates.

b. Oil companies and distributors will be required to report their negotiated freight rates to the Commission on a quarterly basis and the Commission will monitor movements in these rates over time

c. Where there is evidence of significant divergence from the Commission's FCI, the Commission will request an explanation, and if not satisfied with the explanation will consider whether to recommend to the Minister that the freight charges be declared under Section 10 of the Prices Regulation Act for Price Control.

5. RETAILING ACTIVITIES

5.1 Issues

Retailing of oil based products is undertaken by approximately 160 retailers operating through out PNG. These retail outlets often combine sales of petrol, diesel, and kerosene with the retailing of other non oil industry based products. In addition, the use of these sites to run 'Kwik Shops' and similar retail outlets is an attempt by the oil companies who often owned the sites to maximize the retailing advantage of the sites and to spread the fixed costs of the buildings and the site itself across a number of activities, preferably non-regulated .

Within the petrol retailing part of the site there are a number of products and services offered for sale that are not regulated by the Commission. These include non–declared oil based products such as lubricants and greases, other vehicle repair and maintenance products, soft drinks and confectionaries, and motor vehicle repairs.

The retailers themselves are usually independent operators who have a lease or similar arrangement with one of the three main oil companies operating in PNG. Under these lease arrangement, the retailers will be required to pay a lease fee based on the perceived value of the site and possibly linked to the volume of petroleum and other product sold through the site. Alternatively, the site may be fully owned by the service station operator whereupon the arrangement with the oil companies is usually one of agreeing to take their products and abide by the various brand loyalty arrangements that are part of being a service station offering a particular brand of oil based products.

The 'Kwik Shop' or other adjoining retail establishment operating from the same site may be leased to the petrol retailer but is more likely to be leased to a third party. The ability for the petroleum retailer to spread costs over the activities of a 'Kwik Shop' is limited but does exist in some locations.

Under the franchise arrangements entered into with the oil companies, the retailer also pays a fee for the maintenance and up keep of the petrol pumps and other equipment which are owned by the oil companies. The petrol retailer is responsible for security, meeting of general overheads such as power, insurance, office costs, payment of the lease charges for the site and facility, and purchase of the bulk supplies of fuel.

Under the franchise agreements entered into with retailers, the oil companies usually offer some form of rebate on the price of oil products sold. The Commission understands that this rebate can vary depending on the quantity of product sold through the outlet. Rebates are also available for product which is sold to customers who hold 'customer loyalty cards' or similar branded discount or major customer accounts.

The 'volume' based rebates are in addition to the retail margins that are allowed by the Commission. These rebates have been used not only to reward those outlets with higher sales volumes but also to cross subsidise and support those outlets which have a very low volume. The oil companies have adopted this approach as a means of maintaining a 'presence' in a particular location. This can also be used as an inducement to an independent retailer to sell a particular brand of fuel.

The current retail margins approved by the Commission are:

Mogas - 8.9 toea per litre

Distillate - 9.0 toea per litre

Kerosene - 8.8 toea per litre

These retail margins were last changed in April 2001 at which time a three toea per litre increase was granted. Prior to that, the margins were last changed in December 1990.

In addition to these margins, the retailers earn a margin on the sale of other non regulated services that are provided through the service station.

The retail industry through the PNG Fuel Retailers Association originally submitted to the Commission that the retail sector should remain subject to price control. The retail margin that the industry originally sought was:

Mogas - 16.9 toea per litre

Distillate - 16.4 toea per litre

Kerosene - 15.7 toea per litre

The industry proposed that the change to these higher margins should occur over a six month period with a third of the increase being approved every two months.

The retail industry argued that the adjustment proposed would bring the retail margin back into line with its share of total retail price that existed in 1991. Their argument in favour of the margin being set as a proportion of the retail price is based heavily upon the view that the retail industry has to fund the purchase of bulk fuel prior to it being sold to retail customers. As the price of fuel has increased, particularly as a result of government decisions to increase the excise rate, so the investment that the industry has had to make to fund its bulk supplies has increased.

In terms of future adjustment over the next regulatory period, the retail industry has proposed that one option that could be considered would be to hold the retail margin at a constant percentage level of the final retail price. Thus, as the ex- refinery and wholesale price of fuel varies with changes in import parity prices and other costs, the retail margin in toea terms would move up or down while maintaining the same relationship to the final retail price.

Whatever approach is adopted by the Commission to set a retail margin and a margin adjustment process, the retail industry has argued that there should be some account taken of the fact that in 1991 the retail margin represented 11% of the final retail price whereas currently the retail margin represents only 4.3% of the retail price.

5.2 Draft Report Conclusion

In the Draft Report, the Commission concurred with the view of the Retailers Association that the retail margin should continue to be subject to price control. The Commission argued in subjecting the retail margin to price control, provision should be made to allow some periodic adjustment to the margin. The Commission indicated that it favoured an incentive form of regulation of the CPI – X type to be applied to the retail margin with adjustments in the margin potentially being able to be made on an annual basis.

The Commission also indicated that it was considering some from of special index for use in the incentive formula, an index which combined movement in the cost of staff, borrowings, and other operating costs to reflect the costs increases incurred by the retail industry.

The Commission from the limited information available at the time of preparing the Draft Report indicated that it was considering setting the retail margin initially at a common rate 11.5 toea per litre for mogas, diesel and kerosene sales. The Commission noted the industry's request that the retail margin be set at a higher rate to reflect the ratio of retail margin to final cost existing in 1991, but was not convinced that this methodology necessarily reflected efficient costs for the industry. Thus, the Commission, relying on information provided by the industry, calculated an interim revised margin rate of 11.5 toea per litre.

5.3 Submissions on Draft Report

In response to the Draft Report, there was general acceptance of the continuation of some form of price control and the use of some from of incentive regulation to adjust the margin on an annual basis over the proposed five year price period. Thus, the Commission proposes to proceed with a final recommendation that the retail margin should be declared for price control purposes under Section 10 of the Prices Regulation Act.

The Commission will also proceed with its proposal to use some form of a CPI – X incentive regulation. There was some concern expressed in response to the Draft Report that the proposed use of a Minimum Wage Cost Index in the CPI-X formula would not adequately reflect the wage and salary costs and cost increases incurred by the retail industry. The Commission has examined this issue and has considered a number of alternative wage indexes for use in the formula. At this time in PNG, there is not an existing publicly available index. However, the Commission has examined options to develop an index for regulatory purposes using movements in the Public Service Salary Scale Rates. A continuous series of data is readily available on these rates, and the Commission favours the use of a Grade PS 5 salary rate reflecting the salary paid to a person who would have had to have completed at least Grade 10 education.

More significant comments were received by the Commission on the issue of the actual level of the retail margin. There appears to be general acceptance of a standard rate being applied for all types of fuel being regulated. Thus, the same rate would apply to mogas, diesel and kerosene sales. However, the actual size of proposed retail margin has raised some debate.

In addition to the Retailers Association, individual oil companies have expressed concern that at the 11.5 toea per litre proposed by the Commission, the retail sector would not be capable of financial survival. This is of some concern to the oil companies as in many instances they have been forced to cross subsidise the retail sector in order to ensure that retail outlets marketing their particular brand of products, remain open. This cross subsidy has taken the form of discounts on bulk fuel deliveries and special lease rates for those service stations that are leased from the oil companies.

The Retailers Association provided the Commission with a more detailed financial assessment of the current costs and operating conditions of retail outlets as part of its submission on the Draft Report. The Retailers Association noted that the data previously supplied to the Commission had been based on large outlets and that the average volumetric throughput used by the Commission in its Draft Report significantly overestimated the volume of product sold through many retail outlets. While some retail outlets achieved of around 250,000 litres per month as estimated on average by the Commission, there were a number of outlets that had turnover significantly below this level.

In one submission received from an independent services station owner, it was suggested that the Commission give consideration to using a two tier retail margin in recognition of the fact that some service stations (particularly in Port Moresby) have volume turnover of more than 3.5 million litres per annum whereas retailers in other towns and remote locations have volume turnover often less than 1 million litres per annum. In these circumstances it was argued that it would not be possible to set an average retail margin which allowed the smaller outlets to recover their operating costs and make a reasonable profit while at the same time ensuring that the larger outlets did not capture returns above those appropriate.

In considering the most appropriate way to set the retail margin, the Commission has been conscious of:

- the disparity between the volume of sales in particular locations within the country.
- the need to ensure that retailers recover their efficient operating costs and an appropriate return on their investment while not rewarding uneconomic sized retail outlets.
- the need to protect consumers from the market power that retail outlets can exercise, particularly in remote locations, while still ensuring that consumers have reasonable access to supplies of fuel.

- the role of the oil companies in seeking to ensure that they have outlets for this products across the nation.

In particular, the Commission has noted that the oil companies do provide various forms of subsidies to retail outlets as a way of supporting their continuing economic viability. These arrangements are undertaken on a commercial basis and involve the oil companies sharing some of their margin with retail outlets where it is apparent that the volume of demand is insufficient to be self sustaining without direct support. The oil companies have not always been willing (or possibly able) to prevent the closure of retail outlets. There is ample evidence of a decline in recent times in the presence of certain brands of fuel outlets in parts of the country. There is clearly a point where having competing service stations operating in certain locations is not viable and the evidence suggest that the oil companies have been rationalising their support for smaller outlets in certain locations.

However, the Commission is not convinced that a two tier approach to setting the retail margin would necessarily resolve this problem. Rather the Commission is concerned that such an approach may create opportunities for by-pass and smuggling of product from one location to another to attract higher margins that are able to be recovered. Furthermore, as many of these locations are outside of the Main Ports and Out Ports, as discussed previously, they will already be incurring additional freight charges to ensure delivery from the main centres. In these circumstances, consumers in these remote locations would be required to meet an additional retail mark up cost reflecting the smaller volume of fuel that is sold from retail outlets in these areas. From a consumer protection perspective, the Commission does not favour this approach.

The Commission therefore proposes to set a single retail margin for all areas and all sizes of retail service stations. Should the oil companies want to keep a presence in a particular location, they have the option to subsidise the outlet in some way, for example, in reducing the lease cost for the service station itself (if leased) or for the pumps and tanks (which are usually owned by the oil companies) or by way of discounts on the cost of fuel sold to the outlet. In this way, the market will determine whether or not a service station remains in operation. As the Commission has opted for the use an average cap on the wholesale margin, any oil company which can increase its volume of sales beyond the level built into the revenue model discussed in the previous chapter, will receive a financial benefit as their fixed cost are effectively fully recovered by the volume of sales on an individual company basis assumed in the financial modelling undertaken by the Commission. With this financial incentive, the Commission believes that there will be ample incentive for oil companies and retailers to negotiate on lease charges and wholesale sale prices ex the depot gate in order to ensure the continuing operation of an outlet that ahs smaller sales volume potential.

The Retailers Association initially sought a return to parity with 1991 retail margins on a margin as a proportion of retail sales value basis. The Commission has examined this option in the context of the cost information provided by the retail industry. The Commission estimates that a retail margin of the order of 24 toea to 25 toea per litre would be required to achieve this return to parity.

The Commission is not convinced that a return to parity with 1991 levels is necessarily justified. As discussed in the Draft Report, the price of fuel is determined by number of factors not all of which directly translate into adjustments on a one-for-one basis with costs faced by the retail sector. For example, international events directly impact on the price of oil, and as a ‘price taker’, Papua New Guinea has to pay prices for its oil based products based on movements in price set at an international level. These price changes do not necessarily reflect the cost increases faced by the retail sector. Similarly, governments through adjustments in excise rates, import duties, and other direct charges can influence the price of fuel in the domestic market. These cost changes also do not necessarily relate on a one- to- one basis with underlying cost changes faced by the retail sector.

The Commission acknowledges that one of the costs that the retail sector does face is the cost of purchasing the fuel when its tanks are refilled. However, the cost that is being incurred here is the cost of capital (either equity or debt funded) that is used to purchase the fuel until it is sold. The cost therefore, is the cost of borrowing the funds used to purchase the fuel or the income foregone from the use of equity funds to buy the fuel rather than investing in some other risk free activity (for

example; Treasury Bills). These costs will vary with movements in interest rates in PNG and thus should reflect in some way the movement in these underlying financial charges.

The financial information provided to the Commission by the industry has allowed the Commission to model a number of scenarios in terms of the operating cost and returns to the retail sector under different margin assumptions. The Commission has also been able to examine the relative cost of operating individual service stations. There are some differences in relative cost of operating a service station depending upon the size of service station and the volume of sales. In part, this reflects economies of scale, although to counter theft and address security issues, some of the larger service stations appear to find it necessary to increase their staffing in proportion to the volume of sales. However, there appears to be some areas where improvements in operating efficiencies can occur notwithstanding the differences in sizes of the service stations for which data was available.

In modelling costs under different scenarios, the Commission has been conscious of the need to ensure that the retail sector can recoup its efficient cost plus a return on its investment (including its investment in fuel stocks).Thus, the Commission has modelled this cost using the information provided by the industry. This modelling has been further complicated by the need to recognise that some service stations are wholly owned by the operator and some are leased from the oil companies or other investors. Thus, in arriving at an estimate of the return on investment to the business, the Commission has had to allow for an imputed return on the value of the service stations themselves in order to assess whether a particular retail margin is appropriate.

In modelling the sector using the current retail margins, it is clear that the present margin is insufficient to recover costs including a return or recovery on borrowings to fund stock. At the 11.5 toea per litre proposed by the Commission in its Draft Report, operating cost including the cost of stock holding (but excluding lease payments) are met. However, the implied values of fixed assets (which includes the value of the service stations for which the lease payments are made) are unrealistic in that they do not reflect the observable value of these assets.

The Retailers Association originally asked for retail margins of 15.7 toea per litre to 16.9 toea per litre. However, in their follow up submission to the Draft Report, they asked for a blanket 15 toea per litre across all regulated products. The Commission tested this margin under various scenarios using a current lending rate (from the Bank of PNG) of 14%. Under this scenario, the retail sector is able to meet its cost (including the cost of stock holding) and the implied asset value (including the value of the service stations whether leased or wholly owned) is more realistic in terms of the book values reported by the oil companies.

On the basis of the Commission's modelling, a retail margin of 15 toea per litre will be sufficient to meet cost and return an appropriate profit margin to service stations having a turnover of in excess of around 140,000 litres per month. Service stations with smaller volumes will still recover costs including a return on funds invested in stock. However, the margin above this return will not be as great as for the larger service stations. In these circumstances, there may be service stations that will attract direct support from the oil companies (because of their strategic location) or may support their presence in the market on the basis of other associated activity (for example, being part of a motor vehicle sales and servicing business).

As previously noted, the Commission believes that it is appropriate for the industry to resolve within itself the need if any, for direct support of individual service stations falling within this category. However, the Commission notes that on the basis of its modelling using a margin of 15 toea per litre, these smaller operations (with monthly volume of as low as 60,000 litres per month) would still be able to recover operating costs (including lease costs) plus a return on stock holdings.

The Commission has therefore concluded that it will apply a retail margin of 15 toea per litre for Mogas, Diesel and Kerosene. This is slightly less than the original proposal put forward by the Retailers Association and at 7% of total sales, is significantly less than the 1991 equivalent of 11% of sales proposed in the original submission to the Commission from the Retailers Association.

The Commission has indicated that it intends to use a form of CPI – X incentive formula to adjust the retail margin on an annual basis. The objective of the incentive formula is to allow the retail sector to recover legitimate increases in operating costs (including return on capital) while at the same time, providing a cap below which, if the industry can reduce its cost, it is able to capture and retain the extra profits for the period of the price path. As with the wholesale sector, the Commission will be adopting a 5 year price path concluding 31st December 2009 and commencing 8th September 2004.

The Commission examine a number of alternatives in terms of seeking to apply an appropriate indicator of movement in underlying costs faced by the retail sector. The Commission had originally proposed to use a specifically created cost index to replicate the broad components of the operating costs faced by service station operators.

However, the Commission has concluded that this approach adds a further complication to what should be a relatively simple adjustment process to apply. Accordingly, the Commission will use instead the Adjusted Consumer Price Index (CPI) provided by the National Statistical Office specifically for the Commission. The Adjusted CPI is the All Groups Weighted Average CPI for urban areas excluding Drinks, Tobacco and Betel-nut. This index is used by the Commission for adjusting the price path of regulated industries in PNG and will be used for the wholesale and retail sectors of the petroleum industry.

The Commission will also apply an efficiency factor of one percent to the adjusted CPI such that the price path will be CPI -1. The efficiency factor will be cumulative over the five year period. This level of efficient improvement represents a minimum level that consumers should expect having allowed for a CPI adjustment. Thus, while the retail margin will increase in nominal terms over the five year price path, in real terms it will decline slightly.

The formula for the margin adjustment will be $MRM_t = MRM_{t-1} * (1+ (CPI_t - X))$

- where, MRM_t is the maximum retail margin in year 2004 equal to 15 toea per litre for mogas, diesel and kerosene sales
- *CPI* is the Adjusted Consumer Price Index

The movement in the CPI will be determined by using the following formula:

$$CPI_t = \frac{CPI_{March(t-1)} + CPI_{June(t-1)} + CPI_{Sept(t-1)} + CPI_{Dec\,(t-2)}}{CPI_{March(t-2)} + CPI_{June(t-2)} + CPI_{Sept(t-2)} + CPI_{Dec\,(t-3)}} - 1$$

Where:

CPI means the Adjusted Consumer Price Index published by the National Statistical Office.

$Year_t$ is the year for which tariffs are being set.

$Year_{t-1}$ is the previous regulatory year.

$Year_{t-2}$ is the regulatory year two years previous.

$Year_{t-3}$ is regulatory year three years previous.

Dec. is December and Sept. is September.

For purposes of the retail margin, the X in the formula is determined as:

Year	2005	2006	2007	2008	2009
X	1	1	1	1	1

To avoid any confusion, the initial retail margin set from 8th September 2004 will be 15 toea per litre, and the adjustment in that margin to take effect from 1st January 2005 will be the change in the CPI less 1 (that is, CPI-1)

The Commission will arrange with the PNG National Statistical Office for the provision of the Adjusted CPI figure. The Commission will confirm with the retail industry no later than the 15th day of December each year the new retail margin to take effect from the first day of the New Year. The Commission will make available to the industry its calculations of the movement in the CPI and conversion of this movement in the CPI to the new margin that is to apply.

5.4 Summary of Decision

The Commission's decision in relation to the retail sector is as follows:

Decision 8:

The Commission will amend the General Prices Order 2000 to set a cap on the retail margin for mogas, diesel, and kerosene and a formula for the adjustment of the cap on the margin over a period from 8 September 2004 until 31 December 2009.

a. A CPI – X price path will apply to the retail margin with the CPI being the adjusted Consumer Price Index provided by NSO for the Commission to use, and X is set at one for each year of the price path.

b. The CPI – X formula will apply for a period of five years to 31 December 2009 and adjustments to the retail margin will occur on the first day of January for each year till 31 December 2009.

c. The initial retail margin will be 15 toea per litre to apply to Mogas, Diesel and Kerosene sales at the retail stage.

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