



**INDEPENDENT CONSUMER AND COMPETITION COMMISSION**

## *Petroleum Industry Pricing Review*



Final Report

30<sup>th</sup> October 2010

## FOREWORD

The Independent Consumer & Competition Commission (“**Commission**”) was established in 2002 under the provisions of the *Independent Consumer and Competition Commission Act 2002* (“**ICCC Act**”) to promote competition and fair trade, regulate prices of certain declared goods and services, and to protect consumers’ interests.

As part of its role of regulating prices of certain declared goods and services, the Commission is responsible for the monitoring and regulation of prices for certain oil based refined petroleum products such as Petrol, Diesel, Kerosene and Aviation Gasoline in accordance with the ICCC Act and the *Prices Regulation Act Chapter 320* (“**PR Act**”).

In 2004, the Commission undertook its first review into the price setting arrangements for petroleum products and decided that some form of regulation should continue. Consistent with that principal determination, the Commission set a five year price path which commenced on 1<sup>st</sup> January, 2005 and was to expire on 31<sup>st</sup> December, 2009. Subsequent events have delayed the finalisation of the review process, which concludes as at the date of this Final Report. The regulatory regime notionally ending 31<sup>st</sup> December 2009, has in the interim been extended on a monthly basis to allow the completion of this Final Report. The new arrangements described in this report shall, subject to the Minister’s<sup>1</sup> consent, commence from 1<sup>st</sup> November 2010.

In view of the notional expiration of the current price path at the end of 2009, the Commission in accordance with Section 25A(6) of the PR Act and Section 5 of the ICCC Act, has undertaken this review to determine whether or not the current determination and the form of regulation for the pricing of petroleum products should continue, and if so, the appropriate form of regulation to apply in the forthcoming regulatory period.

As part of the review process, the Commission released an Issues Paper dated 11<sup>th</sup> June, 2009 and invited the petroleum companies, relevant stakeholders and the general public to provide views and comments on the issues identified by the Commission. A Draft Report dated 9<sup>th</sup> November 2009 was issued for comment. Further comments were accepted from the petroleum companies, relevant stakeholders and the general public through to late 2009. A draft Final Report was produced during the first half of 2010, and because of the length of time taken to finalise the Report and some changes to the outcomes of the analysis, this was issued to the petroleum companies as a draft Final Report for final comments as the next stage of the review process. This Report contains the Commission’s Final Determinations that it has made after taking into consideration the submissions made in response to the Issues Paper, the Draft Report and the draft Final Report and its assessment of the issues and available information.

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<sup>1</sup> The relevant Minister is the Minister for Treasury and Finance, who has administrative responsibility for the ICCC Act and the PR Act

Copies of this Final Report can be obtained from the Commission at the following address, or on its web site.

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**Assoc. Prof. Billy Manoka (PhD)**  
Commissioner & CEO

30<sup>th</sup> October 2010

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## 1. EXECUTIVE SUMMARY

This Executive Summary provides an overview of the Commission's key findings and its Final Determinations that will apply to petroleum products for the regulatory period commencing 1<sup>st</sup> November, 2010. These key findings and determinations are based on the comments and submissions received on the Issues Paper, Draft Report and draft Final Report as well as the Commission's own assessment and analysis of issues.

### 1.1. Key findings on competition

The Commission has assessed the dynamics and the level of competition in each of the markets: refining, wholesale and distribution, retail and Avgas and a brief overview of the findings are as follows:

a) **Refining market** – There is no competition existing in this market given that there is only one refiner operating in PNG, reinforced by the legislative barrier to entry in terms of the Project Agreement. The Project Agreement gives InterOil the effective right, unless particular circumstances arise, to force all domestic distributors to acquire all of their fuel from or through InterOil. Also, the small size of the petroleum industry in PNG does not encourage potential investors to establish a second refinery, even without the exclusive rights InterOil has under the Project Agreement.

b) **Wholesale & Distribution** – There are currently four wholesalers operating in this sector. While the wholesalers may compete for some larger commercial opportunities on a price and non-price basis, there are strict limits to competition in relation to smaller and retail customers. The Project Agreement effectively requires all wholesale distributors to source their requirements from InterOil, priced according to the Import Parity Price (“IPP”) formula. With all distributors buying at the same IPP formula price from the same refiner/importer, InterOil, there is little or no opportunity for those distributors to compete for customers on price. This is exacerbated by InterOil owning the majority of the retail fuel outlets in Papua New Guinea.

The size of the sector limits prospects for new entrants as does the existence of supply monopolies especially in the rural and remote areas. In addition, strong links between wholesalers and retailers mean that there may be limited ability for retail customers to exercise countervailing power.

c) **Retail** – In rural and remote areas there is no retail competition and wholesalers exercise considerable influence over the retailing behavior. As with the wholesale market, barriers to entry exist, particularly in terms of the market's ability to support new entrants. Finally, while there are numerous retailers there is little or no evidence of price competition amongst them. This may be because the major component of retail prices, the IPP, is calculated consistent with the Project Agreement and is common to all wholesalers.

d) **Aviation gasoline (“Avgas”)** - Demand for Avgas has declined because of the shift over time from the use of Avgas powered piston driven aircraft to turbine engine aircraft which use Jet A1. This shift is due to environmental

and fuel efficiency reasons. The relatively small size of the market has led to a very small number of suppliers and thus there is some possibility that suppliers may exercise their market power to increase prices. Although there is limited opportunity to do so in the long term due to the possibility of new entrants, there exists the real possibility of market power being exercised in the short term. Thus the Commission considers that it is appropriate to maintain a form of regulation over Avgas in the next regulatory period. Avgas is all imported from Australia and is supplied out of drums, not bulk.

- e) **Jet A1** – There is currently no regulation or monitoring of prices of Jet A1 in PNG. In its 2004 final report, the Commission considered whether Jet A1 should be regulated or monitored but concluded that there was no need at that time. However, given the decline in use of Avgas and a consequential increase in Jet A1, as well as the relatively low level of competition in the market, there are merits in also subjecting Jet A1 to a price monitoring regime.

## 1.2. Key Determinations

In light of the above, the Commission will recommend to the Minister that the Commission should continue to regulate and monitor the prices of petroleum products under Sections 10; 21; and 32A; respectively, of the PR Act for a period of approximately four (4) years and two (2) months commencing 1<sup>st</sup> November, 2010 and ending on 31<sup>st</sup> December, 2014.

The declared services that the Commission will recommend to the Minister will be as follows:

**Recommendation A:** Subject to Recommendation B, the Commission recommends that the Minister not change the current policy settings of the declared goods and services that have been declared under Section 10 of the PR Act and the declared monitored goods and services that have been declared monitored goods and services under section 32A of the PR Act, in the petroleum industry sector.

**Recommendation B:** The Commission recommends that the Minister declare Jet A1 to be declared monitored goods and services under section 32A of the PR Act.

**Decision 1:** The Commission will continue to monitor the IPP for petrol, diesel and kerosene ex the Napa Napa refinery under Section 32A of the PR Act. In addition, the Commission will also monitor volumes of petrol, diesel and kerosene produced at the Napa Napa refinery and, the advance nominations for supply from each distributor and imports of regulated products by each distributor, including InterOil.

**Decision 2:** **Part A** - The Commission will continue to regulate the wholesale margin for petrol, diesel and kerosene under Section 21 of the PR Act via a direct price control by applying

a uniform maximum margin across the country. **Part B** - The maximum wholesale margin will be adjusted using a CPI+X price path over the next regulatory period and the X factor from 1<sup>st</sup> November 2010 will be 2.4% (so CPI+2.4%).

**Decision 3:** The Commission will continue with the existing price monitoring approach to setting sea freight charges under Section 32A of the PR Act until end March 2011. Beyond this time the Commission will control sea freight charges using an approach, under which the sea freight charge component of the overall price must not exceed a value determined by an index applied by the Commission.

The Commission will work with the industry to determine how the sea freight index should be calculated and applied. Such work to be completed before the end of March 2011, or as otherwise determined by the Commission following consideration of views from the primary industry participants.

**Decision 4:** The Commission will continue to monitor road freight charges under Section 32A of the PR Act. As part of this monitoring responsibility, the Commission will compare the freight cost on individual routes with competitive routes for the market overall. Where the cost change on one route is inconsistent with changes occurring more generally in the market, the Commission will then seek explanation as to the reason for the divergence and if the Commission is not satisfied with the road freight being charged or the explanation therefore the Commission may recommend to the Minister that road freight be declared for price control purposes.

**Decision 5:** The Commission will continue to regulate the drum filling margin under Section 21 of the PR Act. The drum filling margin will be set at 7 toea per litre from 1<sup>st</sup> November 2010 and adjusted using a CPI+X price path over the next regulatory period and the X factor from 1<sup>st</sup> November 2010 will be positive 2.4% (so CPI+2.4%).

**Decision 6:** The Commission will continue to regulate the retail margin for petrol, diesel and kerosene under Section 21 of the PR Act for the next regulatory period. The retail margin will be adjusted using a CPI+X price path over the next regulatory period for the calculation of the retail margin and the X factor will be negative 0.7% (so CPI-0.7%).

**Decision 7:** The Commission will continue to monitor Avgas prices as declared monitored goods under Section 32A of the PR Act. The Commission will monitor the landed price of Avgas and will also make this information public on a regular basis.

- Decision 8:** The Commission will commence to monitor Jet A1 prices as declared monitored goods under Section 32A of the PR Act from the end of the month, following the month in which this Final Report is published. Similar to Avgas, the Commission will monitor the prices ex the Napa Napa refinery (or the landed price where the product is imported by InterOil) and will also make this information public on a regular basis.
- Decision 9:** The Commission has decided to adopt a time frame of approximately four (4) years and two (2) months as the next regulatory period, commencing 1st November 2010 and ending 31st December 2014. The Commission shall review the regulatory framework before the expiry of such regulatory period; and make recommendations to the Minister, arising from such review, as to the duration and form of regulation of petroleum products and services that should prevail after such regulatory period.
- Decision 10:** The Commission has decided to continue to calculate indicative maximum retail prices on a monthly basis, using IPP plus maximum freight charges plus maximum wholesale and retail margins, for the next regulatory period.

## 2. OVERVIEW

### 2.1. Background

#### 2.1.1. Overview of the dynamics of the petroleum industry before 2004

Up to and including 2004 oil companies in the PNG market were importing all of their petroleum products and were generally extensively involved in wholesaling and retailing operations. However, just prior to the Commission undertaking its initial review of the petroleum industry in 2004, significant changes were occurring in the market including, amongst others, the acquisition of British Petroleum (BP) PNG Limited by InterOil Corporation (“**InterOil**”) and InterOil’s proposal to enter into an agreement with Shell PNG Ltd (“**Shell**”) to buy and lease back the wholesale business in PNG. At that time, InterOil was also in the process of commencing production at its Napa Napa refinery and this would change the way oil-based products were supplied in the country.

Given these developments, the Commission decided that it was timely to undertake a review of the petroleum industry in 2004 to assess competitive tensions and to determine whether or not price regulation was still required and if so, the appropriate form of regulation to apply.

#### 2.1.2. Summary of 2004 Review

In undertaking the review in 2004, the Commission identified that there was limited competition at most levels of the industry, thus warranting the need to apply some form of regulatory oversight. The Commission therefore determined a five year regulatory price path with the following decisions applying over a five year period commencing 1<sup>st</sup> January, 2005:

- a) The refined petroleum products (petrol, diesel and kerosene) ex the refinery were to be regulated under Sections 10 and 32A of the PR Act for price monitoring purpose (these products were subject to a Project Agreement (the “**Agreement**”) between InterOil and the State of Papua New Guinea which specifies the purchase price of petroleum products at the Napa Napa refinery gate);
- b) The price of Avgas was to be regulated under Sections 10 and 32A of the PR Act for price monitoring purposes;
- c) The freight costs including shipping and road cartage were to be regulated under Sections 10 and 32A of the PR Act for monitoring purposes; and
- d) The wholesale and retail margins for petrol, diesel, kerosene and aviation gasoline and the drum filling margin be regulated under Sections 10 and 21 of the PRA whereby the wholesale, retail and drum filling margins will be adjusted annually based on the CPI-X formula.

These regulatory and pricing arrangements were scheduled to end on 31<sup>st</sup> December 2009, but have, in effect, been extended until the date of effect of this final determination, being 1<sup>st</sup> November 2010. The Commission has undertaken this review to decide whether there is a need to continue regulation of the price of petroleum products, and if so, set appropriate form of regulation to apply from 1<sup>st</sup> November, 2010.

## 2.2. Legislative requirements

The existing regulatory and pricing arrangements applying to petroleum products (petrol, diesel and kerosene) prices ex the Napa Napa refinery and prices of Avgas, domestic shipping and road freight rates and wholesale, retail and drum filling margins are governed under Sections 10, 32A and 21 of the PR Act. The Government through the Minister for Treasury has declared these prices of petroleum products under Section 10 of PR Act for price regulation purposes while the Commission sets the maximum wholesale, retail and drum fillings margins pursuant to Section 21 of the PR Act. In addition, the Commission under Section 32A of the PR Act monitors the prices of petrol, diesel and kerosene ex-Napa Napa set under the Project Agreement between the State and InterOil, as well as the prices of Avgas and the sea and road freight cost components of fuel prices.

The provisions of Section 25A (6) of the PR Act provide for the Commission to initiate a review of its own accord when it considers appropriate. Section 25B outlines the processes by which a review of a Pricing Order can be undertaken including the timelines within which such reviews can be undertaken, the requirement to publish details of its decision, and the form of decision that can be made as a consequence of the review. Furthermore, Section 25C (3) of PR Act specifies that in response to a review, the Commission may decide 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, through a recommendation to the Minister to revoke the declaration of goods or services for the purpose of price control by the Commission under Section 32A.

In undertaking this review, the Commission was required to have regard to the following regulatory principles under Section 21(2A) of the PR Act:

- a) the need to protect consumers and users of the declared goods or services from misuse of market power in terms of prices, pricing policies (including policies relating to the level or structure of prices) and the standard of the declared goods or services;
- b) the cost of making, producing or supplying the declared goods or services;
- c) the desirability of encouraging greater efficiency in relation to making, producing or supplying the declared goods or services;
- d) the need to ensure an appropriate rate of return on any investment in relation to the declared goods or services;
- e) the borrowing, capital and cash flow requirements of persons making, producing or supplying the declared goods or services;
- f) considerations of demand management and least-cost planning;
- g) existing standards of quality, reliability and safety of the declared goods or services, and the desirability of encouraging improvements in those standards;
- h) the effect any proposed order on general price inflation over the medium term;
- i) the economic and social impact of any proposed order; and

- j) any other matters the Commission considers relevant.

The Commission must also take into consideration its primary objectives pursuant to section 5 of the ICCC Act which are to:

- o enhance the welfare of the people of PNG through the promotion of competition, fair trade and protection of consumers' interest;
- o promote economy efficiency in industry structure, investment and conduct; and
- o protect the long term interests of the people of PNG with regard to price, quality and reliability of significant goods and services.

### **2.3. Conduct of the review**

The Commission has conducted this review in a transparent manner, undertaking the following key stages:

- o release of an Issues Paper and the invitation of submissions;
- o release of a Draft Report and Draft Determinations and the invitation of submissions on that Draft Report and Draft Determinations;
- o release of a draft Final Report and draft Final Determinations to industry stakeholders for final comment; and
- o release of the Final Report and Final Determinations.

Stakeholders and other interested parties have provided submissions and valuable input into all four stages of the review process to assist the Commission in making a fair and reasonable decision which is consistent with the ICCC and PR Acts and beneficial to all parties, and also supports the consumer protection and other regulatory principles provided in Section 21(2A) of the PR Act.

## 3. REFINING MARKET

### 3.1. Structure

This review of the regulation of the pricing of petroleum products focuses primarily upon the pricing of the products at wholesale and retail levels, associated activities and the transport costs of delivering the products to customers. However, it is important to consider these issues in the context of the structure of the whole industry in PNG, including the refining sector. Furthermore, where the present arrangements that apply to aspects of the supply of petroleum products from the refinery have an impact upon the decisions that the Commission might make concerning the setting of the components of the wholesale and retail prices and transport costs, then it is appropriate that the Commission consider these issues holistically.

The structure of the refining market in PNG is not complex. The only refinery in PNG is owned and operated by InterOil, a Canadian based company having business only in PNG. The refinery is operated on the outskirts of Port Moresby at Napa Napa pursuant to the terms of the Project Agreement (“PA”).

The primary purpose of establishing the Napa Napa refinery was to refine the crude oil sourced from the Kutubu oil fields in the Highlands of PNG.

The refinery operated by InterOil is a hydroskimming refinery. This type of refinery is simple and is equipped with atmospheric distillation, naphtha reforming and necessary treating processes. In this type of refinery, crude oil is passed through a heating system to be heated to a temperature of about 400°C and then passed to a distillation and fractionating column. A temperature gradient is created in the distillation column so products with different boiling points can be separately collected.

According to InterOil<sup>2</sup>, the configuration that it has chosen takes advantage of the light sweet crude oil that avoids the need for hydro-treating or complex and expensive heavy oil processing such as catalytic cracking and coking. The Napa Napa refinery consists of only atmospheric distillation plus a modest catalytic reformer for production of gasoline blendstock.

The provisions of the Project Agreement and the size of the PNG market are such that the State is obliged to ensure domestic distributors purchase only from the refinery, although in recent years, and for various reasons, this has not been the case and some distributors have commenced direct importation.

### 3.2. Capacity, production level and costs

The nameplate capacity of Napa Napa refinery was originally 32,500<sup>3</sup> barrels per day however this has since been revised to 35,700 bpd (nameplate capacity is the maximum potential output if the refinery is operating at optimum utilisation) The capacity and the production level of the refinery affect the output of the refinery and the associated unit costs for various products. When InterOil produces at optimum capacity the unit costs are lowest and unit costs are higher when operating at lower volumes. It should be noted that demand in PNG can be met at less than the full amount of the nameplate capacity of Napa Napa. InterOil has advised that the demand can readily be

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<sup>2</sup> [www.InterOil.com/shortsum.asp](http://www.InterOil.com/shortsum.asp)

<sup>3</sup> *ibid*

met by the refinery running at around 22,000 bpd, although the refinery has run at more than 30,000 bpd when required.<sup>4</sup>

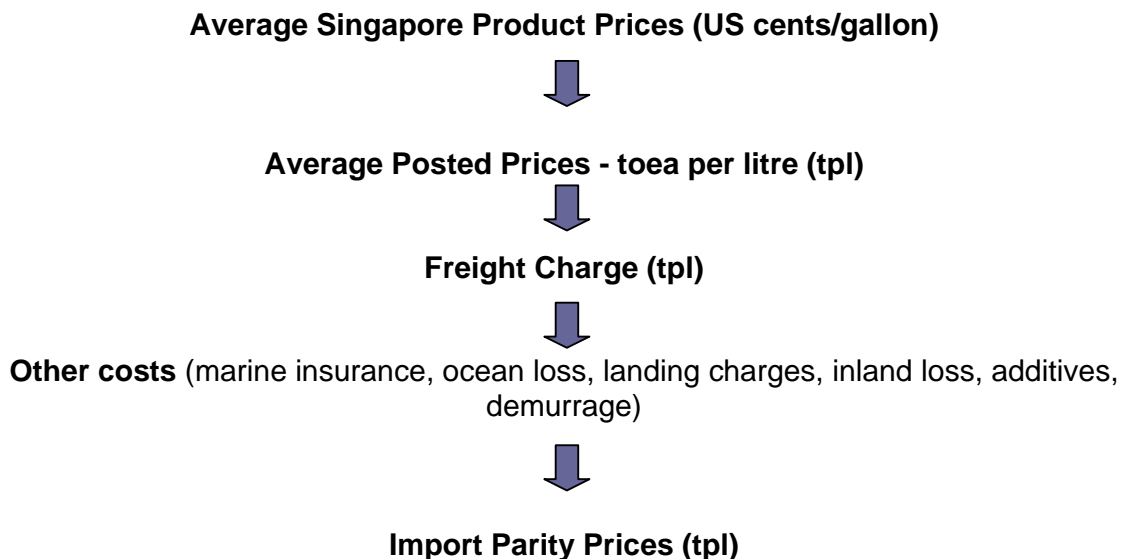
In a typical non-competitive market for refinery products, such as exists in PNG, changes in the per unit cost of refining petroleum products would normally be passed through to consumers. However, under the IPP formula agreed to in the Project Agreement prices are based on prices of refined products out of refineries located near and traded in Singapore (which are of significantly higher capacities than Napa Napa - between 400,000 and 600,000 barrels per day) plus certain costs including those of shipping product to the equivalent Napa Napa refinery gate delivery point. Thus the Project Agreement specifies the price for petroleum products in PNG irrespective of the efficiencies and costs of production at the Napa Napa refinery.<sup>5</sup>

Depending on the supply and demand in the international market place, as reflected in the price of petroleum products in Singapore, InterOil will have varying incentives to source and refine crude oil within its refinery at Napa Napa. For example, if Singapore prices are low it may be more cost effective for InterOil to import refined products from overseas. Importation may also occur due to scheduled and unscheduled outages at the refinery and the availability of crude from domestic sources.

The refinery output is relevant to the Commission's review as it goes to the heart of the issue of the sea freight costs from Nana Napa around PNG, a cost that can have a significant impact on the price that consumers ultimately pay for their petroleum products.

### 3.3. Monitoring the Import Parity Price

As noted above, the IPP is based on the international price of refined fuel products delivered into PNG from Singapore. The component of the IPP formula as per the Project Agreement is outlined below.



The Project Agreement set the IPP formula in place prior to the Commission's establishment in 2002. The Commission is not a party to the Project Agreement and is

<sup>4</sup> InterOil submission to the Draft Report, December 2009, p.5

<sup>5</sup> While at least one other industry participant has expressed concern about the level of 'mark-up' over the Singapore price in the IPP formula, this is not a matter that the Commission can review.

not mandated to control or determine the prices at the IPP level. As flagged in its 2004 Final Determinations, the Commission, has monitored the IPP since that date.

Under this price monitoring approach, the Commission receives daily updates from InterOil on the Singapore prices. The prices were formerly referred to as 'Singapore Posted Prices' (or "**SPP**") and at the end of each month the Commission verified the calculation of the variables in the IPP to ensure that InterOil's calculation was consistent with the formula in the Project Agreement. From November 2007 an amendment was sought to the IPP formula by InterOil to shift from SPP to Mean of Platts Singapore ("**MOPS**") prices, to use a different source for the exchange rate adjustment, and to use different spread margins to develop the IPP. The State, through a decision by the National Executive Council ("**NEC**"), temporarily adopted this amendment while an independent study was undertaken into the IPP formula and its structure. Following receipt of the independent report and consideration of its recommendations, in May 2008 the State determined an interim formula which took effect in June 2008 and which is still in force. The Commission thus monitors the IPP against the interim formula notified to it by the NEC.

As part of this monitoring arrangement, the Commission informs the Minister for Treasury of the monthly IPP changes and its impact on the maximum retail prices. A public notice is also provided to media outlets describing the price changes for Port Moresby, and the details of the pricing for all other regions in PNG is made available to all wholesalers so they can adjust their prices under the various price control or monitoring arrangements.

### **3.3.1. Summary of Draft Decisions on the rationale for, and form of, future regulation**

In its Issues Paper, the Commission set out its preliminary view that the terms of the Project Agreement, together with the small size of the petroleum industry in PNG and the potentially high start-up costs of setting up a competing refinery, meant that effective competition was unlikely to emerge in the refining market.

InterOil broadly agreed with the Commission's assessment, although it noted that the Project Agreement does not preclude the entry of a new refinery. Mobil expressed a view that the Project Agreement effectively grants exclusive rights to InterOil to refine petroleum products and prevents other companies from entering the market, but given the scale of the PNG market it is highly unlikely for a commercially viable competitor to establish a refinery even if the Project Agreement did not exist.

In response to the Issues Paper, the Commission received broad support for a continued role in monitoring the IPP, including from InterOil who suggested that there are a number of benefits for the IPP monitoring arrangement as performed by the Commission:

- the IPP contains a variety of data input and a number of different calculations. The monitoring process by the Commission adds a level of confidence to all IPP users that there are no errors in the calculated prices;
- the Commission provides a focal point for all pricing enquiries in PNG; and
- the Commission can build an understanding of the impacts of changes in international markets on the components of the IPP formula.

Given this, in its Draft Report, the Commission proposed to continue to monitor the IPP price under Section 32A of the PR Act.

In the Issues Paper the Commission also raised the issue of whether, as part of its price monitoring role, it should obtain information on matters such as the cost and volume of imports, and the volume of production at the refinery. In response to the Issues Paper InterOil objected to this role, suggesting that *'it does not see any reason for the Commission to monitor crude oil costs, crude oil imports or refined product imports as this information is irrelevant to the IPP pricing formula'*. However, the Department of Treasury suggested that the Commission's monitoring role *'could usefully be expanded to include import monitoring of crude/refined petroleum products and refined product production at Napa Napa refinery. This additional information, combined with ongoing regulation of other aspects of the refining market, will better allow the Commission to perform its monitoring role.'*

In the Draft Decisions, the Commission agreed that monitoring production and import volumes is somewhat peripheral to the IPP pricing formula as it currently stands. However, as noted above, matters such as sales from Napa Napa are relevant to broader industry regulation issues such as sea freight costs. Obtaining information on the volume of refined products produced may also prove useful to the Commission should there be a change in the form of regulation in future years, or in the event the IPP or Project Agreement was to change. The Commission also considered there would be benefits in terms of the added transparency provided to industry participants.

### **3.3.2. Submissions on the Draft Report and Draft Decisions on regulation of the refining market**

In its submission to the Draft Report, Mobil re-iterated its view that the Project Agreement gives InterOil exclusive rights to operate a refinery in PNG, citing clause 13.2 of the Project Agreement.<sup>6</sup> However, InterOil also re-iterated its view that the Project Agreement does not preclude another party from establishing a separate refinery in PNG, also citing clause 13.2 of the Project Agreement:<sup>7</sup>

*The State shall not grant or permit any Government Agency to grant to any person any exclusive rights to build a refinery in PNG that would be in the same or similar business as that conducted by [InterOil] or other domestic refineries.*

According to InterOil this clause means that the State is free to grant rights to another party to construct a refinery, so long as it does not preclude InterOil from continuing to operate the refinery at Napa Napa.

It is beyond the scope of this review and the role of the Commission to examine the legal implications of the Project Agreement with respect to the establishment of refineries in PNG. However, as noted above it is a somewhat moot point as the scale of the PNG market means it is highly unlikely that a commercially viable competitor could establish a refinery, regardless of the interpretation of the Project Agreement.

The Commission also notes that none of the submissions to the Draft Report raised objections to the Commission's continued monitoring of the IPP price. Therefore, the Commission has decided to continue to monitor the IPP price under Section 32A of the PR Act.

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<sup>6</sup> Mobil submission to the Draft Report, November 2009, p.14

<sup>7</sup> InterOil submission to the Draft Report, December 2009

In relation to the Commission's proposal to monitor the production of regulated products at Napa Napa, InterOil submitted that the Commission should also monitor the import of products and advance nominations of supply from each distributor, as these two factors are critical in determining the production rate of the refinery.<sup>8</sup>

The Department of Treasury noted that it strongly supported the Commission's proposal to monitor products produced at Napa Napa, and also suggested that this role could be expanded to include tracking all petroleum products (including regulated products as well as other unregulated products such as oils and lubricants) imported to, and/or produced at Napa Napa.<sup>9</sup>

Given the information provided by InterOil on the determinants of the level of production at the refinery, the Commission believes that monitoring the advance nominations for supply from each of the distributors (as provided to InterOil) and imports by all distributors would be of assistance in supporting its regulation of the industry and improving transparency in the supply side of the industry.

The Commission notes the support from Treasury for monitoring the volumes of petrol, diesel and kerosene produced at Napa Napa, as well as other unregulated petroleum products. However, expanding this role further to include monitoring the production or importation of unregulated petroleum products would add costs to the regulatory process but was unlikely to bring any material benefits to industry regulation.

The Commission has therefore decided to monitor the volume of refined petroleum products (petrol, diesel and kerosene) produced at the Napa Napa refinery, along with the advance nominations for supply provided to InterOil by each distributor and the imports of regulated petroleum products by each distributor. However, it has decided not to include the production of unregulated petroleum products at Napa Napa in this monitoring role.

The arrangements for this increased monitoring will be determined by the Commission in consultation with the industry, once the Final Report has been issued.

### **3.4. Summary of Commission's decisions**

The following provides a summary of the Commission's Final Decisions in relation to the refining market in PNG.

**Decision 1: The Commission will continue to monitor the IPP for petrol, diesel and kerosene ex the Napa Napa refinery under Section 32A of the PR Act. In addition, the Commission will monitor volumes of petrol, diesel and kerosene produced at the Nana Napa refinery, the advance nominations for supply from each distributor and imports of regulated products by each distributor including InterOil.**

<sup>8</sup> InterOil submission to the Draft Report, December 2009, p.6

<sup>9</sup> Department of Treasury submission to the Draft Report, November 2009, p.4

## 4. WHOLESALE AND DISTRIBUTION

### 4.1. Industry structure

Prior to the commencement of the operation of InterOil's Napa Napa refinery and the supply of the oil based products from the refinery, three major fuel wholesale companies were primarily involved in the importation and distribution of refined petroleum products within PNG. These were Mobil, Shell PNG Ltd ("**Shell**") and British Petroleum PNG Ltd ("**BP**"). However, this arrangement changed with the commencement of the operations of the refinery and by the time the Commission had completed its 2004 Final Report as InterOil had purchased BP's assets leaving the three main players as Shell, Mobil and InterOil. Niugini Oil Company ("**NOC**") also held a small share of the market. The approximate market share held by each company was:

**Table 1: Approximate Market Share around 2004**

Wholesale Distributors	Market Share (%)
Shell	43
Mobil	33
InterOil	20
NOC	4

Since the Commission's 2004 Final Report, a number of further changes to the structure of the wholesaling and distribution market have occurred. In February 2006, InterOil acquired the assets and operations of Shell to become the largest player in the wholesale and distribution market. InterOil is now active in the majority of key regional centres in the PNG market, with the exception of Oro Bay (Popondetta).

Islands Petroleum, which formerly operated mainly as a distribution agent for Mobil in the Islands Region, has acquired a number of Mobil's facilities, including facilities at Kavieng, Rabaul, Kimbe, Alotau and Popondetta. Mobil now operates facilities only in Port Moresby, Lae, and Madang, where it continues to be a significant player.

NOC operates terminals in Lae and Mt Hagen from where it services the Highlands region.

Based on petrol, diesel and kerosene sales volumes reported by the businesses for 2008, the approximate market shares of each wholesale and distribution business are:

**Table 2: Approximate Market Share around 2008**

Wholesale Distributors	Market Share (%)
InterOil	56
Mobil	25
Islands Petroleum	11
NOC	7

The above market shares should be viewed in the context of the extent of operations of each company at various locations. In terms of the overall market share, it is evident from the above table that InterOil has a significant market share compared to other wholesalers. However, Mobil has a larger market share in Port Moresby while Islands Petroleum has a larger market share in the Islands region. Therefore, the Commission

notes that while InterOil is the largest wholesaler in the country, it does not have a significant market share in some of the main towns.

Table 3 below provides an overview of the presence of each wholesale distribution company in the ports. As shown in the table, there are supply monopolies in Wewak, Manus and Oro Bay (Popondetta). However, it may be the case that smaller towns outside the regional centres are serviced by a single distributor.

**Table 3: Regional centres serviced by wholesale distribution companies**

	POM	Lae	Madang	Rabaul	Kimbe	Kavieng	Wewak	Alotau	Oro Bay	Manus	Mt. Hagen
InterOil	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
Mobil	✓	✓	✓								
Islands Petroleum				✓	✓	✓		✓	✓		
NOC		✓									✓

*Note: does not include the supply of unregulated petroleum products.*

## 4.2. Current regulatory arrangements

In its 2004 Final Report, the Commission elected to apply different forms of regulation to the separate elements of the wholesale and distribution chain. The current arrangements provide for the following:

- o sea freight charges from the Napa Napa refinery to the sea ports of maritime provinces are price monitored under a 'pass through' type arrangement in accordance with Section 32A of the *PR Act*. The industry informs the Commission of actual freight costs on a quarterly basis, and any under or over recovery from the previous quarter are adjusted for in the following quarter;
- o road freight charges from the wholesalers' depot gate are monitored under a similar 'pass through' arrangement. The Commission adopts a Freight Cost Index (FCI) to monitor costs reported by the companies;
- o the wholesale margin for petrol, diesel, kerosene and Avgas is capped under a price control mechanism, as provided for by Sections 10 and 21 of the *PR Act*. The margin for the first year was set at 24 toea per litre and has been adjusted annually by a CPI – X formula, with X set at 1% for the regulatory period; and
- o there is an additional 3 toea per litre on top of the standard wholesale margin for petrol, diesel and kerosene sold in drums. This margin is subject to the same CPI – 1% formula as the wholesale margin.

The table below illustrates the relative magnitude of the various components of the fuel price (including the retail margin) that a customer buying diesel at a service station in Port Moresby paid in June 2009. As can be seen, the IPP is the dominant component and represents more than half the total price. In contrast, combined sea and road freight costs are only 7% for Port Moresby, although they are significantly higher in other locations. For example, sea and road freight costs are around 45 toea in Mt Hagen, three times the amount for Port Moresby.

**Table 4: Cost of diesel at a Port Moresby service station, June 2009**

Cost element	Cost (toea per litre)	% of final price
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IPP	135.84	61.3%
Excise Duty	6.00	2.7%
Sea freight	9.86	4.4%
Road freight	5.65	2.5%
Wholesale margin	26.70	12.0%
Retail margin	17.40	7.9%
GST (10%)	20.14	10.0%
<b>Total (Retail Price)</b>	<b>221.59</b>	

Source: ICCC

In its 2004 Final Report, the Commission decided not to regulate the prices of other petroleum based products such as lubricants and Jet A1 fuel.

This chapter is structured consistent with the separate elements of the supply chain outlined above. Before considering each of these elements, it is necessary to consider the demand and supply for petroleum products.

### 4.3. Demand and supply for petroleum products

In undertaking this review, it has been necessary for the Commission to consider likely demand for petroleum products. This has assisted the Commission in forming a view about the likely costs and revenues, and opportunities for new entrants to enter the market.

#### 4.3.1. Demand and supply in the current regulatory period

In its 2004 Final Report, the Commission projected that demand for petroleum products would fall substantially in 2005 and 2006, followed by small increases from 2007 to 2009. That forecast was consistent with conditions prevailing at the time in what was a relatively stagnant PNG economy. However, in general, the PNG economy has been more buoyant than predicted, and demand for oil products has increased each year despite steadily increasing crude oil prices (until mid-2008). In particular, rather than usage falling in 2005 and 2006 as forecast, it increased strongly. Although there are some issues around the comparability of the baseline data, 2009 petroleum sales will be substantially higher than the forecast made in 2004.

This increase has come particularly as a result of higher market share from NOC and Islands Petroleum, primarily through greater diesel sales. At an industry level, sales of petrol have also been strong and are forecast to increase by almost 20% in 2009 over 2008, presumably as a result of lower international oil prices increasing usage in private vehicles.

The increase in sales of petroleum products has averaged around 3.3% from 2006 to 2008. This is around two-thirds of the average growth in GDP of 5.0% over the time. However, the industry has forecast a particularly strong increase in sales of 8.6% in 2009. The 2010 Budget estimates 2009 real GDP growth of 4.5%.

**Table 5: Sale of petroleum products**

Product	Actual 2005 to 2008 growth rate	2009 forecast increase in sales over 2008	Forecast 2009 to 2014 growth
Petrol	8.9%	18.8%	1.8%
Diesel	3.0%	7.3%	1.5%

Kerosene	-5.1%	8.3%	1.7%
All products	3.3%	8.6%	1.5%
GDP increase	5.0%	4.5%	5.6%

Source: Mobil, InterOil, NOC, Islands Petroleum, 2010 Budget

### 4.3.2. Demand and supply in the next regulatory period

Although the wholesalers expect strong sales growth in 2009, they have not predicted that this will continue, with industry sales forecast to increase at around 1.5% after 2009.

Future demand for oil products in PNG will be determined by a number of factors although the key factors will be general growth in the economy including as a result of specific major projects (such as the commenced and proposed LNG projects and individual mineral expansions) and the price of crude oil (as influenced by the relative US/kina exchange rate)..

The following table sets out the Government's projections for real GDP growth for the next regulatory period.

**Table 6: Treasury projections of GDP growth**

	2009	2010	2011	2012	2013	2014
Real GDP growth	4.5%	8.5%	6.2%	2.9%	2.1%	8.4%

Source: Department of Treasury

Future growth in the PNG economy is always somewhat difficult to predict. The Government's forecasts reflect its views about the commencement of the LNG project (which is expected to add 3 percentage points to GDP growth in 2010), and the commencement of the Ramu Nickel and Hidden Valley mines.<sup>10</sup> On 8 December 2009, Esso Highlands Limited, a subsidiary of Exxon/Mobil Corporation and operator of the PNG LNG Project, announced that the development of the Exxon/Mobil project will proceed. A number of engineering, procurement and construction contracts have been approved, and work began in early 2010. One of the key areas of growth is expected to be the transport industry, which is a major user of petroleum products.

The rate of GDP growth is expected to gradually ease as construction activity for the LNG project reaches its peak in 2011 and oil production falls due to the maturation of existing oil fields. A strong rebound in economic growth is expected in 2014, as the LNG production starts to come on line.

In terms of the Exxon/Mobil project, PNG Treasury's analysis of its impact distinguishes between project construction (to around 2014) and operational (beyond 2014) modes. The direct impact on GDP will be greater during operation than in construction because most expenditure on plant and equipment will take place offshore or will be paid to expatriate labour. Further, while the direct impact on GDP will be large, the direct impact on income will be much less as much expenditure and operating surpluses are directed offshore. Treasury has forecast that about US\$500 million of the Exxon/Mobil capital expenditure will be spent domestically, with US\$40 million annually spent locally on operating costs. Most of this will be spent in the Port Moresby region with limited impact in other areas. However, Treasury considers there will be a substantial indirect

<sup>10</sup> 2010 Budget, Volume 1, p.128

impact from the project with an overall 15 to 20% increase in GDP, and a 9% increase in gross national income, over the life of the project.<sup>11</sup>

The price of crude oil is determined by international supply and demand factors which are inextricably linked to the state of the global economy. In August 2009 the International Energy Agency<sup>12</sup> forecast a 1.6% increase in global oil demand in 2010, following falls of 0.3% and 2.7% in 2008 and 2009 respectively. Medium term futures contracts remain around current spot levels, at approximately US\$70 per barrel. Longer term forecasts of demand and prices are more difficult to estimate. The Commission has noted over the current regulatory period that crude prices have varied significantly and, despite the current stable prices in the spot and forward markets, similar volatility may be expected going forward. The prices over the next regulatory period will change from the current level depending on the supply and demand forces as well as other economic, social and political status of the oil producing regions of the world.

Weighing up all these factors, in the Draft Decisions the Commission considered that it was reasonable to expect continuing growth in the sale of petroleum products over the forthcoming regulatory period, including particularly in the Port Moresby region as a result of the LNG projects. However, the increase predicted for 2009 is not sustainable over the whole of the next regulatory period.

In its Draft Decisions, the Commission adopted an assumption of petroleum sales increasing by 2.5% for all products annually from 2010.

### ***Submissions to the Draft Report***

In response to the Draft Decisions, Mobil indicated that it considered that the Commission's assumption of 2.5% growth in demand for petroleum products in the next period appeared to be sound.<sup>13</sup> InterOil did not comment directly on this matter, although it submitted forecasts in sales (excluding mining volumes) consistent with this 2.5% assumption.

### ***Final Decision on volumes***

As noted above, it has recently been confirmed that the Exxon/Mobil LNG project will proceed. This is consistent with the assumption made by the Commission in the Draft Decisions. World oil prices have edged slightly higher to around US\$70 to \$74 per barrel, but the global supply, demand and price outlook has not changed materially since the Draft Decisions.

Given the above, and in the absence of any submissions suggesting that its views about demand were unreasonable, the Commission has decided to retain the assumption of 2.5% annual growth in the sales of petroleum products for the industry as a whole (including mining volumes) over the next regulatory period.

## **4.4. Wholesale margin**

### **4.4.1. Current form of regulation**

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<sup>11</sup> 2009 Budget, Volume 1 pp124-127.

<sup>12</sup> International Energy Agency, 2009, Oil Market Report, August.

<sup>13</sup> Discussions with Mobil via telephone conference, 25 November 2009

As noted above, the current form of regulation for the wholesale margin is price control under sections 10 and 21 of the *PR Act*. Under this arrangement, the Commission has adjusted the wholesale margin annually based on a CPI – 1% formula. The margin applies to petrol, diesel, kerosene and Avgas. Table 7 below sets out the wholesale margin that has applied for each year of the current regulatory period.

**Table 7: Wholesale margins 2005-2009**

Year	Wholesale margin
2005	24.0 toea per litre (tpl)
2006	24.0 tpl
2007	24.4 tpl
2008	24.7 tpl
2009	26.7 tpl

The Commission also sets an additional margin for petrol, diesel and kerosene sold in drums to reflect the additional costs associated with providing product in this form. The drum filling margin currently follows the same price path as the wholesale margin, and is discussed in further detail in section 4.7 below.

#### 4.4.2. Draft Decision on the need for future regulation

In determining whether there is a need for future regulation in the wholesale market, the Commission must decide whether there is sufficient competition to ensure that the companies are not able to apply monopolistic or oligopolistic pricing practices at the expense of customers. This level of competition will primarily be determined by the extent to which barriers to entry into the market exist, the degree of countervailing power held by customers and the willingness and ability of market participants to compete on price.

The Commission notes that the size of the PNG market may be insufficient to strongly encourage entry of additional competitors. Although Islands Petroleum has become more active in the wholesale distribution market, this does not appear to have increased the level of competition as Mobil has exited those locations that Islands Petroleum now services. Further, some areas are serviced by only one wholesaler.

However, despite the limited number of competitors in the market and the setting of prices at the Napa Napa refinery gate via the IPP, it is apparent that the wholesalers do engage in competitive pricing practices. This appears to be particularly the case for large contract sales, for example to the mining and forestry sectors, where substantial discounts from the maximum regulated wholesale margin occur.

Similarly, discussions with stakeholders indicated that it is not uncommon for the wholesalers to offer some retail outlets a discount on the wholesale margin, particularly in the larger urban centres where a number of retailers operate. Other signs of competition in service provision to retail outlets – such as advisory services, marketing assistance, IT services also exist.

Thus, it appears that major retail outlets and major mining and agricultural ventures do have some countervailing power and that price and non-price competition does exist in many areas. However, retail outlets operating in more remote areas are unlikely to have much influence over the prices charged by the wholesale and distribution companies, especially where supply monopolies exist.

On the basis of the above, the Commission suggested in its Draft Decisions that the competition that is occurring is somewhat constrained by:

- the size of the sector, which limits prospects for new entrants;
- the existence of some supply monopolies, especially in rural and remote areas;
- the fact that the level of price competition is limited under the Project Agreement as all entities theoretically face the same landed price; and
- strong links between wholesalers and retail outlets (see chapter 6) which mean there may be limited ability for retail customers to exercise countervailing power.

The Commission also noted that continued regulation was broadly supported by industry participants in their submissions to the Issues Paper.

Therefore, despite the existence of evidence of price based competition in some areas of the market, the Commission considered that there was a strong case for continued regulation of the wholesale margin, and proposed to continue to regulate the wholesale margin in its Draft Decisions.

#### **4.4.3. Draft Decision on the form of regulation**

Having decided that regulation of the wholesale and distribution margin should continue, the Commission must decide upon the form of prices regulation to be applied.

Under the *PR Act*, the Commission has two broad options in terms of the form of prices regulation it can adopt. Section 10 of the *PR Act* provides for the declaration of goods or services which allows the Commission to declare a maximum price for these goods or services (Section 21). The specification of a maximum price under Section 21 requires the Commission to undertake a public and transparent process whereby the details of the proposed determination are explained and opportunity given for the wider community to consider and comment upon the Commission's proposed price determination (see Sections 20A and 20B).

Under Section 32A of the *PR Act*, the Commission may monitor the prices of any services declared as monitored goods and services by the Minister under this Section. The monitoring process is less interventionist than the price declaration process and does not require the Commission's approval each time a price changes. However, the Commission is required to maintain a supervisory role of these monitored prices. If after a period of prices monitoring, the Commission forms a view that changes in prices are not reflecting movements in underlying costs based on movements in some benchmark index or price, the Commission can report to the Minister the desirability of having the relevant goods and services declared under Section 10 for purposes of setting a maximum price under Section 21. In the context of the petroleum industry, the Commission has used the price monitoring process to allow businesses to 'pass through' changes in input costs (for example sea freight and road freight) and reflect them in final customer prices.

As noted, the current form of regulation for the wholesale margin is price control.

In response to the Issues Paper most stakeholders indicated that they supported the current form of regulation in relation to the wholesale margin. For example, the

Commission noted that *'Mobil is supportive of the current form of regulation in relation to wholesale margins'*.<sup>14</sup>

Therefore the Commission's Draft Decision was that it would continue to regulate the wholesale margin under Section 21 of the PR Act via direct price control by applying a uniform margin across the country.

#### 4.4.4. Final Decision on the need for and form of regulation

In response to the Draft Decision, none of the submissions objected to the Commission's proposal to continue to regulate the wholesale margin for petrol, diesel and kerosene under Section 21 of the PR Act via a price control and uniform margin across the country over the next regulatory period. No additional concerns were raised by the industry to the draft Final Report.

The Commission therefore confirms its position on this matter.

**Decision 2A: The Commission will continue to regulate the wholesale margin for petrol, diesel and kerosene under Section 21 of the PR Act via a direct price control by applying a uniform margin across the country.**

#### 4.4.5. Approach to calculating the wholesale margin

In the 2004 Final Report, the wholesale margin was calculated using a building block approach. Under this approach, the Commission calculated a revenue requirement for the wholesale distribution companies based on what is deemed their efficient operating expenditure forecasts with an allowance for an appropriate return on and of capital investments. The process for determining the revenue requirement was as follows:

$$\begin{aligned} &\text{Revenue requirement} \\ &= \\ &\text{Efficient operating expenditure} \\ &+ \\ &\text{Return on capital (calculated by applying a specified rate of return to value of the} \\ &\quad \text{regulated asset base)} \\ &+ \\ &\text{Return of capital (an allowance for depreciation of the regulated asset base based on} \\ &\quad \text{the remaining economic life of the company's infrastructure assets).} \end{aligned}$$

The revenue requirement was then divided by forecast sales volumes to determine the per unit rate that the companies must recover from the sale of their product to cover their costs. This rate is the per litre wholesale margin.

In its 2004 Final Report, the Commission used an industry average approach to determine the building blocks and margin to apply. That is, the sales and expenditure forecasts of each company were combined and averaged to determine what the wholesale margin should be for the entire industry. This approach was designed to recognise that some firms were more capital intensive than others (that is, have

<sup>14</sup> Mobil submission, July 2009, p. 18

different balances between operating and capital costs), and to allow each company to determine its own appropriate balance between operating and capital costs (as long as they conform to pricing within the margin).

However, in its submission to the Issues Paper, InterOil suggested that differences between the scale and scope of operations of wholesale distribution companies mean that applying an industry average approach is unfair.<sup>15</sup>

In the Draft Decision the Commission noted that InterOil's argument has merit and that the scale, scope and markets of each of the entities in the industry are quite different:

- Islands Petroleum and NOC provide services mainly to the Islands and Highlands Regions respectively;
- Mobil directly services only the main urban centres of Port Moresby, Lae and Madang; and
- InterOil appears to service a wider customer base, encompassing both the main urban centres and also most of the Island Region and some of the Highlands Region.

In the Draft Decision the Commission also noted that alternative building block approaches can be applied. These include:

- the hypothetical business approach - the Commission could decide to determine the wholesale margin based on assumptions about the building block costs of a hypothetical business of servicing a market such as PNG's;
- the representative business approach – similar to the above, the Commission could use an existing business (for example, InterOil) whose operations are relatively widespread and broadly representative of the cost of supplying the entire PNG market; and
- the business-specific approach - a specific margin could be calculated for each wholesaler. For example, the Commission could calculate a different (and lower) margin for Mobil based on the fact that it services large and relatively inexpensive markets, compared to NOC which services more remote and smaller markets.

Each of the above approaches has a number of advantages and disadvantages and will impact existing industry participants in different ways due to their different cost bases.

In deciding on the most appropriate approach, a key objective for the Commission is to encourage competition and ensure that businesses have an incentive to provide a wide range of services across the country. The Commission is also cognisant of the need to encourage investment in infrastructure. On this basis, the Commission's Draft Decision expressed reluctance to adopt the business-specific approach as this would mean that, for example, Mobil would have little incentive to expand its operations into higher cost areas, as it would be earning an insufficient margin to do so.

In the Draft Report, the Commission therefore decided to adopt the representative business approach and consider the building block costs of InterOil to determine the wholesale margin for the entire industry. The Commission considered that of the four companies, InterOil is likely to have the most representative operating costs in relation

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<sup>15</sup> InterOil submission, July 2009, p.34

to providing services to the PNG market as a whole. The Commission also noted that InterOil has a relatively strong investment program and that as a result its building block costs are higher than those of the other entities and the industry as a whole. However the Commission considered that the incentives created to invest and compete were likely to outweigh any disincentive for investment. Further, lower cost areas are likely to be the areas where price competition is likely to be strongest and that competitive pressures should remove or reduce any prevalence of above-normal returns.

On the basis of the above discussion, in the Draft Report the Commission proposed to adopt the representative business approach to calculate the wholesale margin.

#### **4.4.6. Submissions on the approach to calculating the wholesale margin**

In its submission to the Draft Report, Mobil stated that intense competition (particularly in tender situations) in the Port Moresby, Lae and Madang markets meant that the wholesalers would not earn above normal returns in these centres.

InterOil indicated that it generally supported the Commission's approach to calculating the wholesale margin in principle, but had particular concerns about the implications for other wholesale businesses, and whether they might be given a competitive advantage over InterOil. InterOil stated that:

*In a pure form this proposal should allow InterOil to achieve full recovery of expenditure and return on investment, but it also has the potential to provide over-recovery by smaller players thereby giving them an advantage with a higher average margin. This has a range of implications with the obvious among them being:*

- *If this were to occur it could result in a disincentive for InterOil to spend on non-essential operational expenditure and capital investment and result in the deterioration of services and asset quality in order to maintain competitiveness*
- *It could make [sic] it difficult for IPL to compete for high volume low margin business*
- *IPL could be at risk of losing existing high volume business through selective use by competitors of any resultant higher margin<sup>16</sup>*

The Commission has considered InterOil's views on this matter. It agrees that by electing to use InterOil as a representative business, it may be the case that businesses with lower costs are able to earn greater returns than InterOil in some areas of the market. However, as the largest business in the market and with the highest market reach within PNG, InterOil should be able to achieve economies of scale that enable it to compete strongly with the other businesses, and its reach should allow cross subsidies between regions which are not available to other industry participants. In addition, the issue of different wholesale businesses earning different levels of profit is an outcome of applying a uniform margin across the industry, and is not unique to the approach of using InterOil as a representative business. As noted above, the alternative approach of calculating individual margins for each business or geographic area may have the effect of providing a disincentive for other businesses to expand their services to higher cost areas of the market.

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<sup>16</sup> InterOil submission to the Draft Report, December 2009, p.6

The Commission has decided to retain the representative business approach to calculating the wholesale margin, using InterOil's costs for the building blocks. The Commission's responses to specific issues raised by the businesses concerning the build-up of the wholesale margin, including volumes, the RAB, depreciation and operating costs are addressed in more detail below.

#### 4.4.7. Calculation of the wholesale margin

The sections below set out the Commission's consideration of sales and expenditure forecasts provided by the wholesalers and the Commission's calculation of the wholesale margin. As noted above, the Commission has elected to calculate the wholesale margin based on InterOil being representative of the sector as a whole. The discussion therefore focuses on InterOil's costs.

##### 4.4.7.1. Demand forecast

Over the current regulatory period, actual demand has been higher than that forecast by the companies prior to the commencement of the period. This means that the companies have been able to earn greater revenues than intended by the wholesale margin.

##### *Draft Decision on demand*

As noted above, in the Draft Report the Commission considered it reasonable to expect industry sales to increase at 2.5% per annum beyond 2009 levels. On average, this was slightly higher than the aggregate demand forecasts of the businesses for the next regulatory period.

Table 8 sets out the companies' aggregate demand projections at an industry level for the next regulatory period and the Commission's proposed adjustment.

**Table 8: Total industry demand - petrol, diesel and kerosene ('000 litres)**

	2009	2010	2011	2012	2013	2014
Projected sales	807,764	829,362	840,914	853,524	863,293	884,280
% change		2.7%	1.4%	1.5%	1.1%	2.4%
Commission's assessment	807,764	827,958	848,657	869,873	891,620	913,910
% change		2.5%	2.5%	2.5%	2.5%	2.5%

*Source: Distributor forecasts and Commission's assessment.*

Table 9 shows InterOil's projections and the Commission's proposed adjustments.

**Table 9: InterOil demand - petrol, diesel and kerosene ('000 litres)**

	2009	2010	2011	2012	2013	2014
Projected sales	433,075	431,500	431,500	432,500	428,500	434,500
% change		-0.4%	0.0%	0.2%	-0.9%	1.4%

Commission's assessment	433,075	443,902	454,999	466,374	478,034	489,985
% change		2.5%	2.5%	2.5%	2.5%	2.5%

*Source: InterOil forecasts and Commission's assessment.*

In the Draft Report, the Commission elected to include all sales and operating costs associated with the provision of regulated products in the calculation of the margin.

### ***Submissions to the Draft Report***

In response to the Draft Report, InterOil proposed that the calculation of the wholesale margin should exclude mining industry volumes and inter-industry volumes (product sold to the other distributors) for the following reasons:

- sales to mines are highly competitive and heavy discounting from the wholesale margin occurs. This loss of margin cannot be recouped from other customers and hence at an overall level distributors will not be able to achieve the rate of return used by the Commission in determining the margin; and
- only a small percentage of mining and inter-industry sales take place at the terminal or depot level, these volumes usually being supplied directly from the refinery or from the Lae seaboard terminals, and typically involve little to no utilization of the downstream distribution network.

### ***Final Decision on demand***

The Commission understands that large contract sales such as those to the mining industry are typically tendered for on a competitive basis and may involve limited use of wholesale distribution infrastructure.

The Commission agrees with InterOil's submission that there is a significant degree of competition among the wholesalers in relation to sales to large contract customers and that discounts cannot be recouped from other customers. It also accepts that serving these customers incurs a relatively low proportion of assets and operating costs, and hence a lower overall per unit cost. Therefore, the Commission has decided to exclude the volumes and costs related to servicing large contract customers in other distributors from the calculation of the wholesale margin. Effectively it is encouraging further tension in the existing competitive environment for these large volume sales.

However, the Commission also notes that the removal of sales to customers in the mining industry will have an impact on the level of growth applied to remaining sales volumes used for the calculation of the wholesale margin.

As noted above, the LNG project is expected to put upward pressure on petroleum sales over the next regulatory period. However, the impacts of the LNG project during the construction phase are likely to be felt mainly in the building and construction and the transport and manufacturing industries. Sales to major customers such as mines are likely to be relatively unaffected. On this basis, the Commission has decided to apply a slightly higher increase to InterOil's remaining sales volumes of 3% per annum than expected for the industry as a whole (i.e. inclusive of mining sales).

The revised volumes provided by InterOil, and the Commission's final adjustments and assessment are set out in Table 10 below.

**Table 10: InterOil revised demand and the Commission’s Final Decision - petrol diesel and kerosene ('000 litres)**

	2009	2010	2011	2012	2013	2014
InterOil revised sales	286,413	293,573	300,912	308,435	316,146	324,050
% change		2.5%	2.5%	2.5%	2.5%	2.5%
Final Decision	286,413	295,005	303,855	312,971	322,360	332,031
% change		3.0%	3.0%	3.0%	3.0%	3.0%

*Source: InterOil forecasts and Commission’s assessment.*

In removing large contract and inter-industry volumes from the calculation of the wholesale margin, there is a risk that other customers will be required to cover the costs of servicing these customers if the associated costs are not also deducted from the analysis. Issues related to excluding the costs attributable to mining and inter-industry customers are discussed below.

#### **4.4.7.2. Costs related to large customers**

The Commission requested that InterOil provide information on the allocation of costs to large customers, so that these costs can be excluded from the calculation of the margin along with the volumes in question.

##### ***InterOil submission***

InterOil provided the following information in response to the Commission’s request:

- in relation to mining sales supplied directly from the refinery (around 67% of total mining volumes), only minimal administrative costs for invoicing and debt collection are incurred. No figures for these costs were supplied; and
- in relation to mining sales supplied directly from terminals, a share of costs attributable to these customers was estimated on the basis of mining volumes as a proportion of total terminal volumes. Using this method as a basis for extrapolating total costs attributable to mining volumes, InterOil proposed that reasonable costs for mining volumes would be approximately K294,000.<sup>17</sup>

In relation to inter-industry sales, InterOil stated that these are predominantly loaded directly from the refinery bunkering wharf (requiring no use of wholesale distribution assets), or alternatively at the terminal or depot level (although this amounts to a small percentage of mining and inter-industry sales). The only wholesale costs incurred are minor administration costs of raising invoices and collecting debts. InterOil did not provide any quantitative estimates of costs related to inter-industry sales.

##### ***Final Decision on costs related to large customers***

Mining and inter-industry sales make up around 33% of InterOil’s total volumes. InterOil has suggested that these sales account for less than 1% of total costs. The Commission notes InterOil’s arguments that there is little or no use of wholesale distribution assets for the majority of these volumes, but considers that InterOil’s

<sup>17</sup> InterOil response to further information request, December 2009 (via email)

proposal is likely to understate the full range of costs associated with servicing large customers.

For example, in relation to mining operating costs InterOil noted that there are minimal administrative costs for invoicing and debt collection. However, the Commission believes there would be a range of direct expenses such as client relationship managers, legal fees associated with negotiating contracts and costs of preparing bids for contracts that would be incurred in servicing these customers. It would also be appropriate to attribute a proportion of general company overhead costs to these customers. The costs associated with the investment in and the operation of the refinery bunkering wharf are not small, and using a sales volume allocation, 33% of these costs should relate to large project and mining deliveries.

The Commission recognises that it may be difficult for InterOil to come to a precise understanding of the total costs attributable to large customers. However, the Commission is of the view that InterOil has significantly under-estimated these costs in its submission.

On balance, the Commission considers that it is reasonable to expect that InterOil's mining and inter-industry volumes, accounting for around 33% of total volumes, are likely to account for around 10% of total costs. Therefore, the Commission has applied a reduction factor of 10% to InterOil's operating and capital expenditure forecasts in conjunction with excluding mining and inter-industry volumes.

#### **4.4.7.3. Operating costs**

##### ***Adjustments in the Draft Report***

In the Draft Report, the Commission for the most part accepted InterOil's expenditure proposals as the basis for calculating the wholesale margin, with a handful of adjustments, including:

- salaries – salaries expenses were adjusted to provide for a 2.5% per annum real increase over the next regulatory period in line with the Commission's expectations about general wages growth and the impact of the LNG project, particularly on demand for labour with skills and knowledge in the petroleum market;
- public relations expenditure – operating expenditure for this item was forecast to increase by several multiples from the current regulatory period to the next. This was justified as being required to keep the public informed about prices. However, it is not clear why these costs will be substantially different in the next period to current requirements;
- advertising expenditure – advertising expenditure showed a substantial increase in average levels from the current period to the next. The Commission is of the view that any increase in advertising expenses should be offset by increased sales volumes and hence additional revenue and should not be built into the margin; and
- computer expenditure – InterOil is proposing to undertake substantial capital expenditure on improving its IT systems. However, the increases in operating costs appear excessive in comparison to historical costs and the level of capital expenditure, and should in any case be offset by reduced costs or increased efficiency.

### ***Submissions to the Draft Report***

Both InterOil and Islands Petroleum made submissions to the Commission concerning the item-specific adjustments to InterOil's operating expenditure proposed in the Draft Report. In its submission to the Draft Report, Islands Petroleum stated that:

- ignoring the advertising costs of InterOil appeared to be unusual, given that these costs are a feature of a market economy and allow consumers to make informed choices; and
- upgrades to computer systems are likely to be real business costs and are also being undertaken by Islands Petroleum. These costs should be recognised.

InterOil objected to the adjustment made by the Commission to salaries expenses (that is, imposing a 2.5% per annum real increase) for the following reasons:

- the Exxon/Mobil LNG project will impact the oil industry more than any other due to the skills and competencies required by the project;
- LNG has been and will be offering significantly higher pay rates for professional employees, with skilled labour in the industry potentially attracting salaries 50% to 100% higher than existing rates; and
- despite the employment opportunities from the LNG project being relatively short term, this would not deter employees from taking up any offers.

InterOil concluded that at a minimum it expected salary increases in the order of 15% to 20% per annum across the board.

### ***Final Decision on operating costs***

In relation to the adjustments made by the Commission to InterOil's advertising costs and computer costs, it should be clarified that the Commission has not removed these expenses entirely. However, the extent of the increases proposed by InterOil were considered to be unjustified in the context of the operating environment. The Commission remains of the view that the downward adjustments made to these cost forecasts were reasonable.

InterOil's proposed increase in salary costs over the period is substantially higher than the salary increases proposed by the other businesses, and would result in real wages more than doubling by the end of the period. In conjunction with the Government's inflation projections for 2010 to 2014, a 15% to 20% real annual increase translates to a nominal increase in salaries in the order of 3 times 2009 levels by 2014. By comparison, the Commission's proposed 2.5% per annum real increase will result in an approximate nominal increase of 1.5 times 2009 levels by 2014 (taking the Government's inflation projections into account).

The Commission agrees that the LNG project will add to demand for skilled labour and increase pressure on wages in the petroleum industry. However, it should also be noted that local labour will only make up a small proportion of the construction workforce for the LNG project, and (as set out in the 2010 Budget) wage growth may also be tempered by the utilisation of spare capacity in other countries as a result of the global

recession.<sup>18</sup> Pressure on wages over the regulatory period is also likely to be dampened by declining production in the petroleum sector, which is expected to decline by more than 50% between 2008 and 2014, due to the maturation of existing oil fields.<sup>19</sup>

The Commission has reviewed its proposed increase in wages in light of InterOil's submission and the recent information contained in the 2010 Budget. The Commission's view is that while in the short term (particularly 2010) real wages in the petroleum industry may increase by more than 2.5% per annum, over the course of the 5 year regulatory period this provides a reasonable assumption for wages growth.

#### **4.4.7.4. Rolling forward the RAB**

##### ***Draft Decision on RAB roll-forward for current regulatory period***

The return on capital element of the building block approach requires the Commission to determine both an appropriate asset value and an appropriate rate of return that can be applied to that asset value. The return of capital, or depreciation, is also derived from this asset value.

The asset value used in the building blocks is known as the regulatory asset base ("**RAB**"). The RAB represents the value of past capital investments for pricing purposes. The companies earn a return on their capital investments via the application of a regulated rate of return (known as the weighted average cost of capital, or "**WACC**") to the RAB.

In the 2004 Final Report, the initial RAB was set at a value reflecting the Commission's view of the 'economic value' of the infrastructure assets of the wholesale distribution companies operating in PNG at the time. This 'economic value' refers to the future income that the infrastructure can be expected to generate over its lifetime, and will not necessarily coincide with the accounting or historical book value of the assets. The opening RAB for the 2004 Final Report was determined by using the market valuation provided by the sale of BP's assets to InterOil as a benchmark for assessing the future economic value of the wholesale distribution companies.<sup>20</sup>

The standard roll-forward formula used to calculate the RAB is as follows:

$$\begin{array}{r} \text{Opening value at the start of the year} \\ + \\ \text{Capital expenditure (additions to the capital base)} \\ - \\ \text{Depreciation and disposals of assets} \\ + \\ \text{Indexation of the asset base to maintain its real value in nominal terms} \\ = \end{array}$$

<sup>18</sup> 2010 Budget, Volume 1, pp.135-144

<sup>19</sup> 2010 Budget, Volume 1, p.147

<sup>20</sup> For more detail on the determination of the opening RAB see ICCC (2004), Petroleum Industry Pricing Review Final Report, August, pp.23-26

Closing value at the end of the year.

This formula can be applied for each year of the regulatory period to determine the opening value for the RAB at the beginning of the next period (notionally 1<sup>st</sup> January, 2010 but adjusted as described further below). The indexation adjustment is used to ensure that the RAB is expressed in nominal terms (that is, it has no impact on the real value of the RAB).

In its 2004 Final Report, the Commission calculated an opening value for the RAB of K49.8 million for the industry in 2005. The roll-forward RAB was based on the companies' forecasts of capital expenditure and depreciation, and the Commission's expectations of inflation, resulting in a forecast closing value in 2009 (and therefore, opening value in 2010) of K105.9 million.

However, applying the roll forward approach at the present time results in a RAB of K95.0 million. The key reason for this appearing to be lower than the 2010 RAB forecast in 2004 is that actual inflation has been significantly below the 10% expected by the Commission. Capital expenditure rolled into the RAB over the period is somewhat higher than forecast, due to the additional expenditure undertaken by Islands Petroleum and NOC that was not taken into account at the time of the 2004 Final Report. Therefore, the opening value of the RAB for 1<sup>st</sup> January, 2010 is actually slightly higher than expected in real terms.

Table 11 sets out the current period's capital expenditure for the entire wholesale distribution industry as projected at the 2004 Final Report, and the actual capital expenditure reported by the businesses.

**Table 11: Comparison of industry forecast and actual capital expenditure (K million, real 2009)**

	2005	2006	2007	2008	2009	Total
Forecast	12,630	12,446	10,560	9,431	8,829	53,895
Actual	10,564	8,928	14,084	13,669	15,911	63,155
Difference	-2,065	-3,518	3,524	4,238	7,082	9,261

As discussed above, in the Draft Report (and in this Final Report) the Commission adopted the approach of determining prices in the forthcoming regulatory based on InterOil's expenditures. In the Draft Report the Commission adopted the following approach:

- the combined economic value of InterOil and Shell's assets was used to determine an opening RAB of K37.5 million as at 1<sup>st</sup> January 2005;
- this value was then rolled forward using the 2005 and 2006 capital expenditure forecasts of Shell and InterOil made for the purposes of the 2004 Final Report (this approach was taken rather than using actual capital expenditure, as the Commission does not have access to 2005 and 2006 capital expenditure by Shell. Additionally, InterOil has advised that Shell minimised its new capital expenditure prior to the sale to InterOil); and

- o actual capital expenditure reported by InterOil for 2007, 2008 and 2009 was used to determine a closing value in 2009 (and hence opening value at 1<sup>st</sup> January 2010) of K74.3 million.<sup>21</sup>

Table 12 below summarises the process used by the Commission in the Draft Decision to determine the opening RAB for InterOil for the next regulatory period.

**Table 12: Draft Decision on roll-forward of InterOil RAB – current period (K'000, nominal)**

	2005	2006	2007	2008	2009
Opening value	37,491	45,505	51,441	56,065	65,496
Capex/additions	9,368	9,278	6,787	6,977	9,110
Depreciation	3,327	3,654	3,982	4,270	4,518
Indexation	1,973	312	1,818	6,724	4,194
Closing value	45,505	51,441	56,065	65,496	74,282

***Draft Decision on roll-forward for next regulatory period***

The return earned by the businesses on capital infrastructure over the next regulatory period is determined by multiplying the RAB in each year by the WACC. In order to determine the RAB for each year of the regulatory period, the Commission must include new capital expenditure undertaken, subtract depreciation of new and existing assets and index these values to ensure the RAB maintains its real value.

As noted above, the Commission has decided to use the data provided by InterOil to calculate the wholesale margin. In rolling forward InterOil's RAB in the Draft Report, the Commission did not make any adjustments to InterOil's capital expenditure and depreciation forecasts other than to apply the weighting factors provided by InterOil to separate capital expenditure related to regulated products from that related to unregulated products and services.

InterOil advised that the majority of its capital expenditure over the next period is driven by the need to upgrade and renew terminal and depot facilities across its network. While substantially higher (around 60%) than the capital expenditure undertaken over the last period, the Commission's took the view in its Draft Report that InterOil's forecasts are not unreasonable in the context of its expanded operations and the need to refurbish its assets.

In the Draft Decision the Commission noted that the depreciation forecasts provided by InterOil were higher than those that would be calculated from a straight-line depreciation of its existing and new infrastructure based on the average lives of new and existing assets also provided by InterOil. The impact of applying a more 'aggressive' depreciation profile is to provide for higher prices in the short term by running down the value of the RAB more quickly. However, this will be balanced in the longer term by relatively lower price increases that result from having a lower RAB from which to earn a return on (assuming that all other factors remain within the projections of the Commission).

<sup>21</sup> Given that the Commission does not have access to data from Shell for 2005 and 2006, the capital expenditure forecasts from the 2004 review were used in these years.

Table 13 shows the roll-forward calculation for InterOil's RAB made in the Draft Report in nominal terms, based on the Commission's inflation assumption of 10% per annum.

**Table 13: Draft Decision on roll-forward of InterOil RAB – next period (K'000, nominal)**

	2010	2011	2012	2013	2014
Opening value	74,282	93,723	112,004	123,618	135,597
Capex/additions	19,834	18,347	11,454	12,000	13,200
Depreciation	9,277	10,901	12,224	13,666	15,274
Indexation	8,884	10,835	12,384	13,645	14,983
Closing value	93,723	112,004	123,618	135,597	148,506

### ***Submissions on the Draft Report roll-forward of the RAB***

The Commission received submissions from InterOil, Mobil and Islands Petroleum on the approach taken to roll-forward the RAB in the Draft Report.

Islands Petroleum stated that the original setting of the industry RAB was flawed because the sale price of BP and Shell assets was lower than the true market value due to the eagerness of these companies to exit the market.

Mobil re-stated the position outlined in its submission to the Issues Paper, which was that the RAB should be re-valued based on the current market values of the businesses' assets.

InterOil also proposed that the Commission should re-value the assets of the businesses, because an investment should be appreciating over time, particularly in the context of the WACC methodology applied by the Commission. InterOil proposed three different methodologies for re-valuing the RAB:

- re-calculating the value of the opening RAB for 2007 based on an independent market valuation of Shell's assets undertaken in 2006 and rolling this value forward to 2010;
- re-valuing the opening value of the RAB for 2009 based on the replacement costs of assets as determined for insurance purposes, then rolling this value forward to 2010; or
- re-valuing the opening value of the RAB for 2010 based on the historical cost or book value of assets. This was InterOil's preferred methodology.

For each methodology, InterOil then performed its own roll-forward calculation which broadly follows the methodology used by the Commission, with the exception of the depreciation rate, the application of indexation, and an allowance for working capital.

In relation to depreciation, InterOil suggested that it should be calculated based on a 15 year asset life.

In relation to working capital, both Mobil and InterOil disagreed with the Commission's assertion in the Draft Report that the allowance for a return on stocks should be sufficient to cover working capital requirements. InterOil provided a calculation of its overdue receivables as at October 2009 to demonstrate this requirement. This amount

was then escalated at 2.5% per annum (in line with the Commission's proposed increase in sales volumes) to obtain an overdue debtors amount for each year of the next regulatory period. The WACC was applied to these amounts to determine the working capital allowance revenue requirement for each year of the period.

### ***Commission response on RAB issues***

This section sets out the Commission's response to the issues raised by the businesses. It is necessary to firstly address some of the issues related to whether or not it is appropriate to re-value the asset base at a high level. Following this, technical issues concerning the approach to depreciation, indexation, working capital and drum filling costs are considered.

#### ***Re-valuing the RAB***

As noted above, the Commission has elected to roll-forward, rather than re-value the RAB. This is standard regulatory practice, both for the Commission and regulators internationally and examples of regulators revaluing the assets of regulated businesses for price control purposes are few and typically applied where assets are privatised and prior government control has severely undervalued the asset base in prices. This situation is not before the Commission as the businesses are privately owned and run, and have been for some considerable time.

One of the key objectives of the building-blocks approach to regulation applied by the Commission to the petroleum industry is that prices charged to customers should reflect the costs of servicing those customers. That is, prices should allow businesses to recover the cost incurred in operating and maintaining their assets, a commercial rate of return on past and future investments and the recovery of invested funds over time (through a regulatory depreciation allowance).

The value of the RAB is an input in setting prices for the regulated businesses and is different to the value that the businesses may adopt for accounting purposes. There are a wide range of approaches to setting the initial RAB that are consistent with principles of economic efficiency. The initial RAB set by the Commission in 2004 was based on the sale price of BP's assets prior to the 2004 Final Report, which provided the Commission with an implied value of the businesses assets in terms of the future returns that they could be expected to generate.

Despite the exit of Shell from the market, the Commission is of the view that the initial RAB set in 2004 has allowed the businesses to earn an appropriate rate of return over the current regulatory period. Therefore, the Commission remains of the view that the initial RAB set in 2004 was an appropriate representation of the value of the industry's assets at that time for the purposes of setting prices and is consistent with the requirements and objectives of the regulatory framework. In particular, the Commission's approach covers the regulatory principles under Section 21(2A) of the PR Act.

The approach taken by the Commission to setting the initial RAB in 2004 is known as the 'line in the sand' approach. Under this approach the regulator sets the RAB at a level that it considers reflects the economic value of investments in capital infrastructure by the businesses up until that time. Future prices will then reflect a return on these past investments, and future operating and capital investment decisions made by the businesses.

There are a number of reasons why the initial valuation of the RAB should not be revisited at subsequent pricing decisions (other than by adding new capital expenditure and subtracting depreciation and asset disposals):

- it ensures that future prices fully reflect the costs of any future capital investments made by the businesses;
- it provides greater certainty and stability in prices for consumers;
- it provides certainty for regulated businesses that their returns will not be susceptible to exogenous events over which they have no control, such as changes in real construction costs or changes in confidence levels in investment markets; and
- in many cases it provides certainty for regulated businesses that they will still be able to recover a return on their investments even if their assets become 'stranded' either by technological change or different physical supply arrangements.<sup>22</sup>

The Commission therefore does not consider it appropriate for prices to customers and returns to the businesses to be adjusted at future pricing reviews by revaluing the RAB.

In particular, re-valuing the RAB on the basis of the current market value of the businesses' assets as suggested by Mobil would be likely to result in significant fluctuations in prices faced by customers, which would not necessarily reflect the costs of providing services. The Commission does not consider that subjecting customers to price fluctuations based on changes in the market value of past investments by businesses is consistent with its objectives, or the regulatory principles under Section 21(2A) of the PR Act.

InterOil's statement that an investment should be appreciating over time does not make sense in the context of the RAB methodology for allowing regulated businesses to earn a regulated return on and of their capital investments. The inflation indexation adjustment applied by the Commission in rolling forward the RAB ensures that it retains its value in real terms (that is, it is not eroded by inflation). InterOil's statement suggests that without making any future investments in capital infrastructure, the real value of the RAB should be increasing over time. This would have the impact of subjecting customers to increases in price above and beyond CPI, and increasing the return on initial investment for InterOil, without any actual capital investments for servicing those customers being made.

### ***Depreciation***

Depreciation is an input into the revenue requirement of the businesses. The depreciation amount in any year is recovered from customers through prices – that is, higher depreciation in any year leads to higher prices. However, depreciation also serves to reduce the RAB, which reduces the return made by businesses in terms of the regulated rate of return that is applied to the RAB. This second influence serves to reduce returns over the longer term, and does not have a significant impact on prices in the short term.

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<sup>22</sup> Essential Services Commission (Vic), Regulatory Asset Values, March 2005

The key outcome of these opposing impacts is that the rate of depreciation does not impact the total amount of revenue recovered over time, it only changes the timing of cash flows. A high rate of depreciation now will tend to increase prices in the short term (by increasing the revenue requirement), but reduce prices over the long term (by reducing the RAB). In the extreme, the increase in the depreciation rate (such that the life for depreciation purposes is much less than the economic life), results in the return on assets falling to zero, even where the asset is retained in service. Such distortion makes prices higher for current customers and quite small for future customers and reduces the incentives for the businesses to invest at the end of the economic life of the assets. This 'intergenerational' distortion is counter to the principles in Section 21(2A) of the PR Act.

In the Draft Report, the Commission proposed to accept InterOil's initial forecast of depreciation. The only adjustment made by the Commission was to convert what it assumed to be real figures into nominal values by applying the Commission's assumed rate of inflation. This does not change the actual amount of depreciation, but simply ensures that the numbers are in nominal terms, consistent with the rest of the building blocks.

In its response to the Draft Report, InterOil proposed an alternative methodology for calculating the amount of regulatory depreciation for the next period which would essentially involve deducting a constant proportion (6.66%) of the opening balance plus any additions in each year of the period. This was proposed as being reflective of a blended depreciation rate over 15 years.

InterOil's method results in three different depreciation paths (depending upon which of InterOil's RAB re-valuation methodologies is used), two of which are lower than the depreciation proposed by the Commission in the Draft Report, and one of which is higher. The depreciation profile associated with InterOil's preferred re-valuation of the RAB (the historical cost model outlined above) would result in depreciation being slightly lower than proposed by the Commission in the Draft Report.<sup>23</sup>

Given that the removal of volumes and costs related to large contract customers from the calculation of the wholesale margin places significant upward pressure on prices, the Commission has decided to recalculate InterOil's depreciation profile based on the average remaining lives of new and existing assets provided by InterOil. Applying a straight-line depreciation profile spreads the cost of the asset evenly over its useful life.

Table 14 sets out the Commission's revised calculation of depreciation for InterOil. This is based on an average remaining life of 15 years for both new and existing assets, in accordance with InterOil's proposal that a blended rate of 15 years should be used.<sup>24</sup>

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<sup>23</sup> This assessment is based on the numbers provided by InterOil in modelling to support its submission to the Draft Report. The numbers for the third RAB re-valuation methodology differ in InterOil's written submission.

<sup>24</sup> InterOil submission to Draft Report, December 2009, p.9

**Table 14: Depreciation profile (K'000, nominal)**

	2010	2011	2012	2013	2014
Draft Report (InterOil submission adjusted for inflation)	9,277	10,901	12,224	13,666	15,274
InterOil revised submission (preferred RAB re-valuation option)	7,039	8,599	9,944	11,138	12,443
Final Decision (straight-line depreciation based on asset lives of 15 years for existing and new assets)	6,002	7,831	8,460	10,079	11,779

These asset lives are slightly higher than, but broadly consistent with those proposed by the other wholesale businesses, and are considered appropriate by the Commission.

### ***Indexation***

There appears to be some confusion amongst the businesses as to the implications for building up the revenue requirement in nominal, as opposed to real, terms.

When values are expressed in nominal terms, this means that they are expressed in the 'kina of the day' - 2010 values are expressed in 2010 kina, 2011 values are expressed in 2011 kina, and so on. Expressing future values in nominal terms requires making assumptions about inflation of the kina from year to year. When values are expressed in real terms, this denotes that they are being expressed as relative to some base year. For example, if the base year is 2009, real values for 2010, 2011 and so on, would be expressed in constant 2009 kina. When considering real values, it is not necessary to apply any assumptions about inflation (unless the base year is not the current year).

InterOil has advised that it has not allowed for any inflation in providing forecasts of its operating and capital expenditure requirements over the next regulatory period.<sup>25</sup> This means that these values are expressed in real terms, with an implicit base year of 2009. That is, InterOil's forecasts are presented in real 2009 kina. In order to convert these forecasts into nominal terms, the Commission has applied an assumed rate of inflation of 10% per annum to the figures provided by InterOil.

Indexation is the term used to describe the process of converting real kina to nominal kina, or vice versa. It has no impact on the underlying real value of the revenues and expenditures of the businesses.

### ***Working capital***

Both Mobil and InterOil requested that the Commission make a specific allowance for working capital requirements in the calculation of the wholesale margin.

InterOil made the following comments in response to the Draft Report:

<sup>25</sup> InterOil submission to Draft Report, December 2009, p.7

*InterOil's payables need to be made within 30 days or less; however, to operate in PNG the credit terms provided to customers typically average in excess of 30 days... The working capital required to maintain these overdue receivables would not be covered by return on inventory as provided in the ICCC model.<sup>26</sup>*

InterOil calculated the additional revenue requirement to cover working capital requirements to maintain its overdue receivables by calculating its overdue receivable (less 20% to exclude mining and inter-industry) for each year of the next regulatory period, and applying the WACC to this value. The following table sets out the additional revenue requested by InterOil to meet its working capital requirements.

**Table 15: Depreciation profile (K'000, nominal)**

	2010	2011	2012	2013	2014
InterOil proposed working capital requirement	8,489	9,572	10,792	12,168	13,719

*Source: InterOil forecasts (adjusted for inflation at 10%pa).*

While the Commission notes the submissions of the businesses on this issue, it considers that it is important that businesses have commercial incentives to recover outstanding amounts promptly rather than being able to recover holding costs through higher prices. Further, the Commission is of the view that the costs of delayed payments from major customers should not be passed on to smaller customers through a higher wholesale margin. The Commission notes that based on the figures provided by InterOil, a significant proportion of outstanding operational debt relates to major customers (around 39%).

The Commission therefore does not support InterOil's proposal for a return on overdue accounts to be included in the wholesale margin.

### ***Drum filling***

InterOil also confirmed to the Commission that its original cost template included the costs of drum filling along with other wholesale distribution costs. As a result, in the Draft Decision the original wholesale margin calculated by the Commission inadvertently double counted the costs of drum filling by including them in the wholesale margin calculation as well as providing for a separate drum filling margin. In order to correct this error, in this Final Report the Commission has removed the revenue from drum filling costs from the wholesale margin revenue requirement calculation. The impact of this is a small reduction in the wholesale margin (of 0.8%).

#### **4.4.7.5. Stocks**

In addition to a return on the RAB, the Commission considers it reasonable that the wholesalers earn a return on their fuel stocks, reflecting the costs and value associated with holding stocks of fuel products. The rate of return applied by the Commission is the same as that for the RAB (i.e. the WACC).

Table 16 sets out InterOil's projected holdings of prescribed stocks (petrol, diesel and kerosene) for the next regulatory period. The return on stocks required for each year is calculated by multiplying that years holding by the corresponding value of stocks, and

<sup>26</sup> InterOil submission to the Draft Report

then multiplying that value by the WACC. This methodology is consistent with that used in the 2004 Review.

In the Draft Report, the Commission made an error in calculating the required return on stocks in applying the inflation adjustment to the per litre value of stocks. This has been amended for the calculation of the wholesale margin in the Final Report. The impact of this amendment is to decrease the wholesale margin by a small amount (of 0.2%).

**Table 16: InterOil projected fuel stockholding – petrol, diesel and kerosene (monthly average, Litres'000)**

	2009	2010	2011	2012	2013	2014
Forecast	39,721	40,800	41,000	41,000	41,000	41,000

#### 4.4.7.6. Rate of return

Having determined the RAB to apply over the regulatory period commencing 1<sup>st</sup> January 2010, an appropriate return on capital needs to be calculated. This return is multiplied by the asset base to determine the minimum required revenue to meet the cost of capital of the oil companies.

The return on capital or weighted average cost of capital (“**WACC**”), as referred to in most finance literature, represents the opportunity cost of capital to the regulated business and therefore should be set at a level that is deemed to adequately compensate the wholesalers for providing petroleum products. The WACC methodology has been developed from the capital asset pricing model (“**CAPM**”) to form a reasonable basis for regulatory cost of capital and is designed to calculate the minimum rate of return required by providers of debt and equity to allow the regulated business to operate as a wholesaler of petroleum products.

#### Determination of WACC

The standard approach used by the regulators to calculate an appropriate return is to use a WACC using a cost of equity established from the CAPM. The formula for the WACC is as follows;

$$\text{WACC} = R_e * E/V + R_d*(1-T)*D/V \quad (1)$$

where:

- R<sub>e</sub> = return on equity
- R<sub>d</sub> = return on debt
- T = tax rate
- E = market value of equity
- D = market value of debt
- V = market value of debt plus equity (D + E)

The return on debt (R<sub>d</sub>) is calculated by adding a debt margin to the risk-free market rate.

$$R_d = R_f + DM \quad (2)$$

where:

- $R_f$  is the risk free market rate; and
- DM is the debt margin

The return on equity ( $R_e$ ) as indicated in the above WACC formula is derived by using the well accepted CAPM and the formula is outlined below;

$$R_e = R_f + \beta_e \times (R_m - R_f) \quad (3)$$

where:

- $R_f$  is the risk free rate measured from an international reference point and adjusted to that of an investment within PNG;
- $\beta_e$  (equity beta) is a measure of correlation between an business's risk and that of the overall market;
- $R_m$  is the market rate of return expected in PNG; and
- $R_f$  is the risk free rate in PNG

The risk free rate ( $R_f$ ) is calculated from an international reference point as follows;

$$R_f = [(1 + R_f)/(USA_{CPI}) \times (1 + PNG_{CPI}) \times (1 + CRP) - 1] \quad (4)$$

where;

- $R_f$  is the risk free rate in USA;
- USA CPI is the inflation rate in USA;
- PNG CPI is the inflation rate in PNG; and
- CRP is the country risk premium assigned for PNG.

According to the CAPM formula, the return on equity for a particular business is derived by adding the international risk free rate to the product of the equity beta and the Market Risk Premium (i.e. difference between the market return and the risk free rate within PNG). The margin, that is the equity beta ( $\beta_e$ ), reflects how risky a business is relative to the overall market.

The Commission prefers using the Monkhouse formula as shown below to calculate the equity beta.

$$\beta_e = \beta_a + (\beta_a - \beta_d) \times \left( 1 - \frac{R_d}{(1 + R_d) \times t} \right) \times \frac{D}{E} \quad (5)$$

Where  $\beta_a$  is the correlation between return to assets of the business and the market (known as asset beta) and  $\beta_d$  is the correlation between the return to debt and the debt generally in the market (known as debt beta).

Given the above equations for the calculation of the WACC, the Commission has to decide on the range of parameters used in the WACC calculation. These include:

- Risk Free Rate;
- Inflation;
- Country risk premium;
- Debt margins;
- Taxation rate;
- Market risk premium; and

- Gearing ratio.

The Commission has sought external assistance from PricewaterhouseCoopers (“PwC”) for an estimate of the cost of capital applicable to petroleum industry. The discussions below include consideration of PwC’s recommendations as well as Commission’s own analysis on the variables.

### ***Risk free rate***

The risk free rate of return represents the rate of return on a security, or portfolio of securities, that has no default risk and is not correlated with returns on other assets in the economy. The general accepted approach by regulators is to use the yield from certain long term government securities to generate an estimate of the risk free rates. These instruments are commonly-accepted as the lowest risk debt instrument observable within that particular economy, and as a result are viewed as reasonable proxies for a ‘risk free’ rate of return.

Due to the lack of an appropriately traded government bond in PNG, the Commission in the 2004 review used the 10-year US government bond rate plus an allowance for country risk premium and an adjustment for the difference between US and PNG Inflation to arrive at an estimate of the risk free rate of return within PNG. The Commission has decided to adopt a similar approach for this review.

The formula (4) above is used to estimate the risk free rate. As indicated in the formula, the US risk free rate is used as an initial proxy to determine the international risk free rate. Consistent with the 2004 review, the Commission has used a yield from a US\$ bond in the USA with a 10-year term to maturity as a proxy to calculate the risk free rate for purpose of determining the WACC for the forthcoming regulatory period. Adjustments to remove average USA inflation and to add back PNG inflation are made, and the country risk premium is applied to reflect sovereign risks associated with investments within PNG. Mobil made the following comment in relation to the yield on 10 year US government bonds:

*The current 10 year bond rate is artificially low because of the global financial crisis and the original figure of 4.45% should be used by the commission as a more representative rate.*

The Commission acknowledges that there has been downwards pressure on US\$ bond yields as a result of the GFC and the slow recovery by the markets since early 2009. In its report PwC highlighted the low liquidity of government bonds with tenors of 30 years, and its preference to use 10 year government bonds rather than 5 years government bonds. PwC notes 10 year government bonds have recently been reaffirmed as being the source for estimates of the risk free rate by the Australian Energy Regulator (“AER”)<sup>27</sup>. PwC noted that the 40 day average yield was 3.53%, and the 20 day average yield was 3.73%. Following consideration of the information available to it, the Commission has adopted the higher value of 3.73% as the risk free rate in the USA, which has then been adjusted for inflation differences and Country Risk Premium to arrive at a risk free rate estimate for the PNG of 15.50% pa nominal. The considerable increase is reflective of the risk profiles of the USA and PNG.

<sup>27</sup> AER, Statement of Revised WACC Parameters (Transmission), May 2009.

## **Inflation**

As indicated above, the return on equity is calculated by the CAPM formula and requires the input of a risk free rate as shown in the formula (4) above. This in turn requires estimates of the USA inflation and PNG inflation rates. Therefore, an estimate of PNG inflation is required to alter the adjusted yields on 10 year US treasury bonds to better reflect PNG market conditions, and the expected risk free rate within PNG.

In deriving an estimate of inflation for PNG, the Commission has assessed the inflation forecast in the Central Bank's March 2009 Monetary Policy Statement.<sup>28</sup> The Commission notes from that Monetary Statement that actual inflation for the previous year's corresponding to those released by the National Statistical Office were similar but with minor variances. In addition, the Commission notes that the inflation forecasts derived by Bank of PNG have three classifications which include headline, trimmed-mean and exclusion based. While there has previously been a difference between these indicators, the forecasts for 2010 and 2011 are the same for each of the classifications. Based on the information from the Monetary Statement, the Commission notes that the Bank of PNG has estimated inflation to be between 4% and 5% in the next two years.

Based on the historical inflation information and according to quarterly Consumer Price Index published by the National Statistical Office,<sup>29</sup> the annual headline inflation from 2005 to 2008 are as follows:

**Table 17: Historical inflation**

<b>Year ending 31 December</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>
Headline Inflation	4.5%	0.6%	3.2%	10.9%

As noted above, there is variability in the inflation rate over the previous years and it is difficult to estimate the inflation for the coming years. With the Liquefied Natural Gas ("LNG") project expected to commence at the end of 2009, there is possibility that this will bring inflationary pressure on the economy and may cause inflation to rise above 5% as predicted by the Bank of PNG. The Commission notes from the Mid Year Economic and Fiscal Outlook Report by the Department of Treasury<sup>30</sup> that inflation may rise by 6% to 7% without the LNG Project. Having considered the current level of inflation and the impact of LNG Project, the Commission expects inflation to rise by 10% annually over the forthcoming regulatory period. Further discussion on the potential impacts on inflation resulting from large infrastructure projects can be found in the Commission's recent Wholesale and Retail Industry Review report<sup>31</sup>.

## **Country Risk Premium**

Having estimated the inflation, the Commission has to estimate the country risk premium which will be applied to the newly derived US treasury securities yield that reflects PNG inflation. Country Risk Premium ("CRP") reflects risks inherent to investing in different sovereign territories. It is close to zero for most developed and stable countries, but can be substantially higher in emerging markets. Generally, it can be

<sup>28</sup> Monetary Policy Statement by the Governor of the Bank of Papua New Guinea, Port Moresby, March 31, 2009, pg.16

<sup>29</sup> National Statistical Office, December 2005, December 2006, December 2007 and December 2008 Quarterly CPI Publications

<sup>30</sup> Department of Treasury: Mid Year Economic and Fiscal Outlook Report: 2009, p, 8.

<sup>31</sup> ICC, PNG Wholesale and Retail Industry Review, Final Report, 12<sup>th</sup> October 2009, Section 3.11 on page 41.

attributed to variations in the degree of economic, political, financial and institutional stability in different countries.

This premium is added to the yield to reflect this additional sovereign risk for specific country, in this case, PNG. Where sovereign bond information is unavailable such as in the case of PNG, this would require determining the risk premium based on credit ratings approach.

A submission from Mobil made the following comment:

*Mobil is unsure how PwC or the Commission arrived at a CRP of 3%. What the range is and how the ICCC determined which part of the range to use is not disclosed in the Draft Report. Mobil still believes, through consultation with our Treasury Financial Analysts, that this is too low and a more representative figure is between 4.5% to 6.0%.*

The Commission was provided with a value of CRP from PwC of 5.3% for the first quarter of 2009 based on the country risk rating by the Economist Intelligence Unit (“EIU”) falling from BB to B. The methodology used by PwC to calculate the CRP is based on observed yield differences for long-term bonds denominated in US\$ and local currency, but offered in the one local market. This difference is correlated with country ratings measures by Moody’s, Standard & Poors and others, so that for countries without relevant traded bonds a CRP can be assigned statistically based on their country rating. This analysis is performed quarterly<sup>32</sup>. The difficulty in adopting point quarterly estimates of the CRP is that they are quite volatile over time (like all market measures such as yields). The Commission notes that the Energy Regulatory Commission of the Philippines is currently using a CRP of 1.9% in its WACC analysis for the electricity transmission business<sup>33</sup>.

The Commission has decided to continue to adopt 3.0% for the calculation of the cost of capital, as this is the long-term average number which has been used by the Commission since the first price review in 2004.

### **Debt Margin**

The debt margin is the margin above the risk free rate that is associated with debt. It is an estimate of the cost that an efficient business would expect to incur through financing capital investment through debt. It is also related to the current interest rates on corporate bond, the maturity of the debt on issues, the capital structure and the credit rating.

The Commission has stated in the Issues Paper that while the debt margin is an observable rate it is not readily available to derive this additional cost for investments within PNG and therefore decided to used benchmarking approach to determine the debt margin. In determining an appropriate debt margin for the petroleum industry for the next regulatory period, the Commission considers the current market information provided by PwC and its previous regulatory decision.

In estimating an appropriate debt margin, the Commission notes from InterOil’s submission to use 1.76% and from Mobil’s proposal to adopt 6.8% compared to the previous rate of 1.2% used in 2004. Having considered the regulatory decisions in other

<sup>32</sup> Ogier, T., Rugman, J., Spicer, L., The Real Cost of Capital, Refer to Chapter 6 notes at <http://www.costofcapital.net/index.htm>.

<sup>33</sup> This is the mean of 2 years of data (hence 8 data points) and has a standard deviation of 1.3% using 32 data points.

jurisdictions and the changes in the global financial markets, the Commission noted that the debt margins that were applied for regulatory decisions within Australia were relatively stable from 2002 to 2006. However, recent changes begun to reflect the changes in the credit market since 2007 with significant increases in regulatory approved debt margins. PwC suggested the impacts of the Global Financial Crisis (“GFC”) had seen the debt margin rise over the last three years in both the commercial and regulatory decisions. PwC suggested the debt margin be set at 3.14% pa.

As stated earlier that there is lack of observable corporate bond rates within PNG and the Commission therefore use Australian market information by using a benchmark credit rating of BBB+ and estimate a debt margin of 3.14%.

### **Taxation**

In deciding on the appropriate tax rate for the calculation of WACC for the current regulatory period, the Commission considered two options. These options were to apply either a statutory tax rate or a business effective tax rate. The Commission decided to use the statutory tax rate of 30% for the current regulatory period rather than the business effective tax rate as it considered that business effective tax rate is difficult to calculate and verify. For the forthcoming regulatory period, the Commission will consider whether to continue to use the statutory tax rate or to use the business tax rate.

### **Gearing Ratio**

In order to calculate the WACC, a gearing ratio needs to be determined to apply the appropriate weights within the WACC. Gearing ratio is the proportion of the total capital structure of a business in terms of debt and equity.

In estimating the gearing ratio for the current price path, the Commission examined international behaviour of major oil companies to establish the level of debts held by those companies in comparison to the total value of their business. This examination assisted the Commission in estimating the gearing ratio suitable for the oil companies in PNG the Commission examined the parent company accounts of the stakeholders operating in PNG, including Mobil and InterOil. But its examination of the level of debt the major international oil companies were holding in comparisons to their total value of the business, did not greatly assist the Commission and the major international oil companies operated in industry sectors which were outside the activities encompassed by the regulated goods and services under examination. For example, upstream oil/gas exploration and production are not part of the regulated industry sector. However, the Commission noted at that time that the debt funds held by major oil companies may be as low as 10% of the total value of the funds employed. Mobil made the following comment in response to the Draft Report:

*Mobil Oil New Guinea has a gearing ratio of 0%. Having operations only in PNG should not be a factor in determining this parameter. A more representative approach would be to average the gearing ratios or adopt a gearing ratio of 10%.*

InterOil made the following comment in response to the Issues Paper, and their comment applies to the refinery and downstream operations (excluding exploration and oil/gas production):

*The adopted gearing ratio of 25% to 75% equity is appropriate for the Downstream business. InterOil's overall gearing is 13% and OilSearch is similar.*

The Commission notes from submissions received from the oil companies that gearing ratio could be as low as zero and could be as high as 25%. PwC's analysis suggested gearing ratios between 0% and 17% for major oil / gas companies from data drawn from Bloomberg. The Commission is mindful that there are some wholesalers who have an overseas parent company and could have lower gearing ratio than those who have operations only in PNG and do not have an overseas parent company. As such, the Commission will reduce the gearing ratio from 25% to 10%, or around the mid-point of values submitted to it, for the forthcoming regulatory period.

Based on the Commission's own analysis and it adopted a gearing ratio of 10 percent debt to 90 percent equity for the current price path.

### **Market Risk Premium**

The market risk premium ("MRP") reflects the additional equity return over and above the risk free rate that an investor would expect to earn by holding a well-diversified portfolio of assets. The MRP is equal to the term  $(R_m - R_f)$  in the CAPM formula.

The derivation of a MRP reflects the circumstances in the equities market, and is difficult to estimate even for markets with many decades of pricing data (eg: US markets have more than 100 years of data). The market for equity in the PNG economy has limited analytical business coverage, has low a low volume of trading and remains immature. Hence the MRP is not readily apparent from the available data on the PNG markets. While there are some equity funds available in PNG, most of the equity funding is raised off shore. It is also important in this process to differentiate between the risk factors that may have been included in the derivation of the risk free rate when addressing the issue of the MRP. It would be inappropriate to double compensate for the country risk premium in both the derivation of the risk free rate and in the MRP.

The Commission received support from Mobil to use 6% and therefore based on the historical and recent MRP used by the regulators and well as the Commission's own decisions in its other pricing and regulatory reviews, the Commission will use the MRP of 6% in its calculation of the equity return to be used in the cost of capital calculation.

### **Summary of WACC parameters**

**Table 18: WACC Parameters**

<b>Inputs for Risk Free Rate</b>	<b>Value</b>
US risk free rate	3.73%
CRP	3.0%
PNG Inflation	10.0%
US Inflation	1.75%
Debt Margin	3.14%
MRP	6.0%
Effective Tax Rate for Equity	30.0%
Effective Tax Rate for Debt	30.0%
Gearing	10.0%
Gamma	0.0%
Equity Beta	0.894

<b>Calculating International Risk Free Rate</b>	
1 + Risk-Free Rate	1.037
1 + US Inflation	1.018
1 + PNG Inflation	1.100
1 + CRP	1.030
International Risk-Free rate (nominal)	15.50%
<b>Calculating the WACC</b>	
Post-Tax Nominal Return on Equity	20.86%
Post-Tax Real Return on Equity	9.88%
Pre-Tax Nominal Cost of Debt	18.64%
Pre-Tax Real Cost of Debt	7.85%
Nominal Vanilla WACC	20.64%
Real Vanilla WACC	9.67%
Post-Tax Nominal WACC	20.08%
Post-Tax Real WACC	9.17%
Pre-Tax Nominal WACC	28.69%
<b>Pre-Tax Real WACC</b>	<b>16.99%</b>

The end result of the calculation of the WACC is shown in the above table. The Commission will use a pre-tax real WACC of 16.99% for the estimate of the return on capital in the building block formula for the coming regulatory period.

#### 4.4.8. Revenue requirement, per litre margin and X factor

The building blocks set out above provide the basis for the Commission's calculation of a revenue requirement for an efficient wholesale distribution business operating in PNG. As noted, the Commission used the data provided by InterOil as the basis for determining the wholesale margin and, after considering the submissions made by stakeholders to the Draft Report, the Commission made a number of amendments to the calculation of the wholesale margin for the next regulatory period:

- reducing sales volumes to exclude large contract customers;
- reducing operating and capital expenditure to exclude large contract customers;
- revising demand upward given the exclusion of mining and inter-industry customers;
- removing revenue requirement related to drum filling costs;
- a revised depreciation calculation, using a straight line methodology based on 15 year average asset lives; and
- an amendment to correct an error made by the Commission in the Draft Report concerning the return on stocks.

**Error! Reference source not found.** Table 19 and Table 20 **Error! Reference source not found.** set out the revised building blocks and prescribed price path for the wholesale margin respectively for the next regulatory period. The decrease in revenue requirement and increase X factor from the Draft Report primarily reflect the exclusion of volumes and costs related to large contract (mining and inter industry) customers. These tables are directly comparable to the Draft Report in that the start of the regulatory period is assumed to be 1<sup>st</sup> January 2010. The section below discusses the impact on revenues and changes required to accommodate the late start of the regulatory period, currently scheduled to be 1<sup>st</sup> November 2010.

As proposed in the Draft Decision, the Commission decided to apply a smoothed price path to the margin, which results in constant small real increases over the period to the margin.

**Table 19: Final Report wholesale distributor revenue requirement (K'000, nominal)**

	2010	2011	2012	2013	2014
Operating expenditure	59,039	67,078	75,850	84,186	93,450
Depreciation	6,002	7,831	8,460	10,079	11,779
Return on fixed assets (pre tax)	14,117	17,402	20,161	22,518	24,979
Return on stocks	13,326	15,120	16,855	18,541	20,395
Total	<b>90,236</b>	<b>105,115</b>	<b>118,960</b>	<b>132,906</b>	<b>148,137</b>

**Table 20: Final Report prescribed price movement in wholesale margin before adjustment (toea per litre)**

	2009	2010	2011	2012	2013	2014
Current margin	26.7					
Annual adjustment		CPI + 2.0%	CPI + 2.0%	CPI + 2.0%	CPI + 2.0%	CPI + 2.0%

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

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

Where:

*CPI* means the underlying Consumer Price Index (excluding alcoholic drinks, tobacco and betel-nut) published by the National Statistical Office

Year <sub>t</sub> is the year for which wholesale margin is being set;

Year <sub>t-1</sub> is the previous regulatory year;

Year <sub>t-2</sub> is the regulatory year two years previous; and

Year <sub>t-3</sub> is the regulatory year three years previous.

The Commission has previously arranged with the PNG NSO for the provision of the underlying CPI figures to the industry, and this has been delivered on a regular basis.

The Commission will confirm to the industry no later than the 15<sup>th</sup> day of December each year the new margin for wholesaling and drum filling to take effect from the 8<sup>th</sup> day of the new year consistent with the Commission's monthly price announcements done on the 8<sup>th</sup> day of each month. 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.

#### 4.4.9. X factor adjustment for delayed start to price cap change

The Commission calculated the X Factor of positive 2.0%, on the assumption the price cap would be implemented on 1<sup>st</sup> January 2010.

Because of delays in the development of the Final Report, the practical commencement date for the new price cap arrangements has been set as 1<sup>st</sup> November 2010. In order to accommodate this slippage, the Commission estimated the resulting revenue shortfall from the application of the current negative 1% X Factor being applied monthly from 1<sup>st</sup> January 2010 to 30<sup>th</sup> September 2010. It then revised the revenue path for the remaining period to 31<sup>st</sup> December 2014, and applied the same smoothing calculation on a Net Present Value (“NPV”) basis to arrive at the X Factor which could be applied for the period commencing 1<sup>st</sup> November 2010.

The Commission thus has determined that the X Factor to apply for the remainder of the regulatory period from 2010 to end 2014 shall be positive 2.4% which is slightly higher than the annual analysis presented in section 4.4.8 above, to accommodate the commencement of the new X Factor from 1<sup>st</sup> November 2010, rather than the 1<sup>st</sup> January 2010. The table below provides the summary of the Commission’s Final Decision on the X Factor for the wholesale margin.

**Table 21B: Final Report prescribed price movement in wholesale margin after adjustment (toea per litre)**

	2009	2010	2011	2012	2013	2014
Current margin	26.7					
Annual adjustment		CPI + 2.4%	CPI + 2.4%	CPI + 2.4%	CPI + 2.4%	CPI + 2.4%

The Commission therefore confirms its position on this matter.

**Decision 2B: The Commission determines that the wholesale margin will be adjusted using a CPI+X price path over the next regulatory period and the X Factor from 1<sup>st</sup> November 2010 will be positive 2.4% (so CPI+2.4%).**

## 4.5. Domestic freight – sea transport

### 4.5.1. Background and current regulatory arrangements

Transportation of fuel products by sea is an important component of the cost-build up of the final retail prices. While it only represents around 4 to 5% of the retail price of diesel in Port Moresby it is significantly higher in the more remote locations.

In its 2004 Final Report, the Commission adopted a form of regulation under Section 32A which was based on a number of assumptions about how freighting of products from Napa Napa and other ports would actually occur. Key amongst the assumptions were:

- in order to ensure efficient costs, wholesalers would enter into a joint shipping arrangement with a charter operator to transport products from Napa Napa in a

medium range tanker (MRT) to the main ports of Lae, Madang, Rabaul and Kimbe; and

- o a local coastal trader (LCT) would be jointly chartered to operate from Lae and Rabaul to send products to outlying ports.

Based on this arrangement, the Commission established a price monitoring regulatory arrangement for sea freight which effectively provides a pass through of sea freight costs within certain constraints. The Commission's model provides for:

- o a common set of freight costs for Lae, Rabaul, Madang and Kimbe based on an average cost per litre across the four ports;
- o freight costs to outlying ports to be based on a cost reflective charge for each port, with no averaging;
- o freight costs for Port Moresby to be based on actual cost to serve; and
- o freight costs to be established separately for each product.

The Commission's rationale for setting common prices across the main ports (excluding Port Moresby) in part recognised the requirement of the Project Agreement that all products be sourced from Napa Napa. Setting separate freight costs for outlying ports recognised historical precedent whereby sea freight to these ports had traditionally reflected actual costs.

Initial sea freight charges were estimated in 2004 as follows:

**Table 22: Initial sea freight charges**

Port	Petrol (tpl)	Diesel (tpl)	Kerosene (tpl)
Port Moresby	2.06	2.38	2.19
Lae, Madang, Rabaul, 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

Under the Commission's price monitoring approach the oil industry has been required to submit the MRT and LCT charter rates at the end of each quarter for the Commission to review. The quarterly review essentially involves a reconciliation of estimated against actual costs incurred and product volume over the quarter. If the assessment indicates that there is either an over or under recovery of freight costs, then the forward rates are adjusted for this over or under recovery and are applied for the next quarter. The new freight rates arrived at as part of this reconciliation process apply to all ports for the next quarter and these rates form part of the final cost-build up and are passed to the customers.

However, as discussed earlier current sea freight arrangements are quite different to those assumed in 2004. The Commission understands the current situation to be:

- o InterOil runs an MRT (the Northern Contender) out of Napa Napa to serve the main ports and, since mid 2009, has operated an LCT (the Ipsilantis) from Napa Napa to the smaller ports;

- The lease on InterOil's MRT expired in January 2010, at which point it was replaced by a smaller vessel. InterOil has indicated that this is necessary due to berth works at Lae preventing larger vessels from docking;
- Mobil has its own MRT vessel which it uses to import products directly into Port Moresby, Lae, Madang and Rabaul. It also charters a LCT (the Lukianos) to move some of its fuel from Napa Napa to supply smaller ports where it operates;
- NOC imports diesel to Lae but uses the InterOil chartered MRT from Napa Napa to obtain petrol and kerosene; and
- Rather than LCTs operating from the main ports to serve the smaller ports as originally envisaged, they operate directly from Napa Napa.

The Commission currently receives sea freight data separately from both InterOil and Mobil. The costs, on a per litre basis, differ for the different ports, with InterOil being more expensive in some ports and Mobil more expensive in others. For the purpose of estimating benchmark wholesale and retail prices, the Commission generally only has regard to InterOil's costs.

#### **4.5.2. Key principles for establishing sea freight regulatory arrangements**

The issues around the need for, and form of regulation, of sea freight charges are complex and many matters need to be considered. Several these relate in some way to the Project Agreement, its enforcement, and whether the Project Agreement may change in future.

A key principle for any regulatory arrangements is that they must be consistent with the Project Agreement. It is not the Commission's role to enforce the Project Agreement and its compliance is clearly a matter for the Government to pursue. If parties act outside the requirements of the Project Agreement ultimately the Commission cannot prevent this. However, the Commission considers that the regulatory arrangements should not encourage or provide incentives for parties to breach the Project Agreement.

Another key principle is that the regulatory arrangements should, as much as possible, encourage the provision of sea freight on an efficient, least cost basis. The Commission is concerned that at present wholesalers can take extremely risk averse positions – such as chartering multiple vessels with excess capacity - and simply pass through the costs to consumers. Wholesalers should have normal commercial incentives to reduce sea freight costs to efficient levels, commensurate with an appropriate risk position. And ultimately the benefits of these more efficient and lower cost arrangements should be passed on to consumers.

Ultimately the Commission cannot force joint shipping arrangements however wholesalers should have an incentive to enter into such arrangements where they will result in lower costs to customers or improvements in the overall efficiency and reliability of shipment. The Commission can see that concerns over product quality, the mixing of like product from different sources, the ready and timely availability of product and the ability of supply to meet demand schedules can lead to strong incentives for wholesalers to move away from joint shipping arrangements. However, regulatory incentives should not be added to this list of reasons for separate shipping arrangements.

In order to reduce the impact on industry behaviour, the regulatory arrangements need to be flexible and predictable. They must be able to cater for changes in the petroleum market – for example the entry or exit of wholesalers into or out of various markets – as well as the entry and exit of shippers within the market for sea freight. They must provide incentives for wholesalers to continue to supply and compete in various markets across the country.

Finally, the regulation of sea freight needs to be practical and should minimise the administrative burden on businesses and the Commission.

#### **4.5.3. Draft Decision**

In the Draft Report the Commission contemplated two potential approaches to the regulation of sea freight. The first approach was for the Commission to continue with its existing price monitoring (pass through) approach. The Commission noted that the existing regime is relatively transparent and provides wholesalers with the ability to recover their incurred costs. Is less intrusive than price control approaches, and relies on industry self-regulation through a price monitoring approach. However the current approach is somewhat complex and requires ongoing monitoring and data. As set out above it is also not clear that it encourages the wholesalers to minimise their sea freight costs as most costs can simply be passed through to customers.

In the Draft Report the Commission proposed an alternative approach of applying a price control regime and setting a fixed sea freight margin and price path for each port. The Commission noted that this would provide certainty for all parties and reduce the administrative burden associated with the current arrangements. Wholesalers would have an incentive to reduce their costs below the sea freight margin in order to earn higher profits or secure greater market share. The Commission also suggested that this may also encourage wholesalers to enter into joint shipping arrangements in order to reduce average costs.

In support of a price control approach the Commission noted that the initial price controls could be based on the average sea freight costs incurred for the four quarters to September 2009.

##### **4.5.3.1. Responses to the Draft Report**

InterOil, Mobil and the Department of Treasury made comments in relation to the Commission's proposal to move to a price control approach for regulating the sea freight margin.

The Department of Treasury expressed some concerns with the Commission's proposal:

*Treasury agrees with the view that a price monitoring approach is relatively transparent and provides wholesalers with a chance to recover their incurred costs. Treasury also agrees that price monitoring has higher administrative costs for the ICCC. Noting the challenge of reconciling these views, Treasury would ask the ICCC to closely examine the benefits that would arise, outside of a reduced burden for the ICCC, from transitioning to this more heavy handed form of regulation.*

*If a price control approach is chosen, Treasury would request that the ICCC choose the least cost transport option from Port Moresby Harbour to regional locations e.g. the marginal cost from POM to Lae for either MRT. Treasury recognizes this is not possible for transportation from international Ports to Port Moresby due to concerns regarding the Project Agreement. As such, the InterOil quoted cost for this portion of the trip should be the chosen shipping freight benchmark. If circumstances change in the future, the Commission should ensure it has the flexibility to re-examine this issue.*

*For LCT tankers, the least cost shipping option provided by either party should serve as the efficiency benchmark. This will provide the most efficient fuel prices to PNG and its consumers.<sup>34</sup>*

Interoil was stronger in its criticism of the Commission's proposal and indicated that it supported a continuation of the existing rate monitoring methodology. According to InterOil the current approach 'delivers rate certainty and transparency to all stakeholders including the Commission, the Distributors, and industry in PNG and to the public and because it delivers an outcome of actual cost recovery by the Distributors.'<sup>35</sup>

InterOil pointed to the volatility in charter rates and other unforeseen circumstances as reasons why a price control approach would not be effective. It suggested that:

*the Commission's decision is primarily based on the fact that the Commission finds it too burdensome on available resources to manage the intricate sea freight economic and logistics modelling within the oil industry and loathes the administrative work that the current sea freight monitoring requires of the Commission. However this Draft Decision appears to have been made without taking into full account the complexities of the management of sea freight operations and the considered views of the industry distributors who have a full understanding of sea freight operations.<sup>36</sup>*

Mobil's submission did not criticise the Commission's proposed price control approach per se, but suggested that:

- the approach proposed by the Commission to determine the initial sea-freight amounts needed to be amended;
- bunker fuel rates should automatically be reviewed on a six monthly basis and the price control amount adjusted accordingly; and
- substantial changes to charter rates should also be passed through to the price control amount.

#### **4.5.4. Discussion**

The matter of regulation of sea freight charges is perhaps the most difficult element of petroleum industry regulation.

The Commission takes issue with InterOil's suggestion that its proposed movement away from the current pass through arrangements for sea freight, as set out in the Draft

<sup>34</sup> Department of Treasury submission to the Draft Report, November 2009, p. 5.

<sup>35</sup> InterOil submission to the Draft Report, December 2009, p. 12.

<sup>36</sup> InterOil submission to the Draft Report, December 2009, p. 14.

Report, was because it *'finds it too burdensome'* or that it *'loathes the administrative work'* that the current sea freight monitoring requires. The Commission is more than comfortable undertaking this role, and does not have a concern with the complexity of such issues.

The Commission's main concern is that existing sea freight arrangements in the industry appear to be resulting in customers paying higher prices than necessary and gives wholesalers no incentive to reduce costs or manage their risks appropriately. Wholesalers can adopt costly and risk-averse positions, chartering vessels with much greater capacity than they are likely to need, safe in the knowledge that costs can be passed through to consumers. The Commission also recognises that the relatively high sea freight costs are also a function of a number of other factors, including the structure of the market and the impact of the Project Agreement and the fact that it is not being actively enforced.

Nevertheless the Commission accepts arguments put forward by the wholesalers and other submitters that setting a fixed sea freight margin, as advocated in the Draft Decision, would have a number of practical difficulties associated with the volatility in sea freight charges and the enforcement status of the Project Agreement. It may also have impacts on the industry behaviour which does not lead towards a reduction in freight rates included in the prices of petroleum products, which is a prime concern for the Commission. The Commission therefore does not intend to pursue this option further.

This means that the Commission has two options open to it:

- adopt a cost recovery model similar to existing arrangements; or
- determine a margin which is based on an index of costs. This index could be populated, for example, by some index of movements in international charter rates, an index of bunkering costs, an index of port charges, and some assumptions regarding the volumes that would be carried. It would likely have to be determined on a port-by-port basis.

As noted in the Draft Decision the first option has the disadvantage of essentially being nothing more than a cost recovery model, does not ensure that efficient costs are being recovered, and is difficult to manage and understand, particularly when there are adjustments that have to be made over time (unders and overs, and modifications to the financial model to take into account new vessel chartering arrangements).

Conversely, the second option has a number of advantages. It offers the potential to keep pressure on the companies to seek out the best price for their chartering arrangements and provides incentives for them to be more efficient, while at the same time enabling broad changes in the sea freight market (eg changes in bunker fuel and charter costs) to be captured without the need to specifically consider *'reopenings'*.

Under this approach the index could be some variant of  $SFI = (a*CI+b*BI+c*PI)/\text{volume}$  (tonnes) where:

- SFI = Sea freight Index;
- a, b, and c are the weights for the charter costs, the bunkering costs and the port costs respectively and will add to 100%;

- CI, BI, and PI are indices for the charter cost, bunkering costs, and port costs respectively;
- Volume is the total volume carried by InterOil (as some product will be imported into Lae and elsewhere by Mobil and others). This should cover all volumes because we are apportioning movements in the index over the cost of transporting by sea both products for small regulated sales and volumes for large unregulated sales;
- The formula would be presented as an index and would be based as 100 = January 2010, or as otherwise agreed. The starting freight cost would be those costs at this time (excluding any catch up or other adjustments required) and would be calculated separately for each port and product; and
- The index would be divided by the volume to give a weighted series which would have a moving volume base to reflect the fact that many of the costs built into the series are fixed regardless of the volume of fuel carried.

In developing the index it will be necessary to obtain an international chartering rate series for different types of vessels, and a series for bunkering charges. Port charges could be based on regulated port charges by PNG Ports.

Further work will be necessary to define and develop the index and the Commission will consult with the wholesalers in doing so. The Commission therefore proposes to continue with the existing price monitoring approach until end March 2011, or such later date as the Commission determines is required to finalise the parameter values, at which time the indexation arrangement can be put in place.

#### 4.5.5. Final Decision on regulation of sea freight charges

**Decision 3: The Commission will continue with the existing price monitoring approach to setting sea freight charges under Section 32A of the PR Act until end March 2011. Beyond this time the Commission will control the sea freight charge using a price control approach, under which the sea freight charge component of the overall price must not exceed a value determined by an index applied by the Commission.**

**The Commission will work with the industry to determine how the sea freight index should be calculated and applied. Such work to be completed before the end of March 2011, or as otherwise determined by the Commission following consideration of views from the primary industry participants.**

#### 4.5.6. Other elements of sea freight regulation

Current regulatory arrangements provide for:

- the same freight costs to be set for the main ports, with differential prices for the smaller ports;
- a different rate for the different products (petrol, diesel and kerosene); and
- regulation of sea freight on a toea per litre basis rather than as percentage of the wholesale margin approach.

In responses to the Issues Paper there was general support for continuing these arrangements and no comments were made in response to the Draft Report. The Commission therefore proposes to maintain these approaches and will do so through the new index described above.

### 4.6. Domestic road freight charges

#### 4.6.1. Current form of regulation

As with sea freight, road freight costs are a matter of some importance within PNG. They represent a significant component of the final price paid for oil products by consumers in remote areas of PNG. In part, this reflects the geographic realities of PNG, a country which features a limited road network and topography and climatic conditions that cause serious maintenance problems for the upkeep of those roads.

Prior to 2004, road freight was regulated using a 'freight differential' model. However this model was ineffective in reflecting the different costs of freight across the country, particularly in remote areas. Prior to 2004 the following scenarios were becoming more common:

- fuel needed to be sold in some remote locations at technically illegal prices in order to reflect freight costs;
- some wholesalers were finding it necessary to cross-subsidise fuel sales in remote locations from sales in other areas; and
- some wholesalers were withdrawing their presence from remote areas.

In its 2004 Final Report, the Commission therefore elected to regulate road freight prices on a price monitoring basis whereby road freight costs effectively become a direct pass through subject to the Commission being satisfied they are reasonable. This approach, which had general support from the industry, was designed to overcome the rigidities involved in the freight differential model. The Commission developed a price monitoring model whereby it obtains quarterly information on road freight costs from oil companies and retailers on the freight costs from depots. This information is then compared with a freight cost index (“**FCI**”) developed by the Commission and which uses information from the National Statistical Office (“**NSO**”). The FCI includes the following costs and weightings based on information provided from trucking companies:

- vehicle purchase (a weighting of 25.7%);
- licenses and insurance (13.4%);
- repairs and servicing (7.2%);
- staff costs - as measured by the change in public sector wage rates (22.2%);
- fuel (9.6%);
- tyres and tubes (8.1%); and
- overheads – as measured by the CPI (13.8%).

However the price monitoring model adopted by the Commission has not been as effective as envisaged. This is because problems have arisen both with calculating the FCI and in collecting information from the industry.

In relation to the FCI, the Commission has been unable to receive information from the NSO on a timely manner, particularly since June 2006. Recently, the NSO has also changed the manner in which individual cost items are calculated.

It has also been difficult for the Commission to perform its monitoring role because in some cases information on transport costs has not been provided by the retailers and wholesalers.

As with the other elements of the petroleum supply chain, the Commission needs to consider whether road freight charges should be regulated or not. In addition, where regulation is supported, whether the current monitoring approach is sufficient and robust for purpose.

#### **4.6.2. Draft Decision on rationale for regulation**

In the Draft Report the Commission noted the difficulty in price monitoring road freight costs and identified one option as being to deregulate them. The Commission noted that this will reduce the administrative burden on both the Commission and oil companies. However, the Commission was of the view that while there is clearly competitive tension between operators on some freight routes, competition on some routes is likely to be weak. Further, under an unregulated approach:

- as noted by InterOil, there is some risk that deregulation may result in unreasonable competitive pressures to reduce standards and cut costs. The Commission has been advised that under its existing approach significant improvements have been made in road transport equipment and safety over recent years. This appears to have occurred partly because of pressure placed on them by the oil companies; and

- if the Commission does not apply some form of regulation to road freight charges then the removal of this part of the supply chain from the regulatory chain will mean that the Commission will effectively lose its ability to establish indicative retail prices.

In their submissions to the Commission in response to the Issues Paper both Mobil and InterOil supported the continuation of regulation of road transport freight costs using a price monitoring approach.

The Commission's Draft Decision was therefore that it was desirable to maintain regulation of road freight costs.

#### **4.6.3. Draft Decision on form of regulation**

In the Draft Decision the Commission noted that its previous experience suggested that it was difficult to apply direct price regulation to road freight costs (for example on a per litre or per litre/kilometre basis) due to the wide variety of routes, road conditions, geographies and supply volumes. Given this, the Commission suggested that price monitoring was the only realistic approach.

As outlined above, the Commission has had difficulty both with constructing the FCI and obtaining information on freight costs from industry participants. In respect of the FCI, there are a number of options to deal with this problem. As the Commission has had difficulty sourcing data from the NSO it could consider compiling the FCI based on data from other sources. For example, in relation to the insurance and tyre/tubes components of the index the Commission could attempt to obtain information directly from insurance companies or tyre retailers. However the costs involved in obtaining this information from a number of disparate sources would not be insignificant. Another approach would be to simplify the FCI such that fewer inputs are required.

In the Draft Decision the Commission noted that it was not absolutely necessary to construct a separate index in order to undertake price monitoring. Given that the road freight market is clearly competitive on a number of routes, the Commission suggested that it would be possible to compare freight cost movements on individual routes with cost movements on competitive routes or the market overall. Where the cost change on one route is inconsistent with changes occurring more generally in the market, the Commission could then seek advice as to the reason for the divergence.

The Commission noted that this approach avoids the need to collect and prepare the FCI and means that individual freight rates are compared against actual market outcomes, rather than an 'artificial' index. It was therefore the Commission's preferred option.

#### **4.6.4. Responses to the Draft Decision**

In response to the Draft Decision both the Department of Treasury and InterOil supported the Commission's proposed approach to monitoring the road freight margin.

#### **4.6.5. Final Decision on the need for and form of road freight regulation**

Given that there was general support for the position espoused in the Draft Decision, the Commission confirms its approach on this matter.

The Commission will continue to monitor road freight charges under Section 32A of the PR Act, by accessing data from the Wholesale distributors and selected Retail distributors. As part of this monitoring responsibility, the Commission will compare the freight cost on individual routes with competitive routes or the market overall. Where the cost change on one route is inconsistent with changes occurring more generally in the market, the Commission will then seek explanation as to the reason for the divergence and if the Commission is not satisfied with the road freight being charged or the explanation therefore the Commission may recommend to the Minister that road freight be declared for price control purposes.

The Commission will work with the wholesale companies over the next few months in order to identify the 'competitive' routes which will be used as a benchmark for comparison purposes.

In applying this approach, it will be necessary for the Commission to obtain information from industry participants and the Commission looks to the industry to assist it in this regard. The Commission reminds industry participants that persons who fail to provide information as required by the Commission under the PR Act are guilty of an offence.

**Decision 4: The Commission will continue to monitor road freight charges under Section 32A of the PR Act. As part of this monitoring responsibility, the Commission will compare the road freight on individual routes with competitive routes for the market overall. Where the cost change on one route is inconsistent with changes occurring more generally in the market, the Commission will then seek explanation as to the reason for the divergence and if the Commission is not satisfied with the road freight being charged or the explanation therefore, the Commission may recommend to the Minister that road freight be declared for price control purposes.**

## 4.7. Drum filling

### 4.7.1. Background

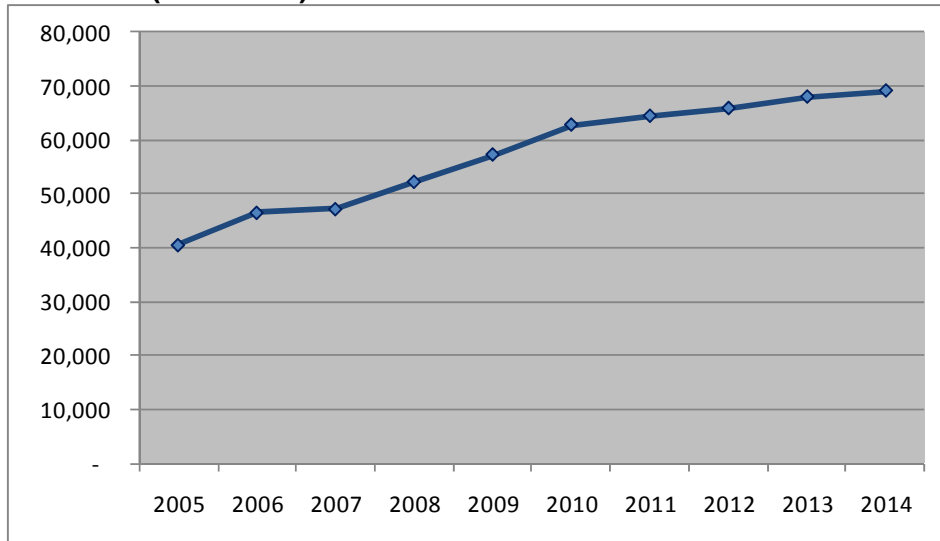
Due to the absence of local service stations in coastal and remote regions, a substantial and increasing proportion of fuel used in PNG is sold in drums. Each of the major wholesalers has a drum filling operation. Each drum is sold based on 200 litres of product, although a drum can hold up to 208 litres. Drums are made in Lae although some are purchased from Australia and cost around K200 each.

The first time a consumer purchases a drum of petroleum product she or he will buy the product as well as the drum. However drums can be reused and, provided a drum is returned in serviceable condition, subsequent fillings (usually of a different drum; sometimes of the same one) do not require the drum to be purchased again. The number of times a drum can be refilled will depend upon the manner in which it has been transported, stored and handled during usage. Estimates of the average number of reuses range from around three (3) to fifteen (15) times.

Drum filling, which involves transferring fuel from bulk storage to the drum, is a relatively time consuming and labour intensive task. Each time a drum is received it generally needs inspection, cleaning, painting and seals and caps checked. In addition, drums take up storage space at depots.

As shown in Figure 1, there has been an increase in the volume of drum filling, much of which is being undertaken by Islands Petroleum. This in part reflects arrangements at Bougainville where the lack of storage tanks requires fuel to be transported in drums. The Commission also understands that there has been an increase in drum filling by NOC, although data is not available. The wholesalers have forecast increasing sales via drums.

**Figure 1: Actual and forecast drum sales of petrol, diesel and kerosene ('000 litres)**



#### 4.7.2. Current drum pricing arrangements

Fuel sold in drums is subject to the same pricing and regulatory arrangements as other petroleum sales (including the wholesale margin). However in its 2004 Final Report, the Commission provided for an additional 3 toea margin to apply to petrol, diesel and kerosene (not Avgas) sold in drums. This margin has changed by the same CPI-1% formula in line with the retail margin and was 3.4 toea per litre for 2009.

In its 2004 Final Report, the Commission elected not to regulate the deposit paid/refund arrangement for drums.

All of the wholesalers have expressed the view that the existing drum filling margin is too low and does not properly reflect the full cost of drum filling.

#### 4.7.3. Rationale for regulation of drum filling costs

There are a number of reasons why the drum filling margin is regulated. Firstly, it was clear to the Commission when preparing its 2004 Final Report that the cost of selling fuel in a drum is materially greater than other bulk sales and hence it needed to be treated separately in order to avoid cross-subsidisation, and to reduce barriers to entry into the market for supply of drummed petroleum products. At the same time, many of the costs associated with drum filling (including drum storage areas, bulk fuel facilities and general overheads) are shared with other parts of the wholesale fuel operation. Thus it was logical to regulate drum filling costs consistent with the regulation of general wholesale sales. Finally, fuel sold in drums is typically sold in regions where there are little or no alternative fuel supply options for consumers. Therefore, it was also desirable to regulate drum filling costs from a consumer protection perspective to avoid

any perception of potential anticompetitive behaviour by industry participants even if such is non-existent in practice.

The Commission considers that each of the above matters remain salient at the present time. In fact, given the increasing volumes of drum sales, the need for regulation of drum filling costs has increased since 2004. The Commission will therefore continue to regulate drum filling in the next regulatory period using direct price control.

The Commission's position has general industry support. In its response to the Issues Paper InterOil supported the existing drum fill regulatory arrangements and indicated that its '*... recommendation is for a specific drum margin to be kept separate from the wholesale fuel margin to adequately account for the significant costs associated with the drum supply, filling, storage and handling costs related to drum sales.*'<sup>37</sup> In discussions with the Commission, each of the other wholesalers proposed that existing regulatory arrangements should continue.

In its 2004 Final Report the Commission elected not to regulate the deposit paid/refund arrangement for the drum itself and instead to allow contestability in the market to regulate the price. The Commission did not receive any submissions from consumers on this matter, but information provided by the wholesalers suggests that the price at which the drum is sold to consumers is consistent with the cost to the wholesalers of purchasing the drum. Given this the Commission does not propose to subject this item to regulation.

#### 4.7.4. Drum filling margin

##### *Draft Decision on drum filling margin*

As indicated above, each of the wholesalers suggested that the existing drum filling margin was too low. Mobil's submission was representative, noting that '*the current drum filling margins are grossly inadequate.*'<sup>38</sup>

The Commission asked each of the wholesalers to provide information on the cost of drum filling. InterOil indicated that costs were around 11.2 toea per litre, with Mobil and Islands Petroleum indicating 7.8 and 5.8 toea respectively.

**Table 23: Wholesale distributor revenue requirement (K'000, nominal)**

	Main cost items	Cost (toea per litre)
InterOil	Labour – management, transaction processing, filling (48%) Repairs and maintenance (32%)	11.2
Islands Petroleum	Labour (25%) Repair equipment (45%) Forklift and trucks (21%)	5.80
Mobil	Labour (6%) Meter calibration (including wages) (16%) Repair equipment (75%)	7.84

<sup>37</sup> InterOil submission to the Issues Paper, July 2009, p. 30

<sup>38</sup> Mobil submission to the Issues Paper, July 2009, p. 19

Although the cost categories used by the businesses are different, it is clear that the nature of drum filling operations differs across the businesses. It is also likely that the businesses have prepared estimates on a different basis. InterOil costs appear to include an allocation for overheads while Islands Petroleum costs and Mobil costs appear to be estimated on more of an incremental basis.

In determining the appropriate drum filling margin in the Draft Report, the Commission had regard to the following issues:

- ensuring that the drum filling margin provides an adequate recompense for the additional costs associated with drum filling so as to ensure that wholesalers have an incentive to continue providing the service;
- ensuring that wholesalers are not able to ‘double-recover’ the cost of drum filling through both the general wholesale margin as well as the specific drum filling margin. This requires the cost of drum filling to be separated from general wholesale costs; and
- ensuring that the price is kept at a minimum so as to ensure that customers in coastal and remote locations, who will already be paying relatively high prices for fuel in per unit terms (including, in many cases, the cost of transporting the drum from the depot to point of usage), are given adequate protection.

One way of balancing each of the above objectives is ensuring that drum filling charges are based on the incremental cost of drum filling. This will provide an incentive for businesses to continue to provide the service, but ensure that customers pay the lowest possible price.

Having considered the wholesalers’ submissions to the Issues Paper, the Commission proposed in its Draft Report to set the drum fill margin at 6 toea per litre in 2010, which is approximately the amount calculated by Islands Petroleum. While this represented a doubling in the existing margin, the Commission believed that such an increase was necessary to ensure continuity of supply.

The Commission also proposed to adjust the drum margin in the same manner as the retail margin, i.e. by CPI-1% (see chapter 4).

### ***Submissions to the Draft Decision***

The Commission received submissions on the Draft Report from InterOil, Mobil and Islands Petroleum concerning the drum fill margin. All of the submissions suggested that despite the increase proposed for the drum fill margin, it was still too low.

Islands Petroleum noted that it had neglected to include calibration costs in their calculation of drum filling costs, and suggested that the capital costs involved in constructing and installing volumetric drum fill containers would add 2.5 toea per litre over the next ten years. Islands Petroleum requested that the Commission use Mobil’s costs as the basis for setting the drum fill margin. Islands Petroleum also stated that it objected to the lack of recognition of depreciation on drums and capital costs.<sup>39</sup>

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<sup>39</sup> Islands Petroleum submission to the Draft Report, November 2009.

Mobil noted that the Commission had used an averaging approach to set the rates for sea freight in the Draft Report, and suggested that an average should also be used to set the drum fill margin, resulting in a margin of 8.3 toea per litre.<sup>40</sup>

InterOil stated that if wholesaler distributors were not adequately remunerated through the margin that they would be encouraged to become cost focussed at the expense of quality and safety. At the request of the Commission, InterOil provided a list of quality and safety regulations and standards that are required to be met, or that are industry best practice standards.

InterOil noted that the Commission had proposed a drum filling margin significantly below that calculated by InterOil, and suggested that the lower costs proposed by other operators were likely to be due to lower standards of operation. InterOil also identified a recent incident in which it detected petrol in drums presented to it for filling with kerosene by a recent competitor – a major safety concern.

InterOil also stated that the costs of selling fuel in drums are far greater than it had initially anticipated, but did not provide any further information on these costs.<sup>41</sup>

### ***Final Decision on drum filling margin***

Given the submissions received from the stakeholders, and the delays in the implementation of the Final Report, the Commission accepts that the drum fill margin proposed in its Draft Report may be inadequate to cover all of the costs incurred by the businesses over the next regulatory period.

However, Mobil's suggestion to use an average of the drum filling costs provided by the businesses is not considered appropriate in the context of the Commission's objectives to promote efficiency in the industry.

The Commission notes Islands Petroleum's comments in relation to depreciation on drums and capital costs. However, the Commission points out that:

- in relation to depreciation on drums, as noted above, in the Draft Report the Commission proposed not to regulate the deposit paid/refund arrangement for the drum itself and instead to allow contestability in the market to regulate the price. Given that drum prices appear to be established on a competitive basis, the Commission will retain this approach for its Final Decision. Any depreciation costs associated with drums should be recovered through these arrangements, not the drum fill margin.
- with regard to capital (and other) costs, the wholesale margin calculated for the Draft Report was based on all of InterOil's operating and capital costs, and included costs related to drum filling. The Commission's approach to netting out the revenue requirement for drum filling from the calculation of the wholesale margin (as set out in section 4.4) means that to the extent that the drum fill margin is not fully cost reflective, these costs will still be recovered via the wholesale margin. Therefore, the wholesale distribution business should be able to fully recover all of their costs and meet safety standards via the revenue recovered through the wholesale margin and drum fill margin.

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<sup>40</sup> Mobil submission to the Draft Report, November 2009, p.50

<sup>41</sup> InterOil submission to the Draft Report, December 2009, pp.15-16

The approach to setting the drum fill margin needs to balance issues concerning the impacts on customers from substantial price increases, with safety and supply issues that might arise if the wholesalers are not able to fully recover their costs.

The Final Decision of the Commission on the drum filling margin is that it will continue to regulate the drum filling margin under Section 21 of the PR Act. The Commission has decided to increase the drum fill margin to 7 toea per litre in 2010. The margin will be adjusted each year in line the adjustment applied to the wholesale margin (that is, CPI+2.4% per annum as described in section 4.4.9 above).

**Decision 5: The Commission will continue to regulate the drum filling margin under Section 21 of the PR Act. The drum filling margin will be set at 7 toea per litre from 1<sup>st</sup> November 2010 and adjusted using a CPI+X price path over the next regulatory period and the X factor from 1<sup>st</sup> November 2010 will be .positive 2.4% (so CPI+2.4%)**

#### **4.8. Summary of Commission's decisions**

The following provides a summary of the Commission's Final Decisions in relation to the wholesale distribution market in PNG.

**Recommendation A: Subject to Recommendation B, the Commission recommends that the Minister not change the current policy settings of the declared goods and services that have been declared under Section 10 of the PR Act and the declared monitored goods and services that have been declared monitored goods and services under section 32A of the PR Act, in the petroleum industry sector.**

**Decision 2: Part A - The Commission will continue to regulate the maximum wholesale margin for petrol, diesel and kerosene under Section 21 of the PR Act via a direct price control by applying a uniform margin across the country. Part B - The wholesale margin will be adjusted using a CPI+X price path over the next regulatory period and the X factor from 1<sup>st</sup> November 2010 will be positive 2.4% (so CPI+2.4%).**

**Decision 3: The Commission will continue with the existing price monitoring approach to setting sea freight charges under Section 32A of the PR Act until end March 2011. Beyond this time the Commission will control the sea freight charge using a price control approach, under which the sea freight charge component of the overall price must not exceed a value determined by an index applied by the Commission.**

**The Commission will work with the industry to determine how the sea freight index should be calculated and applied. Such work to be completed before the end of March 2011, or as otherwise determined by the Commission following consideration of views from the primary industry participants.**

**Decision 4: The Commission will continue to monitor road freight under Section 32A of the PR Act. As part of this monitoring responsibility, the Commission will compare the freight cost on individual routes with competitive routes or the market overall. Where the cost change on one route is inconsistent with changes occurring more generally in the market, the Commission will then seek explanation as to the reason for the divergence and if the Commission is not satisfied with the road freight being charged or the explanation therefore, the Commission may recommend to the Minister that road freight be declared for price control purposes.**

**Decision 5: The Commission will continue to regulate the drum filling margin under Section 21 of the PR Act. The drum filling margin will be set at 7 toea per litre from 1<sup>st</sup> November 2010 and adjusted using a CPI+X price path over the next regulatory period and the X factor from 1<sup>st</sup> November 2010 will be positive 2.4% (so CPI+2.4%).**

## 5. RETAIL MARKET

### 5.1. Introduction and market overview

Around half of the petroleum products consumed in PNG are purchased through retailers (service stations) located throughout the country. Most service stations are owned and operated individually, although a few owner/operators have interests in more than one station. Service stations often combine sales of petrol, diesel, and kerosene with the retailing of other non oil based products through 'Kwik Shops' and similar retail outlets. Retailers often also offer other vehicle related services and products such as parts and maintenance products, and may undertake vehicle repairs.

In preparing its 2004 Final Report, the Commission was able to draw from information provided by the PNG Retailers Association. However this organisation no longer functions. In analysing the retail sector the Commission has therefore drawn from retail information provided by the major wholesalers, as well as data and discussions with a major retailer based in Port Moresby.

### 5.2. Retail business models

The Commission understands that there are two dominant types of retailer business models operating in PNG. These are:

**Owner operated** – where the owner of the retail outlet is free to choose a supplier and determine the retail price. The owner may choose to align the retail outlet with a brand of fuel sold by a particular wholesaler, by receiving signage indicating that the site sources its fuel from a particular wholesaler. The wholesaler may also invest in equipment as a contribution to the development of the service station. This equipment may include dispensing equipment, fuel storage tanks or payment systems. According to InterOil the owner operated model is the most common arrangement in PNG.

**Lessee operated** – under this approach the site is typically rented from a wholesaler by a lessee who is responsible for the full operation of the service station and is responsible for general operation needs. The lessee pays a lease fee to the wholesaler to cover the costs of developing and owning the facility and providing infrastructure to allow the lessee to conduct its business.

Other models are often used in other countries, for example:

- the **commission agent** approach, whereby the site is owned by a wholesaler or retailer/marketer and managed by an operator who generally receives commission based on the volume of fuel product sold;
- **franchisee operated** – where a franchisee operates under a franchise agreement. The franchisee adopts the business philosophy and model provided by the wholesaler and the franchisee is provided with support such as national advertising, training and systems; and
- **wholesaler owned and operated** – the wholesaler owns or leases the land, constructs (or leases) the service station, and operates it.

The Commission understands that these other models are seldom, if at all, adopted in PNG. However in some cases the distinction between the lessee operated and franchisee operated models appears to be relatively minor.

### 5.3. Current form of regulation

In its 2004 Final Report, the Commission noted that the retail industry was characterised by a number of important features:

- a large number of individual businesses who offered one of the three main brands of oil based products in PNG at the time – Shell, Mobil or BP;
- there were close ties between the retailers and the three companies;
- while the businesses notionally competed with each other, even in larger towns there was limited indication that this took the form of price competition. In rural and remote locations there was no opportunity for price competition; and
- the potential involvement of InterOil in retailing was unlikely to result in greater competition.

The Commission therefore considered that some form of price regulation of the retail margin was warranted in order to avoid the potential for retailers to exploit market power. This was generally supported by industry participants, as was the Commission’s decision to apply this regulation through a CPI-1% formula.

The Commission elected to apply the CPI+/-X formula (whereby the CPI excludes alcoholic drinks, tobacco and betel-nut in the calculation) to a single retail margin for all areas and all sizes of retail service stations. It calculated that an initial margin of 15 toea/litre was appropriate, based on modelling which showed that this margin would allow service stations with a turnover of more than 140,000 litres per month to recover costs and return an appropriate profit margin. The modelling showed that service stations with smaller volumes would still cover costs and achieve a profit margin but this would not be as great as for the larger service stations.

The retail margin has increased over time in accordance with the CPI-1% formula as follows:

**Table 24: Retail Margins 2005-2009**

Year	Wholesale margin
2005	15.5 toea per litre (tpl)
2006	15.5 tpl
2007	15.9 tpl
2008	16.1 tpl
2009	17.4 tpl

### 5.4. Industry structure, competition and the need for regulation

#### 5.4.1. Number of retailers

Since the 2004 review there have been a number of changes in the retail market, most of which have occurred in parallel with changes in wholesale arrangements. As noted

in Chapter 4, InterOil has acquired Shell and BP's operations, and Islands Petroleum has acquired a number of Mobil's facilities.

At an individual level, the number of service stations has been declining gradually over time. This appears to be a function of both market rationalisation (including as a result of the InterOil purchase of Shell and BP assets) and smaller sites closing down due to a failure to earn sufficient returns. The Commission does not have a complete picture of the number of retail outlets that have shut, but information provided by InterOil suggested that approximately 12 or almost 20% of its affiliated stations closed down between 2005 and April 2009.

Table 25 below shows the number of service stations in PNG supplied by the major wholesalers. Approximately 60% of service stations are owned and operated by third parties. The remainder of sites are owned by the wholesaler. In terms of volumes, data supplied by Mobil and InterOil suggests around two-thirds of the total volume of petrol, diesel and kerosene is sold through lessee operated sites, with the remaining one-third through owner/operator sites.

**Table 25: Number of service stations served by major suppliers**

Wholesale supplier	Wholesaler owned and operated	Retailer owned and operated	Wholesaler owned and retailer operated (lease)	Total
InterOil	0	33	17	50
Mobil	0	5	11	16
NOC	na	na	na	13
Islands Petroleum	1	10	2	13
Total	<b>1</b>	<b>48+</b>	<b>30+</b>	<b>92</b>

Source: InterOil, Mobil, NOC, Islands Petroleum

In addition to the service stations listed above, in the more remote and rural areas, fuel is often sold in an informal sector set up with smaller containers (4 litres and 20 litres) with irregular supplies. Prices of fuel at these outlets are high due to the high cost of transportation and storage, and the low volume through each outlet.

As noted above, the Commission understands that most retail operators operate just one service station. However the Commission is aware of one retailer who operates seven retail outlets in Port Moresby and the Commission understands that this outlet sells more than half of the total fuel sold in outlets in Port Moresby.

However the total number of retail service stations across the country is not a real indicator of choice available to customers. Firstly, there are many towns and regions where customers only have access to one station. Only in the larger towns are there a large number of service stations which actively compete with each other for business. InterOil has estimated the spread of fuel retailers within urban boundaries as follows:

**Table 26: InterOil assessment of service station numbers within urban boundaries**

Market	Number of retailers
Port Moresby	18
Lae	11
Mt Hagen	12

Goroka	11
Madang	4
Rabaul	2
Kimbe	4
Wewak	2
Alotau	3
Kavieng	2
Popondetta	1

Source: InterOil

Secondly, there have been suggestions that given the ties between the retailers and wholesalers that retailers with the same wholesaler may be reluctant to compete with each other or may act according to guidelines given by wholesalers. This issue was raised by the Department of Commerce and Industry, as was the perceived dominance of InterOil in the oil market:

*'InterOil's extension of its business line from refinery to distribution and retailing either directly or through franchise arrangements in itself creates a monopoly position – even though the franchisees may be independent firms, most franchise commercial operations see the franchisees operate in accordance to the terms and conditions specified by the franchisee.'*<sup>42</sup>

However both Mobil and InterOil disputed the fact that as suppliers they were able to significantly influence retailers' actions. Mobil's submission to the Commission made clear that the service stations it owns are operated by independent entities and that *'there is effective competition in the retail fuel market in PNG, within the constraint that InterOil services approximately 60% of this sector of the market. The impacts that the Project Agreement with InterOil has on the supply and pricing of fuel at the wholesale level in PNG doesn't directly affect competition in the retail sector.'*<sup>43</sup>

InterOil also disputed that the practice of 'price support' – whereby the wholesaler discounts prices to a particular outlet in a strategic move to ensure the long term viability of a site in the face of strong competition from another retailer – is common in the PNG industry.

Nevertheless it is clear to the Commission that there is a strong relationship between retailers and their wholesalers, not only at lessee sites but also at owner operated sites. Although they may not provide 'price support' wholesalers have a clear incentive to ensure that sales volumes are maximised and the value of their brand is not eroded. Wholesalers will also be keen to ensure that owner/operators are satisfied with the wholesaler's service, rather than have them switch allegiances when their agreements expire. As a result wholesalers sometimes assist in installing or maintaining infrastructure for owner/operators or provide rebates and discounts on prices, particularly for larger volume sites or associated with the use of wholesaler branded loyalty cards.

Competition between retail outlets is apparent in some form and there is some evidence that fuel customers in major centres will choose between stations based on factors including the safety and cleanliness of the site, likely queuing times and whether

<sup>42</sup> Department of Commerce and Industry submission to the Issues Paper, July 2009

<sup>43</sup> Submission by Mobil, July 2009, p. 10

there is a Kwik shop. From time to time retailers will run 'promotions' in order to attract additional traffic. However, this competition will not exist in areas where customers have no alternative supplies. Further, as discussed below there is very little price competition at the retail level.

#### **5.4.2. Observed price competition**

While there is scope for competition on the basis of price in major centres, this is typically not a feature of the PNG retail market. Several reasons have been suggested for this.

Firstly, InterOil has indicated that due to low sales volumes at many sites, operators will be operating in a stressed financial situation or struggling to achieve an adequate return on their investment. According to InterOil *'the vast majority of retailers require the full gross margin as approved from time to time, to operate profitably and to obtain an acceptable return on their investment.'* InterOil also concluded that *'we believe it is unrealistic to consider retailers will discount their pump price and reduce gross margins while a regulated environment prevails. We also believe the current market conditions are not conducive for de-regulated fuel pricing to operate effectively across the whole country.'*<sup>44</sup>

Treasury has commented that it is *'uncertain as to the degree of competition in retailing, especially in rural areas, within PNG'*.

However the Department of Commerce and Industry implied that price competition could exist in the PNG market, and could perhaps be evidenced if the Commission granted a much higher retail margin. According to the Department *'should an extended retail margin [be] given to retailers then those charging at the upper most limit shall be driven out of business due to concentration of retailers, especially those in urban centres such as Lae and Port Moresby. In the Highlands and Niugini Islands, those applying the full margin, in the medium to long term, shall still reduce their price down (assuming there is less concentration of market) as new firms enter when they see the scope for making large economic profits.'*

#### **5.4.3. Barriers to entry into the market**

There are a number of administrative and financial barriers to entry into the retailing market. These include:

- the initial capital required to establish a service station. Including the cost of land in a relatively attractive site, and construction of infrastructure, various parties have estimated this cost as being between K1.5 and K3 million in Port Moresby, with lesser amounts in other towns; and
- meeting zoning and safety requirements imposed by local government regulations.

Neither of these barriers are overly onerous, however the main barrier to entry is that the size of the market is such that there are only a few sub-markets where a new entrant could operate successfully. As InterOil has indicated *'the majority of markets*

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<sup>44</sup> InterOil submission to the Issues Paper, July 2009, p.30

*are either too small for a new entrant to achieve the necessary sales volume, or there are already too many retailers operating and the sales are already sparsely shared around.*<sup>45</sup>

#### **5.4.4. Countervailing power held by customers**

The majority of customers buying fuel from retail outlets are likely to have limited countervailing power as any attempt to bypass any one retailer will not result in a significant loss of business for that retailer. In remote locations customers will often not even have the option of bypassing one retailer in favour of another.

Although some larger customers may have countervailing power, e.g. a transport company with a truck fleet, this is not the situation usually experienced by end-use customers.

### **5.5. Conclusion on the need for regulation**

In its 2004 Final Report the Commission concluded that the retail market needed to be regulated for the following reasons:

- in rural and remote locations there was no opportunity for competition;
- wholesalers exercised considerable influence over the retailing behaviour and functions of the retailers; and
- there was a distinct lack of price competition, even in main urban areas.

In the Draft Report, the Commission took the view that the current level of competition, or indeed the potential for future competition, had not materially changed, and if anything may have reduced consistent with reductions in the number of wholesalers and the number of retail outlets. The Commission's view was therefore that it would be appropriate for the retail sector to continue to be regulated in some form. The Commission notes that all stakeholders who expressed a position on this matter indicated support for continued regulation of the retail sector.

Given the above, and in the absence of any submissions suggesting that its views about the need for regulating the retail sector were unreasonable, the Commission's Final Decision is to continue to regulate the retail sector over the next regulatory period.

### **5.6. Form of regulation**

Having taken the decision that continued regulation of retail activities is necessary, the question arises as to the form that such regulation should take. As set out earlier in this report, the broad options open to the Commission are direct price regulation and price monitoring.

The current form of regulation is direct price regulation through the establishment of a defined retail margin across all retail outlets. In submissions to the Issues Paper, there was broad support across the industry for maintaining this approach:

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<sup>45</sup> InterOil submission, July 2009, p. 21

- InterOil indicated that *'we support the Commission's current position for regulated fuel pricing'*<sup>46</sup>
- Lifu Holdings indicated that *'we believe the current pricing formula is fair and should remain as it is'*<sup>47</sup>;
- Consistent with its position in respect of the wholesale market, Mobil indicated that *'the current form of regulation is appropriate for the PNG market'*<sup>48</sup>; and
- Treasury indicated that *'at this initial stage, Treasury has not seen any evidence suggesting that [existing regulatory] arrangements need to be changed'*.<sup>49</sup>

Given the lack of price competition in the industry at the present time, the Commission does not consider that price monitoring is a realistic option. The Commission also considers that price monitoring of all retail outlets across the country would be a cumbersome and costly process: for price monitoring to be effective, it would require prices to be monitored on a day-to-day basis at all sites. This is not realistic.

In the Draft Report, the Commission proposed to continue to regulate the retail margin for the next regulatory period under Section 21 of the PR Act.

The Commission only received one submission in response to the Draft Report in relation to the form of regulation for the retail market. This was from InterOil, noting that it supports the Commission's draft recommendation.<sup>50</sup>

Therefore, the Commission's Final Decision is that it will continue to regulate the retail sector under price control arrangements over the next regulatory period.

## **5.7. Methodology for setting the retail margin**

### **5.7.1. Current methodology for setting the retail margin**

In establishing the retail margin for the 2004 regulatory period, in contrast to the approach to determining the wholesale margin, the Commission did not apply a 'building block' approach. Rather, the Commission obtained cost and revenue information from the Retailers Association and conducted modelling of costs and returns based on certain assumptions about margins and sales volumes. In doing so the Commission allowed a return on the value of stock held. The Commission identified that a margin of 15 toea per litre would be sufficient to meet costs and provide an appropriate profit margin for larger service stations, while returns would be smaller (but still positive) for smaller operations.

### **5.7.2. Proposed methodology**

In the Issues Paper and Draft Report, the Commission expressed a preference for maintaining the 2004 Final Report approach to the retail margin based on an examination of operating costs and returns.

<sup>46</sup> InterOil submission, July 2009, p.22

<sup>47</sup> Lifu Holdings submission, July 2009, p. 1

<sup>48</sup> Mobil submission, July 2009, p. 21

<sup>49</sup> Treasury submission, July 2009, p. 3

<sup>50</sup> InterOil submission to the Draft Report, December 2009, p.16

The Commission has based its analysis primarily on information it has received from a large retailer in Port Moresby. Using data from this retailer has a number of advantages, including that:

- the retailer just sells fuel and (with one small exception) does not operate a Kwik shop or similar retail facility. This means that there is no need to allocate costs across petroleum products and other activities;
- the retailer rents the sites in question from the wholesaler, ensuring that the various site and asset costs are reflected in the lease payment; and
- the size of the retailer means that its costs are reflective of a large proportion of the market in Port Moresby.

At the same time the Commission acknowledged that this information is not necessarily reflective of the industry as a whole given that it is based purely on a large urban retailer.

However, given that no objections to the Commission's proposed methodology in the Draft Report were received, the Commission has decided to retain this approach in this Final Decision.

## **5.8. Calculation of the retail margin**

### **5.8.1. X factor adjustment for price cap change**

The data provided by the retailer includes both actual sales volumes and costs for 2008, as well as forecasts for 2009 to 2014. In its Draft Report, the Commission made a number of adjustments to the data provided to reflect such things as:

- the Commission's view about future increase in sales of petroleum products;
- changes in costs – in some areas where the Commission considered that the retailer's assumptions about future cost changes costs were overstated; and
- the removal of non-regulated costs from the one service station that does offer food.

As part of the modelling for the Draft Decision, the Commission generally accepted the retailer's view that wages and related costs (including on-costs and wage-based inputs such as security costs) are likely to increase in 2009 both as a flow-on from increases in the minimum wage, but also as a result of higher pump volumes.

The Commission used this data, and starting with the current retail margin of 17.4 toea, modelled costs and revenues under a number of different scenarios. The Commission's modelling showed that:

- for the Port Moresby stations modelled, actual outcomes in terms of net and gross margins during the current regulatory period were broadly in line with the Commission's 2004 modelling. One point of difference was in 2008 when the higher IPP prices resulted in the implied cost of holding stock being above that estimated by the Commission;

- between 2005 and 2009 the retailer earned an average gross margin on the sale of regulated petroleum products of 6.13% and a net margin of around 0.44%;
- under a reasonable set of forecasts of volumes, costs and revenues, if the current CPI-1% price path is continued these margins will increase to 7.44% and 0.69% respectively over the next regulatory period; and
- forecast margins for smaller retailers will be less than for larger retailers (assuming the same cost structure), but the outlook position is similar to that forecast in 2004.

Any retail modelling undertaken by the Commission will necessarily be approximate. The Commission is not privy to the specific nature of arrangements between wholesalers and retailers (in terms of price discounts and other assistance) and these arrangements will change over time depending upon industry circumstances. Most retailers also sell a number of non-regulated petroleum products (lubricants) as well as conduct other activities (Kwik shops) for which costs, revenues and profits will vary from site to site. Further, as noted above, the Commission has only had access to data for Port Moresby stations.

In its Draft Report, the Commission considered there was no compelling case to amend the retail margin and proposed that the current CPI-1% price path (where the X of 1% represents a reasonable benchmark for efficiency improvements) continue in the next regulatory period.

The Commission only received one submission in response to the Draft Report in relation to the calculation of the retail margin. This was from InterOil, noting that it supports the Commission's draft recommendation.<sup>51</sup>

Given that no objections to the Draft Report were received, the Commission has decided to retain this approach in its Final Decision.

Table 27A sets out the prescribed price path for the retail margin over the next regulatory period, assuming the price changes occur on 1<sup>st</sup> January 2010.

**Table 27A: Prescribed price movement in retail margin (toea per litre)**

	2009	2010	2011	2012	2013	2014
Current margin	17.4					
Annual adjustment		CPI – 1.0%	CPI – 1.0%	CPI – 1.0%	CPI – 1.0%	CPI – 1.0%

The movement in the CPI will be determined in the same way as for the wholesale margin.

However, following the publication of the draft Final Determination, comments were received from both InterOil and Mobil that in retrospect the retail margin price control X Factor was too restrictive for the retail sector and should be increased from the negative 1.0% currently set. However, no additional information was provided to justify a particular change, so the Commission has no information upon which to change its position on the retail margin.

<sup>51</sup> InterOil submission to the Draft Report, December 2009, p.17

### 5.8.2. X factor adjustment for delayed start to price cap change

While completing this Final Report in 2010, the Commission kept the retail margin constant in nominal terms at the level calculated for 2009, of 17.4 toea. This has meant that the retail sector did not get the margin increase provided by the CPI-1% adjustment for the first 10 months of 2010. While less than CPI it was still to have been a positive increase.

Because of delays in the development of the Final Report, the practical commencement date for the new price cap arrangements has been set as 1<sup>st</sup> November 2010. Thus the Commission's retail modelling needed to be adjusted for a slight increase in the X Factor to apply for the remainder of the new regulatory period, in order to accommodate the reduced revenue from the application of a lower retail margin for those months in 2010. In order to accommodate this slippage, the Commission estimated the resulting revenue shortfall from the application of the nominal margin being applied monthly from 1<sup>st</sup> January 2010 to 31<sup>st</sup> October 2010. It then revised the revenue path for the remaining period to 31<sup>st</sup> December 2014, and applied the same smoothing calculation on a Net Present Value ("NPV") basis to arrive at the X Factor which could be applied for the period commencing 1<sup>st</sup> November 2010.

The Commission thus has determined that the X Factor to apply for the remainder of the regulatory period from 2010 to end 2014 shall be negative 0.7% which is slightly higher than the annual analysis presented in section 5.8.1 above, to accommodate the commencement of the new X Factor from 1<sup>st</sup> November 2010, rather than the 1<sup>st</sup> January 2010. The Table 27B below provides the summary of the Commission's Final Decision on the X Factor for the retail margin.

**Table 28B: Final Report prescribed price movement in retail margin after adjustment (toea per litre)**

	2009	2010	2011	2012	2013	2014
Current margin	17.4					
Annual adjustment		CPI – 0.7%	CPI – 0.7%	CPI - 0.7%	CPI – 0.7%	CPI – 0.7%

The Commission therefore confirms its position on this matter.

### 5.9. Frequency of determination of indicative prices

#### *Draft Decision on frequency of determination of indicative prices*

As part of its role in the sector the Commission establishes indicative retail prices on a monthly basis. The Commission is then able to compare actual prices charged with the indicative prices to ensure that wholesalers and retailers are complying with the maximum margins and other costs (IPP, sea and road freight) monitored by the Commission.

In its submission to the Issues Paper, InterOil recommended that price adjustments be undertaken on a weekly, rather than monthly, basis. InterOil suggested that this would have the following benefits:

- in times when input costs are changing rapidly (e.g. due to changes in international oil prices), it would result in a smoother transition of prices from one level to another rather than a large monthly swing; and
- minimising the exposure of retailers and wholesalers to changing value of stocks. For example, in times of a rapidly increasing IPP where retailers have a 45 day stock turnover, they may be selling fuel at a lower price than they purchased it for.

In the course of preparing the Draft Report, the Commission considered InterOil's request and discussed it with other industry participants. However, stakeholders were generally satisfied with the current monthly arrangements and did not see a need for change. While they accepted that large swings in the IPP could occur, there was a general view that the swings would 'even out' over time.

The Commission also noted that a change from monthly to weekly adjustments to prices would result in additional administrative work for the industry and would result in wholesale and retail prices becoming somewhat 'uncoupled' from the IPP, which is determined on a monthly basis.

On the basis of the above discussions, the Commission's Draft Decision was that indicative prices would continue to be determined monthly as is the current practice.

### ***Submissions to the Draft Report***

In response to the Draft Report, InterOil suggested that the Commission's Draft Decision appeared to be driven by:

- its unwillingness to incur any greater administrative responsibilities; and
- the Commission's view that other stakeholders were satisfied with the current arrangements. This view was perplexing to InterOil.

Therefore, InterOil reiterated its position that all stakeholders (with the exception of the Commission, which would incur greater administrative responsibilities) would benefit from more regular price determinations.<sup>52</sup>

### ***Final Decision on frequency of determination of indicative prices***

A change to weekly adjustments to prices would impose significant additional costs for the industry to change prices and for the Commission in its monitoring role, requiring additional staff to manage the adjustment process and particularly for more frequent inspections by field staff to ensure the correct price was being charged. This change would not be feasible within the current resource constraints of the Commission.

Given that these additional costs must ultimately be borne by the general public, the Commission is concerned that the costs of instigating more frequent price adjustments would not be outweighed by the benefits of doing so.

Other than from InterOil, the Commission did not receive any submissions from stakeholders on this issue. As noted above, previous discussions between the

<sup>52</sup> InterOil submission to the Draft Report, December 2009

Commission and stakeholders indicated that the current arrangements were appropriate. Given that no further submissions were received on this issue, the Commission remains of the view that other stakeholders are satisfied with the current arrangements.

Therefore, the Commission has decided to continue to determine indicative prices on a monthly basis for the next regulatory period.

### **5.10. Summary of Commission's decisions**

The following provides a summary of the Commission's Final Recommendations to the Minister and Decisions in relation to the retail market in PNG.

**Recommendation A:** Subject to Recommendation B, the Commission recommends that the Minister not change the current policy settings of the declared goods and services that have been declared under Section 10 of the PR Act and the declared monitored goods and services that have been declared monitored goods and services under section 32A of the PR Act, in the petroleum industry sector.

**Decision 6:** The Commission will continue to regulate the retail margin for petrol, diesel and kerosene under Section 21 of the PR Act for the next regulatory period. The retail margin will be adjusted using a CPI+X price path over the next regulatory period and the X factor will be negative 0.7% (so CPI-0.7%).

**Decision 10:** The Commission has decided to continue to calculate indicative maximum retail prices on a monthly basis, using IPP plus maximum freight charges plus maximum wholesale and retail margins, for the next regulatory period.

## 6. AVIATION GASOLINE (AVGAS)

### 6.1. Overview of Avgas and current form of regulation

Avgas is a high octane aviation fuel used in piston powered aircraft. In PNG, Avgas is mostly used by third level and charter operators who utilise smaller piston driven aircraft which service the remote areas of PNG. Avgas is not produced at the Napa Napa refinery and is imported into PNG in 200 litre drums.

Avgas is currently declared under section 10 of the PR Act for price monitoring under Section 32A of the PR Act and is regulated in the following manner:

- the Commission performs a price monitoring role in respect of the monthly landed cost of Avgas. Wholesalers provide landed costs to the Commission which then examines these costs to see if they are trending in the same manner as a benchmark. The Commission has adopted the IPP kerosene price as the appropriate benchmark; and
- as with petrol, diesel and kerosene, the standard wholesale margin applies to Avgas.

### 6.2. Competition in the Avgas market

In the 2004 Review, the Commission noted that the demand for Avgas has significantly declined over the last twenty years with carriers substituting Avgas with Jet A1 due to a movement away from piston to turbine engines. As a result of this substitution, it has become more uneconomic to import Avgas in bulk quantities and it is now imported in 200 litres drums.

In its submission to the Issues Paper, InterOil noted that the Avgas market in PNG is very small and accounts for 0.2% of all fuels and 1.5% for aviation fuels. InterOil also indicated that operators of Avgas powered aircraft have suggested that over the next 5-7 years many of them will be upgrading their aircrafts to Jet A1 powered turbine engines. Despite the small size of the Avgas market, InterOil pointed out in its submission that because Avgas is imported in drums, no special facilities are required and hence barriers to entry are low. In light of the potential competition and small (and declining) size of the Avgas market, InterOil suggested that price regulation of Avgas is not required.<sup>53</sup>

In terms of the number of wholesalers in the market, the Commission notes that there are currently two wholesalers in the country - Shell and InterOil - while Airlines of PNG imports Avgas for its own use. Shell only operates at the Jacksons Airport in Port Moresby while InterOil operates in rest of the airports around the country. While there is competition in Port Moresby, the impact of this competition is minimal. The only change in market structure in recent years has been the exit of the largest participant, Mobil, from the market and acquisition of its assets by Airlines PNG.

While the Commission notes InterOil's comments, the Commission considers the small size of the Avgas market in PNG is unlikely to be capable of supporting a new entrant,

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<sup>53</sup> InterOil submission to the Issues Paper, July 2009, p.24

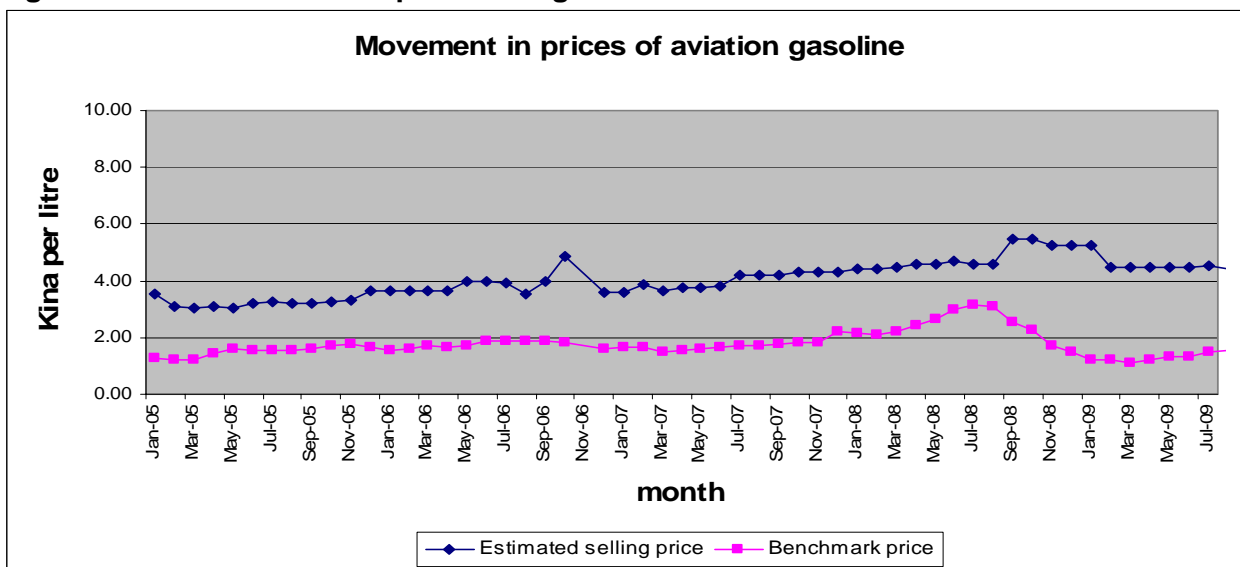
either at the present time or in future as the size of the market reduces further. The Commission considers that the withdrawal of Mobil from the market is in part a reflection of the limited opportunities that exist.

The Commission has not received any submissions from the airline companies on their ability to independently source Avgas for their own use and their degree of countervailing power. It is evident from Airlines PNG that any airline company can source its Avgas independently provided they have the storage facilities at their ports. Airlines PNG was able to source its own Avgas supplies when it purchased the storage facilities from Mobil. However it is unlikely that other airlines would be able to do so due to the prohibitive costs of establishing their own storage facilities. This limits their ability to exercise their countervailing power, if there is any.

### 6.3. Commission’s assessment

The Commission has monitored the estimated selling price of Avgas (landed price plus wholesale margin) for the past 5 years and compared it to a benchmark kerosene price (the IPP kerosene price plus duty). As the figure below shows, the Avgas price has generally tracked consistently with the movement in the benchmark index until July 2008. Since this time the benchmark price of kerosene has fallen substantially and while the price of Avgas has declined, it has not fallen by such a large amount.

**Figure 2: Movements in the price of Avgas**



This lesser decline in the Avgas price compared to the kerosene price reflects the fact that the landed costs of Avgas has not fallen by as large an amount as the reduction in the landed cost of kerosene.

#### ***Draft Decision on Avgas***

In the Draft Report, the Commission noted that due to the small number of suppliers in the Avgas market there is some possibility that suppliers may exercise their market power to increase prices. Although the Commission considered that there is limited opportunity to do so in the long term due to the possibility of new entrants, there existed the real possibility of market power being exercised in the short term. Thus the

Commission considered that it was appropriate to maintain some form of regulation over Avgas in the next regulatory period. Nevertheless, the Commission considered that due to the small and reducing size of the Avgas market, the form of regulation should be relatively light-handed and limited to price monitoring only.

In its Draft Report, Commission therefore proposed to confine its regulation of Avgas to price monitoring. However it also proposed to slightly expand its price monitoring regime to include monitoring both the landed price of Avgas (as it currently does) as well as the actual price at which Avgas is sold to customers. To the extent that the margin between the landed price and sales price varies materially over time, the Commission proposed to seek an explanation for the changes and if not satisfied with the retail price being charged, the Commission would have the option to recommend to the Minister that Avgas be declared for price control purposes.

### ***Submissions to the Draft Report***

In its submission to the Draft Report, InterOil re-iterated its view that there was no need to continue to monitor the landed price of Avgas. InterOil also objected to the Commission's proposal to monitor the actual price at which Avgas is sold to customers, on the basis that:

*Avgas is a very small sector of the market and added administrative requirements for both the industry and the Commission are not warranted given the volume of the product sold in the country.<sup>54</sup>*

### ***Final Decision on Avgas***

The Commission agrees with InterOil that monitoring the actual price at which Avgas is sold is likely to be difficult and may impose administrative costs in excess of the benefits, particularly considering the fall in demand for this product, and effective competitive pressure imposed by the threat of entry to the market.

However, the Commission remains of the view that there are some risks that monopoly supply arrangements might result in some customers being subject to unjustified price increases.

Therefore, the Commission will continue to monitor the landed price of Avgas under the current arrangements. The Commission will also make this information public on a regular basis. This transparency will provide information to assist customers to negotiate supply arrangements and be confident that they are receiving fair and reasonable prices.

## **6.4. Consideration of regulating Jet A1 fuel**

### **6.4.1. Overview of Jet A1 fuel**

Jet fuel is also used to power many aircraft, however it has quite different properties to Avgas. Jet fuel is used in turbine engines (typically larger aircraft) and comes in a

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<sup>54</sup> InterOil submission to the Draft Report, December 2009, p.17

number of different forms, including Jet A1 which is used in PNG and which is produced at the Napa Napa refinery. Jet fuel is similar to kerosene.

Over the past 25 years jet fuel, including Jet A1, has been increasingly used in the airline industry, both worldwide and in PNG, rather than Avgas. This is because environmental and cost considerations have led to increasing numbers of aircraft being fitted with highly fuel-efficient engines.

There is currently no economic regulation of Jet A1 in PNG. In its 2004 final report, the Commission considered whether Jet A1 should be regulated but concluded that there was no need at that time. However, given the decline in Avgas and increase in Jet A1 use and limited competition in the supply of this product, the Commission considers it timely to assess the current situation and ascertain whether there is any need to apply some form of regulation to Jet A1.

#### **6.4.2. Rationale for regulation**

##### ***Draft Decision on Jet A1 fuel***

In the Draft Report, the Commission noted that there were then only three participants in the market for Jet A1 and these are those same players identified in section 6.2. Shell and Airlines PNG operate in Port Moresby while InterOil operates in other provincial towns. Shell is considered to have the largest market share with InterOil having the second largest and Airlines PNG the lowest market share.

The Commission considered that given the increasing quantities of this fuel being supplied, as well as the relatively low level of competition in the market, there are merits in also subjecting Jet A1 to the price monitoring regime.

The Commission therefore proposed to monitor both the price at which Jet A1 was sold from Napa Napa and the final price at which it is sold to customers.

The Commission proposed to recommend that the Minister declare Jet A1 under Section 10 and 32A for price monitoring purposes. Similar to Avgas, the Commission proposed to monitor the prices ex Napa Napa and the final price and the corresponding volume. To the extent that the margin between the prices ex Napa Napa and the final price varies materially over time, the Commission proposed to seek an explanation for the changes and if the Commission was not satisfied with the retail price being charged the Commission would have the option to recommend to the Minister that they be declared for price control purposes.

##### ***Submissions to the Draft Report***

In response to the Draft Report, the Department of Treasury noted in its submission that it *'strongly supports the Commission's move to introduce price monitoring for Jet A1. This light handed regulation is supported on the basis of the existing low levels of competition and increasing use of Jet A1 in PNG.'*<sup>55</sup>

InterOil noted in its submission that the modes of delivery and associated costs varied significantly across IngerOil's Jet A1 customer base. The complexity of distributing and

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<sup>55</sup> Department of Treasury submission to the Draft Report, November 2009, p.5

managing Jet A1 mean that the Commission would incur significant administrative costs were it to proceed with its intention to monitor the final price at which Jet A1 is sold to customers.

In summary, InterOil supported the Commission's Draft Decision to monitor the price of Jet A1 at the refinery, but did not support the proposal to also monitor the final price and corresponding volumes.<sup>56</sup>

### ***Final Decision on Jet A1 fuel***

The Commission notes InterOil's support for introducing price monitoring of Jet A1 ex the Napa Napa refinery.

The Commission also agrees with InterOil that monitoring the actual price at which Jet A1 is sold is likely to impose administrative costs in excess of the benefits, particularly considering the complexity of supply arrangements and disparate customer base.

Therefore, the Commission will recommend that the Minister declare Jet A1 under Section 10 and 32A of the PR Act for price monitoring purposes. The Commission will monitor the refinery price of Jet A1 and will also make this information public on a regular basis to inform customers and allow them to negotiate supply arrangements.

## **6.5. Summary of Commission's decisions and recommendations to the Minister**

The following provides a summary of the Commission's Final Decisions in relation to the aviation gasoline market in PNG.

**Recommendation A: Subject to Recommendation B, the Commission recommends that the Minister not change the current policy settings of the declared goods and services that have been declared under Section 10 of the PR Act and the declared monitored goods and services that have been declared monitored goods and services under section 32A of the PR Act, in the petroleum industry sector.**

**Decision 7: The Commission will continue to monitor Avgas prices as declared monitored goods under section 32A of the PR Act. The Commission will monitor the landed price of Avgas and will also make this information public on a regular basis.**

**Recommendation B: The Commission recommends that the Minister declare Jet A1 to be declared as a monitored goods and services under section 32A of the PR Act.**

<sup>56</sup> InterOil submission to the Draft Report, December 2009, p.19

**Decision 8: The Commission will commence to monitor Jet A1 prices as declared monitored goods and services under Section 32A of the PR Act from the end of the month succeeding the month in which this Final Report is published. Similar to Avgas, the Commission will monitor the prices ex the Napa Napa refinery (or the landed price where Jet A1 is imported by InterOil) and will also make this information public on a regular basis.**

## **7. LENGTH OF REGULATORY PERIOD**

The length of the regulatory period is an important aspect of the regulatory decision to be made by the Commission for the next regulatory period.

The current regulatory period is for five years. This length of regulatory price path was designed to provide a degree of price certainty to oil industry participants, particularly in terms of wholesale and retail margins.

In the Issues Paper the Commission formed a preliminary view that a three to five year regulatory period may be appropriate for the petroleum sector.

### **7.1. Discussion of Issues**

The Commission notes that different industries have varying lengths of regulatory period given their different operating environments, nature of their businesses, and the different forms of regulation applying to the industries. For example, the Commission has adopted a ten year price path for regulated entities such as PNG Power, Telikom PNG and PNG Ports Corporation. The petroleum industry is quite different to other industries in that the Commission adopts different forms of regulation for different sub-sectors of the industry, in part because of the different level of competition seen in each industry element, but also because of the limited number of retail participants. However, the underlying factor to consider when setting the length of the regulatory period is to ensure that there is incentive for the regulated businesses to realise efficiency gains and that there should be minimal risk of actual revenues, costs and returns varying markedly from forecast.

The fuel industry is subject to volatility in the international oil market and that its dynamics can change significantly within a five year period. A regulatory period of more than five years may not take into account the changes occurring in the industry which may impact on the operations of the oil companies. On the other hand, a period less than five years arguably would not allow sufficient time for the oil companies to plan their capital expenditures and investment in their businesses as well as sufficient time for the Commission to monitor the trends of supply, demand and prices of petroleum products.

### **7.2. Commission's Decision**

In the Draft Report, the Commission considered using regulatory price control arrangements of anywhere between three years and ten years. In practice there needs to be a balance between the level of certainty provided to the regulated entities and the need to respond to external economic and business events which may have an impact on the regulatory settings. The Commission took the view that while ten years is likely to be too long a regulatory period in the current circumstances, there is evidence that three to five year periods have worked well in PNG and in other similar regulatory environments. Bearing this in mind, as well as submissions from stakeholders, the Commission's Draft Decision was to maintain a five year price path for the forthcoming regulatory period.

The Commission received only one response to the Draft Report concerning the length of the regulatory period, with InterOil noting that it supports the Commission's Draft Decision.<sup>57</sup>

Therefore, the Commission formed the view that an approximately five year time frame for price control or price monitoring, as the case may be, would be appropriate as the next regulatory period.

After the intended date of expiry of the regulatory period passed, however, the Commission caused to be published a number of Gazette notifications, pursuant to its statutory powers and/or Section 25C(2) of the PR Act, that extended the review period by successive periods of 30 days and, through such notices, established that until it formed a new decision on the price path for the petroleum products, the prevailing price control and price monitoring arrangements specified in the 2004 Final Report determinations would continue to apply in their existing form until otherwise advised.

Consequently, the prevailing price regulation and price monitoring arrangements have continued to be implemented on a monthly basis by Gazetta, as provided under the PR Act.

Such monthly continuation arrangements will have been operating for some ten (10) months by the date contemplated in this Final Report for the commencement of the arrangements for the new regulatory period. Hence, the period remaining of the originally intended five (5) year regulatory period would be approximately four (4) years and two (2) months.

In light of the above, the Commission has decided to adopt a time frame of four (4) years and two (2) months commencing 1<sup>st</sup> November 2010, for price control or price monitoring, as the case applies, as the next regulatory period.

**Decision 9: The Commission has decided to adopt a time frame of approximately four (4) years and two (2) months as the next regulatory period, commencing 1st November 2010 and ending 31st December 2014. The Commission shall review the regulatory framework before the expiry of such regulatory period; and make recommendations to the Minister, arising from such review, as to the duration and form of regulation of petroleum products and services that should prevail after such regulatory period.**

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<sup>57</sup> InterOil submission the Draft Report, December 2009, p.19

## **8. FINAL PRICE ORDER**

This section details the details of the Commission's Final Price Order for petroleum products which have been included in the draft Price Order for the forthcoming regulatory period, to allow public comment. The Final Price Order will be published in the Gazette.

### **8.1. Period of price direction**

The forms of regulation as specified below will apply to petroleum products for a period of approximately four (4) years and two (2) months from 1<sup>st</sup> November 2010 to 31<sup>st</sup> December 2014.

### **8.2. Forms of regulation**

The following are the forms of regulation that will apply to each product market component of petroleum products industry sector (in as much as it relates to the supply and distribution of petrol, diesel, kerosene, aviation gasoline and Jet A1).

#### **8.2.1. IPP**

The Commission will monitor the IPP for petrol, diesel and kerosene under Section 32A of the PR Act on a monthly basis. In addition, the Commission will also monitor the monthly volumes of petrol, diesel and kerosene produced from the Napa Napa refinery, the advance nominations for supply from each distributor and the imports of regulated products by each distributor including InterOil, under Section 32A of the PR Act.

InterOil on a monthly basis will provide daily data to the Commission on the components of the IPP as specified in the Project Agreement (as amended by the State as per the 20<sup>th</sup> May, 2008 NEC decision or according to any decision made by the State after release of the Final Report on this Review). At the end of each month and prior to the 8<sup>th</sup> day of each month, InterOil must provide the impact of the change in IPP to the Commission for verification.

In addition, InterOil will provide monthly volumes of petrol, diesel and kerosene produced at the Napa Napa refinery, the advance nominations for supply from each distributor and the imports of regulated products by InterOil, to the Commission on a quarterly basis. The other wholesale distributors will provide monthly volumes of petrol, diesel and kerosene being their advance nominations for supply from InterOil, and their imports of regulated products by means other than InterOil.

#### **8.2.2. Wholesale margin**

The Commission will regulate the wholesale margin under Section 21 of the PR Act whereby it will adjust the margin initially from 1<sup>st</sup> November 2010, and then for each subsequent year by the factor of  $(1+CPI+X)$  where X for each year of the regulatory period is as follows:

Year	X
2010	2.4%
2011	2.4%
2012	2.4%
2013	2.4%
2014	2.4%

CPI for each year t (excluding the effects of tobacco, betel-nut and alcohol) is calculated as follows;

$$CPI_t = \left( \frac{CPI_{March_{t-1}} + CPI_{June_{t-1}} + CPI_{Sept_{t-1}} + CPI_{Dec_{t-2}}}{CPI_{March_{t-2}} + CPI_{June_{t-2}} + CPI_{Sept_{t-2}} + CPI_{Dec_{t-3}}} \right) - 1$$

The Commission will inform the industry by or before 15<sup>th</sup> of December of each subsequent year of the new wholesale margin to take effect from 1<sup>st</sup> January of each year of the regulatory period.

Where the CPI data for the September quarter of year t-1 is not available in time to allow the analysis to be performed and notified before 15<sup>th</sup> December in year t-1, the CPI data ending on the prior quarter shall be substituted. Thus the CPI will be developed from comparison of the four quarters ending on the June quarter of the t-1 year to the four quarters ending on the June quarter of the t-2 year.

### 8.2.3. Domestic sea freight charges

The Commission will continue to monitor sea freight margins under Section 32A of the PR Act on the current basis, which in effect allows a 'pass through' of the costs incurred for sea freight.

The Commission will work with industry participants, particularly Wholesale distributors of petroleum products, to identify a simplified monitoring approach against a single or multi-faceted price index which will allow the Commission to decide on whether price control is required or whether to continue price monitoring but with less regulatory burden on the industry. In developing the index it will be necessary to obtain an international chartering rate series for different types of vessels, and a series for bunkering charges. Port charges could be based on regulated port charges by PNG Ports. Other information may be needed.

Further work will be necessary to define and develop an index and the Commission will consult with the industry to determine how the sea freight index should be calculated and applied. Such work to be completed before the end of March 2011, or as otherwise determined by the Commission following consideration of the views from primary industry participants.

The Commission therefore proposes to continue with the existing price monitoring approach until end March 2011, at which time the details of an indexation arrangement can be put in place.

#### 8.2.4. Drum filling margin

The Commission will continue to regulate the drum filling margins under Section 21 of the PR Act. The drum filling margin will be set at 7 toea per litre from 1<sup>st</sup> November 2010 and adjusted using a (1+CPI+X) price path over the subsequent years of the regulatory period. The X for each regulatory year is as follows:

Year	X
2010	2.4%
2011	2.4%
2012	2.4%
2013	2.4%
2014	2.4%

The CPI calculation will be the same as that specified above.

The Commission will inform the industry by or before 15<sup>th</sup> of December of the new drum filling margin to take effect from 1<sup>st</sup> January of each subsequent year of the regulatory period.

#### 8.2.5. Road freight charges

The Commission will continue to monitor road freight charges under Section 32A of the PR Act. As part of this monitoring responsibility, the Commission will compare the freight cost on individual routes with competitive routes or the market overall. Where the cost change on one route is inconsistent with changes occurring more generally in the market, the Commission will then seek explanation as to the reason for the divergence and if the Commission is not satisfied with the road freight being charged or the explanation therefore the Commission may recommend to the Minister that road freight be declared for price control purposes.

Wholesalers (including wholesalers who are participating in the retail market) and selected Retailers advised by the Commission will provide road freight charge submission to the Commission at the end of each quarter indicating the previous average rate for road freight charges and the new rate to apply for the next quarter. The submission should include the reasons/justifications for the change in the rates.

#### 8.2.6. Retail margin

The Commission will continue to regulate the retail margin for petrol, diesel and kerosene under Section 21 of the PR Act for the next regulatory period and the margin will be adjusted annually using a (1+CPI+X) price path. The X commencing 1<sup>st</sup> November 2010 and for each regulatory year is as follows:

Year	X
2010	- 0.7%
2011	- 0.7%
2012	- 0.7%
2013	- 0.7%
2014	- 0.7%

The CPI calculation is the same as that specified above.

The Commission will inform the industry by or before 15<sup>th</sup> of December of the new retail margin to take effect from 1<sup>st</sup> January of each subsequent year of the regulatory period.

#### **8.2.7. Aviation gasoline (Avgas)**

The Commission will regulate Avgas prices under Section 32A of the PR Act and will monitor only the landed price of Avgas. To the extent that the margin between the landed price and benchmark index price varies materially over time, the Commission will seek an explanation for the changes and if the Commission is not satisfied with the landed price being charged, or the explanation therefore, the Commission may recommend to the Minister that Avgas be declared for price control purposes.

#### **8.2.8. Jet A1**

The Commission will recommend to the Minister to declare prices of Jet A1 under Section 32A for price monitoring purposes. Similar to Avgas, the Commission will monitor the prices ex the Napa Napa refinery (or the landed price where Interoil import the product), and the benchmark index price. To the extent that the margin between the prices ex Napa Napa and benchmark index price varies materially over time, the Commission will seek an explanation for the changes and if the Commission is not satisfied with the refinery gate price being charged for Jet A1, or the explanation therefore, the Commission may recommend to the Minister that Jet A1 be declared for price control purposes.

## **APPENDIX**

### **Appendix 1: Submissions to the Draft Report**

The following provided submissions in response to the Draft Report:

1. InterOil
2. Mobil
3. Islands Petroleum
4. Department of Treasury

The following provided submissions in response to the draft Final Report:

1. InterOil
2. Mobil