

# DEVELOPMENTS IN THE DEREGULATED DOWNSTREAM GAS INDUSTRY

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## Abstract

This paper describes the process of deregulating the gas industry and the key features of the new regime. Access conditions for users of the Natural Gas Corporation's North Island transmission and distribution systems are listed and the forward-looking capacity purchase features of the model transmission contract described. The methodology for pricing is also outlined. The paper concludes with comments on competition issues and long-term gas demand growth prospects.

We are about to celebrate the first anniversary of energy sector reform. At the end of March 1994, a year will have elapsed since the new Gas Act took effect — unshackling the reticulated gas industry from the bonds of heavy handed regulation, including price control, and paving the way for the industry to begin to realise its true potential. At the same time, the protection of exclusivity enjoyed by current participants was abolished thus exposing the industry to open competition.

Outwardly, there has been little manifestation in the past 12 months of the emergence of the competitive forces the new regime is designed to foster. This has given rise to pessimism in some quarters about the effectiveness of the deregulation process — a view I think is quite premature and misplaced.

Given the contractually entrenched nature of existing arrangements within the industry, the formal structure of the industry was never going to change quickly. Rather the process is an evolving one, with the resetting of wholesale arrangements flowing on and into the distribution sector.

The need to reset wholesale arrangements flows from the cessation of price control together with the clear direction from the new Act and its regulations to implement open access gas transmission and distribution systems. In particular, with the abolition of price control, formal relationships between Natural Gas Corporation and its utility distributors effectively reverted to contracts negotiated in a different time and under quite different circumstances. These contracts are quite unsuitable for an open access transportation regime and contain other provisions which do not reflect the intent of the Commerce Act or current commercial practice.

Thus the industry is grappling with profound changes, but progress has been good and there appears to be no reason why the new contract regime cannot be implemented this year. In fact, the gas industry is far more advanced in its preparations for a competitive wholesale and retail market than is the electricity industry, which is going through a similar deregulation process.

In that industry we have witnessed the development of complex cross-shareholdings as the supply companies forge

alliances in search of corporate stability and to support anticipated energy trading positions. Ominously, this includes new forays by electricity suppliers into ownership of gas distributors. For if, like Natural Gas Corporation, you believe that the gas distribution market includes large numbers of electricity consumers yet to be converted to natural gas — this trend must sound alarm bells.

Moves, including those by ourselves, to establish through amalgamation, a stronger, more cohesive and more competitive gas industry, reflect the reality that the existing retail gas industry is a relatively small distributor in the domestic and commercial energy markets and in its current fragmented state will have difficulties challenging the dominance of electricity suppliers in these energy markets. Our reversion to the courts to clarify competition issues in the overall energy market will hopefully lead to the establishment of a framework in which natural gas will be able to fulfil its true potential as the fuel of first choice in homes, commerce and industry.

## Major Issues

The New Zealand natural gas industry faces two major issues. The first I have mentioned briefly. This is the increasing marginalisation of natural gas by electricity suppliers through their unfettered ability and willingness to adjust the balance between variable and fixed charges in tariffs at all levels of the chain.

In the home and in commercial premises, increased levels of natural gas used directly are being significantly hampered by electricity fixed charges which mean that new users switching some of their appliances to natural gas do not get a pro rata drop in their electricity bill. For the same reason, large industries are also finding it difficult to justify major cogeneration plant investments. In the meantime, we continue to waste a significant proportion of the 60PJ or so of Maui gas burned each year in inefficient and dated electricity generation plants.

The second major issue facing the natural gas industry is that supplies of Maui gas currently contracted by NGC and

available to utilities and industrial users, plus very limited supplies of unallocated Kapuni gas, are insufficient to allow NGC to properly supply independent power generators in the long term. We are trying to purchase gas from ECNZ and Petrocorp for these customers. We are also continuing to actively seek alternative sources of gas supply for this market. I would like to develop this point in more detail.

## Gas Supply

Maui gas has been allocated by the Crown to ECNZ (43%), Methanex (30%) and NGC (28%) (figure 1). All Kapuni gas currently produced goes to Methanex and Petrochem with some fuel and balancing gas to NGC's process plant, and a variety of other Taranaki gases to ECNZ and Methanex.

Figure 2 shows NGC's annual contract entitlements (ACQ) from Maui, which have peaked in the current year.

Turning to gas demand, figure 3 shows a relatively conservative forecast of NGC's expected demand for gas, and assumes no supply to independent power generators. Figure 3 illustrates the market mix including the overwhelming importance of the major industrial customers, and the predicted declining usage of gas for vehicles. Growth in the industrial market will come mainly from cogeneration in the wood, dairy, and food processing industries with many long-term opportunities in the Gisborne, Bay of Plenty and Northland regions.

Figure 4 shows the expected demand for gas of all utilities including NGC's utilities. I believe this is a conservative projection.

Figure 5 brings back the NGC ACQ line and illustrates the mismatch between NGC's ACQ entitlement and demand.

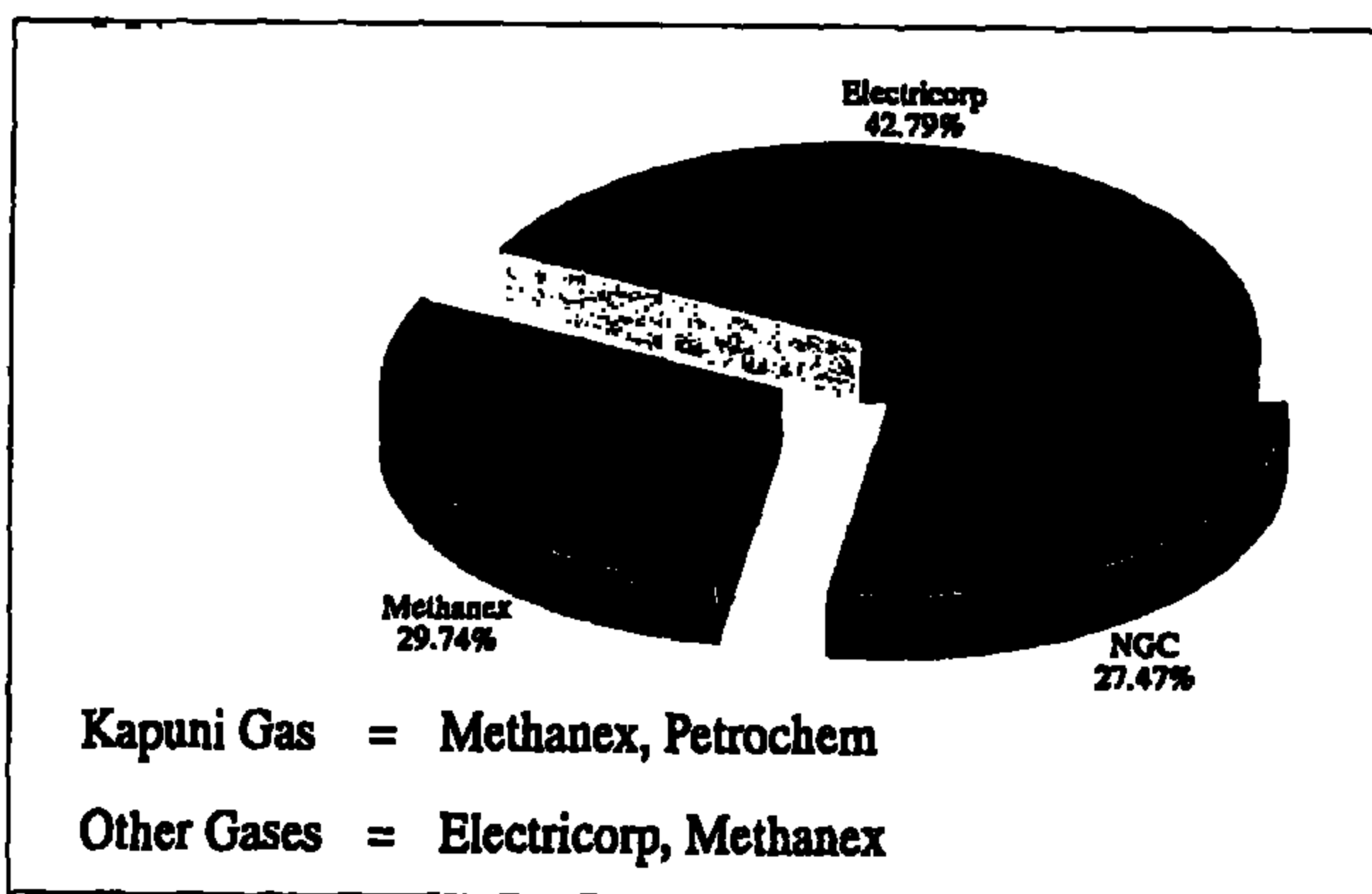


Fig. 1. Maui gas allocation.

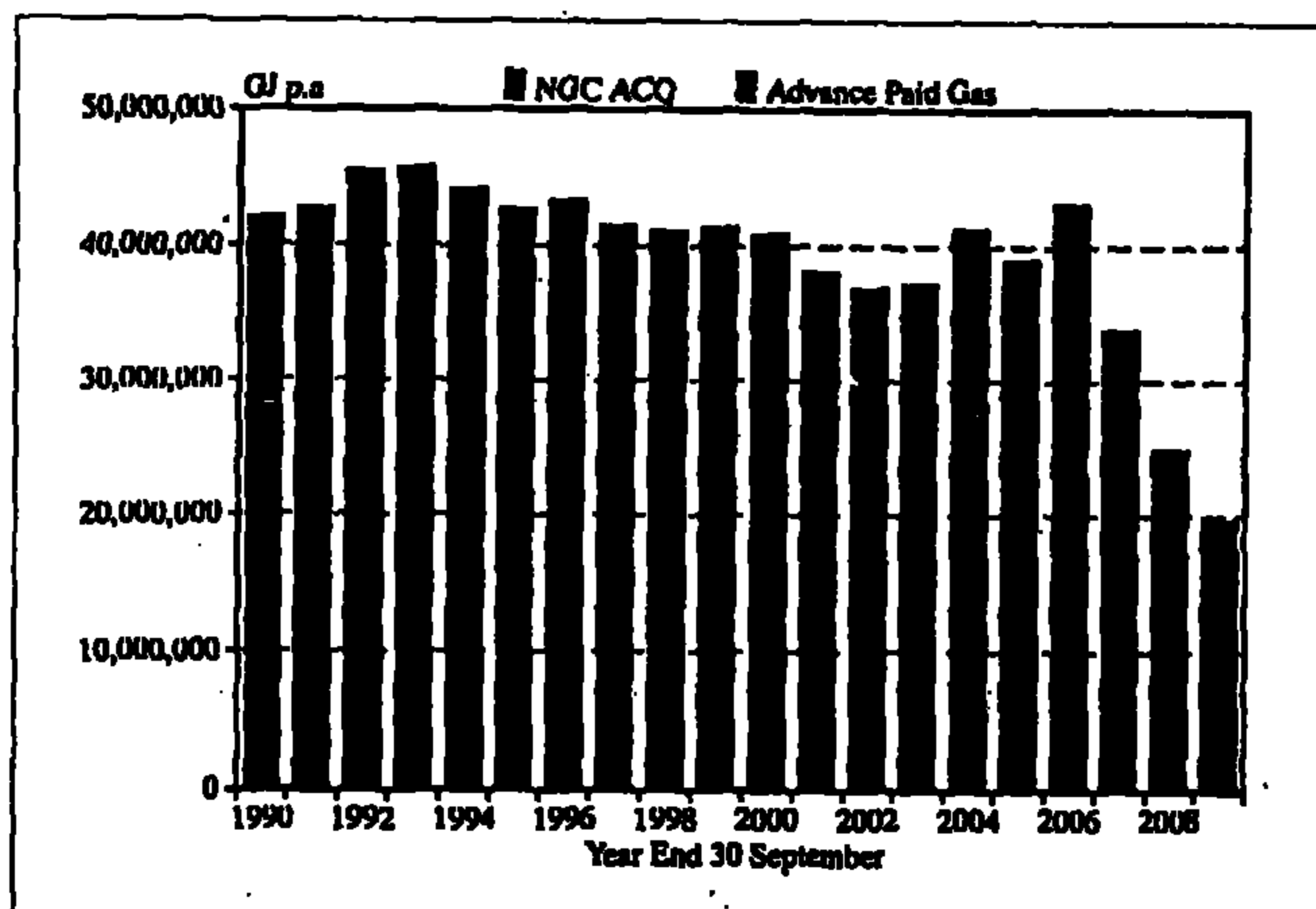


Fig. 2. NGC total Maui ACQ entitlements.

However, because NGC has for some years been paying for more gas than it has sold, the situation is not quite as bad as it may appear.

Figure 6 illustrates how NGC will use its prepaid Maui gas entitlements and its future ACQ to supply the retail market. It is clear from this figure that the time has come for NGC to contract for more gas for supply from late this decade.

The total expected demand for gas is shown in figure 7, including ECNZ, Methanex and NGC's assessment of the supply availability.

Both ECNZ and NGC clearly need new gas supplies from the end of this decade to supply traditional markets. It is still unclear how new independent power producers will be

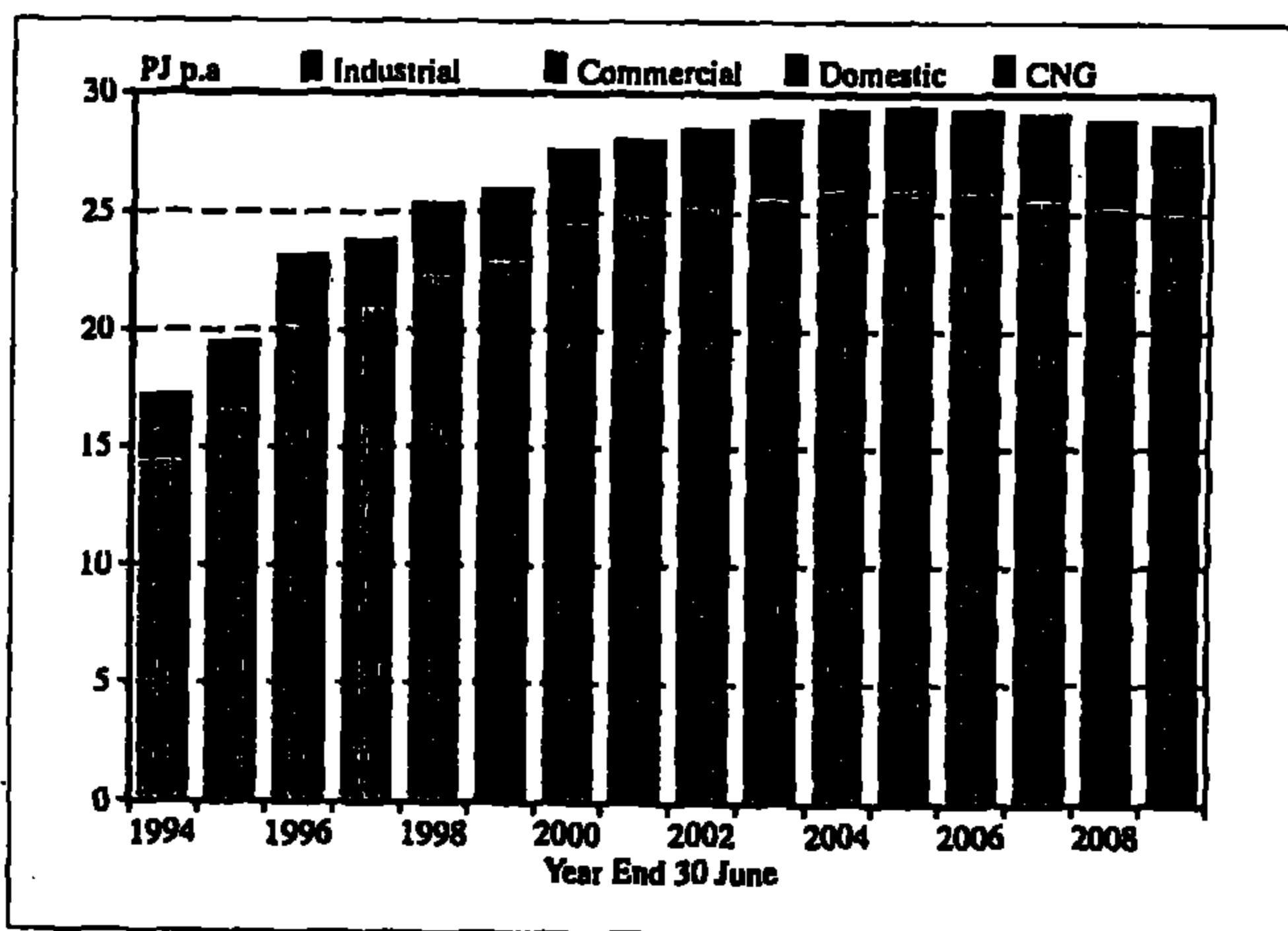


Fig. 3. NGC direct retail sales.

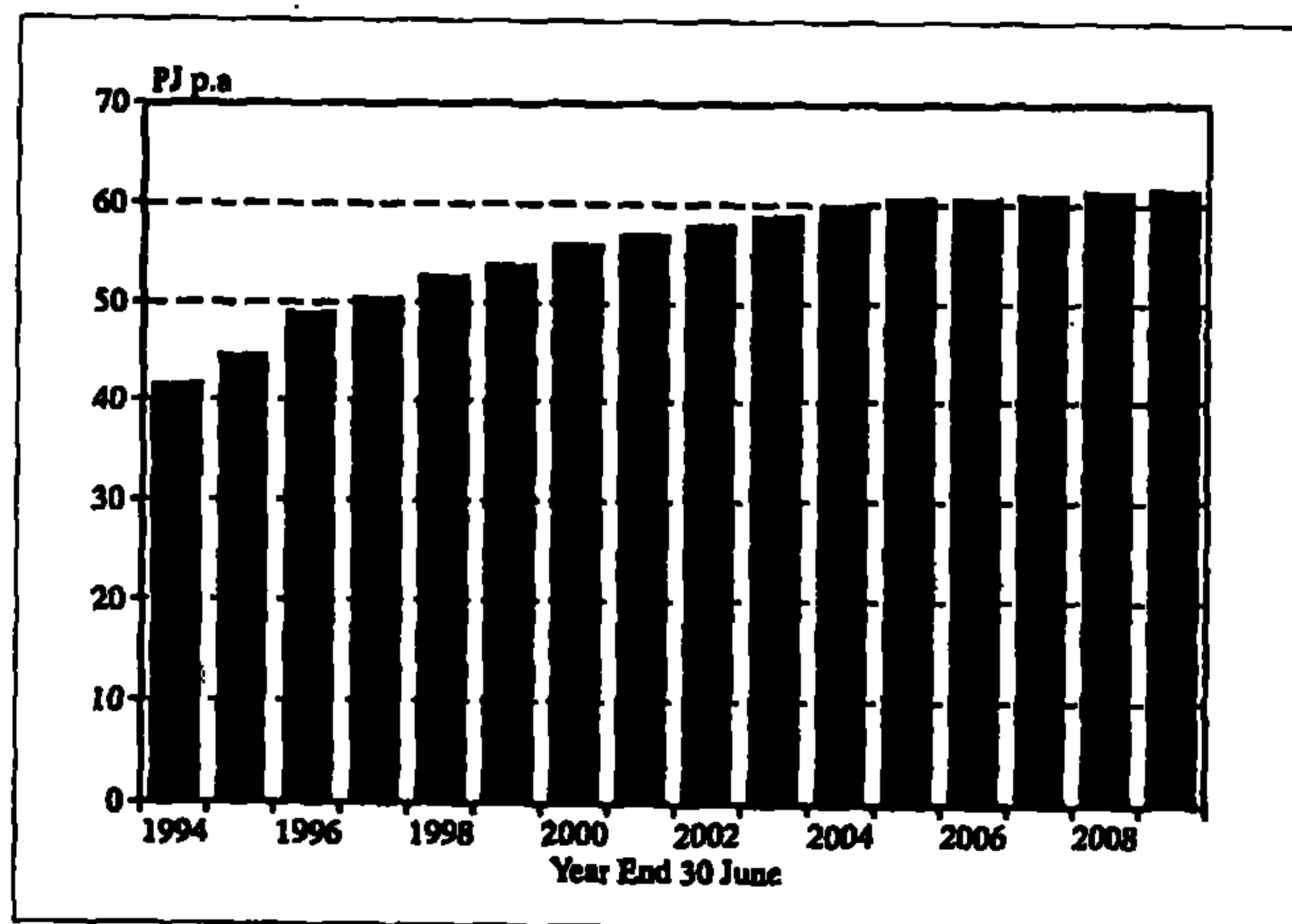


Fig. 4. Total retail market.

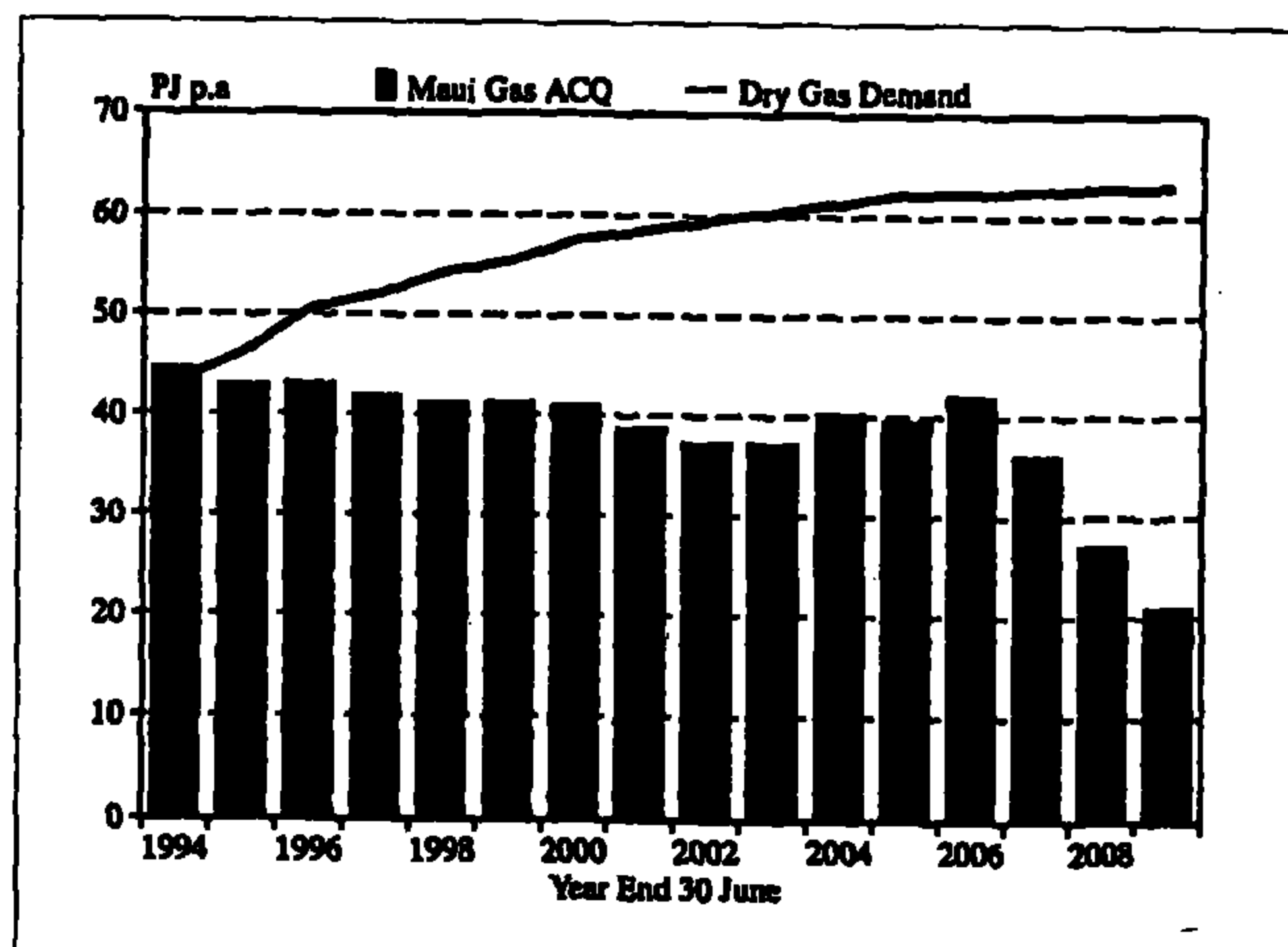


Fig. 5. Maui ACQ vs total NGC dry gas demand.

supplied with gas. The potential size of this load compared to existing reserves means that negotiation of commercial arrangements between producers, wholesalers and power generators will require the positive co-operation of all major industry participants including ECNZ and Petrocorp. NGC, for its part, is willing to act in a wholesaler role if required, and to take a share of the commercial risks for the appropriate benefit.

### Transportation and Supply Contracts

NGC and its utility customers are currently negotiating new separate transportation and energy contracts. New contracts will allow the implementation of a proper open access transportation regime, and facilitate the sale and transportation of third party gas. NGC for its part is proposing to sell energy with contracts with the following features:

- title to gas passes at the perimeter of NGC's pipeline hub (figure 8) encompassing the Maui pipeline
- the gas price will comprise a fixed element (the Commitment Charge) and a variable part (the Gas Charge), and include a charge for back-up gas
- term is negotiable
- the gas price is escalated over the contract term
- the contracts will nominate fixed annual quantities for each year of the contract term. Over performance will require spot gas to be accessed. Underperformance will result in a higher average price since the Commitment

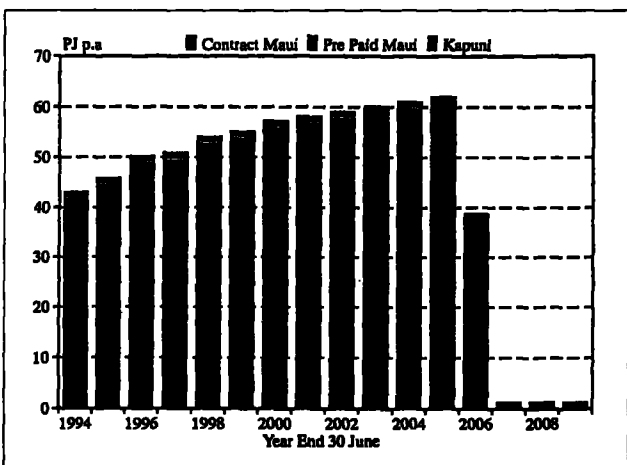


Fig. 6. Makeup of retail sales demand from current NGC supply contracts.

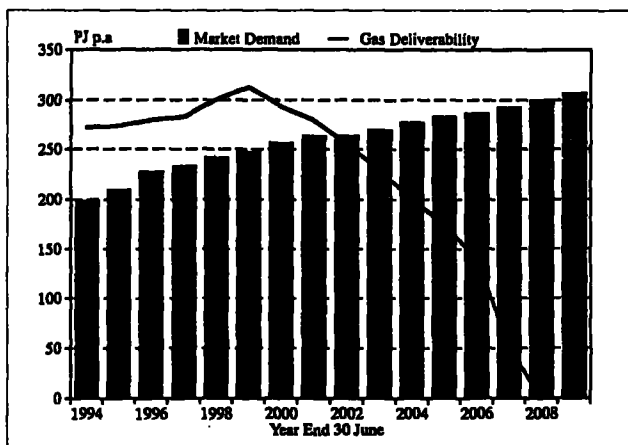


Fig. 7. Future gas deliverability vs total gas market demand in New Zealand.

Charge is payable on the full contract quantity regardless of uplift

Those proposals are intended to maintain supply of wholesale gas to the reticulated market at competitive prices, and to encourage explorers to find new gas.

I do not propose to detail here all the important provisions of the proposed new transportation contracts. Key features include:

- the supply of transportation services for specification gas from any receipt point to any delivery point subject to the availability of capacity
- a transportation tariff which increases with distance and includes a capacity reservation charge which ensures an entitlement to a defined level of capacity, and a regionally based exit fee which will remain fixed in real terms
- capacity entitlements to existing users to start at current usage levels, otherwise a first come, first served allocation will apply

The structure of the new transportation contract is based largely on North American experience.

The demand for reticulated gas is fairly constant throughout the year, with the high dairy industry summer load offsetting lower heating loads. System usage is still generally below capacity at all times and NGC therefore anticipates that interruptible contracts will initially develop mostly at the distribution level. However, NGC has started developing an interruptible transportation contract. NGC expects that the costs of transportation services to be recovered in the new contracts will be similar to the current level of recovery.

### Capacity of Transmission System

Each year NGC completes a review of its transmission system. The purpose of this review is to assess what load

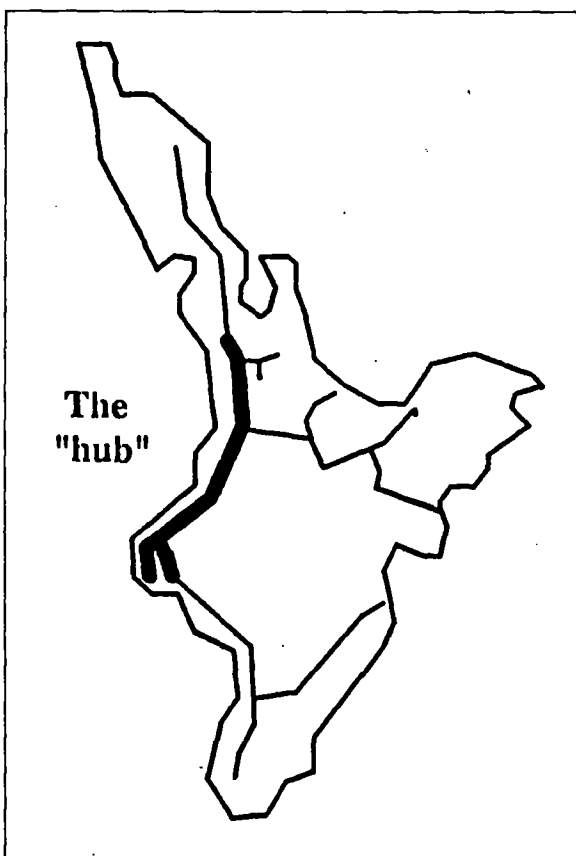


Fig. 8. Pipeline "hub".

increments could be accommodated at major offtakes before capacity constraints are encountered, and to identify the factors which constrain capacity.

The Corporation operates a sophisticated state of the art transient flow pipeline modelling system which is used to complete this review. The latest review reconfirms that there is considerable capacity at the key delivery points.

Specifically, in the North system (figure 9), the key issue appears to be a limitation of 64 bar on transmission pressure through Auckland City. The normal maximum is 86 bar. The North System comprises all lines north of Rotowaro feeding to Glenbrook, Auckland and Whangarei. Winter load to Auckland defines the system peak, but deliverability to the far north depends on localised loads. Crucial months are July for Auckland and November for the far north.

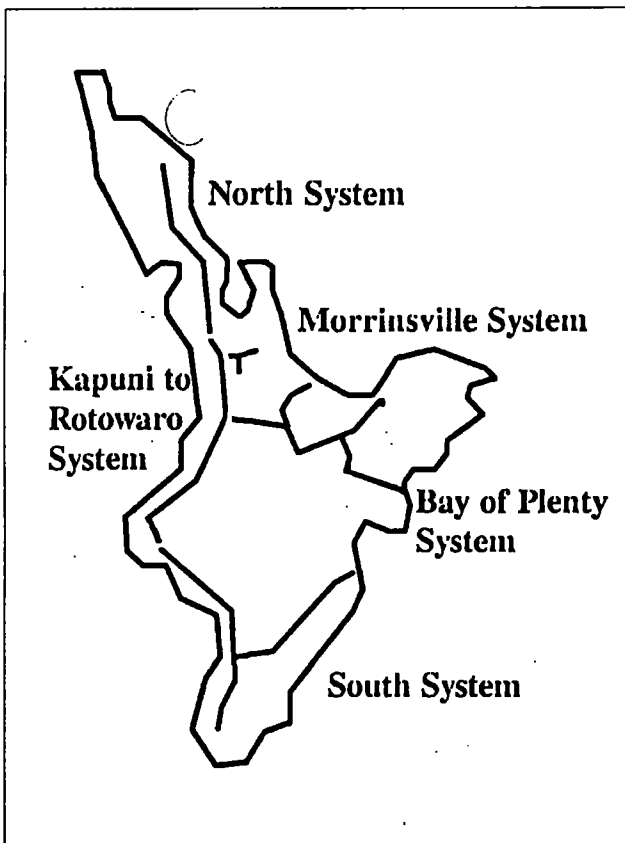


Fig. 9. Pipeline systems.

In the Kapuni to Rotowaro system including the Morrinsville system, the issues include the small pipe sizes in the Morrinsville system and the New Plymouth laterals which can require high inlet pressures. This may limit overall system capacity. Characteristics of the load on these systems are winter demand in Hamilton and New Plymouth and the dairy load on the Morrinsville system. Crucial months are July for Hamilton and New Plymouth, and November for the Morrinsville system. A limiting factor on these systems is the vulnerability of the southern portion when the Mahoenui compressors are running.

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In the Bay of Plenty system the main issue is the small size of lateral pipelines, which limits loads at the extremities. The Bay of Plenty system comprises the Pokuru compressor station near Te Awamutu and pipelines to Rotorua, Tauranga, Taupo and Gisborne.

The primary load is industrial and has no seasonal trend. Accordingly, crucial times are variable and depend on the location of delivery points.

And in the South system the issues include compression limitations at the Kaitoke compressor station, limiting back up potential; the small size of laterals serving towns on the system and a spiky load at Palmerston North, which can limit the overall system load. The load is characterised by winter demand in Wellington, Hastings and Palmerston North, with the crucial month being July.

A substantial amount of effort is currently being made to model system demand and capacity well into the next century. We anticipate that reinforcement of some pipelines will be required in due course, and the appropriate preliminary planning processes are now well under way.

**Pricing Issues and New Gas Supplies**

NGC currently buys gas from the Crown for \$2.64/GJ, made up as follows:

	YE 9/94 \$/GJ
Maui Producer Price paid by Crown	1.46
Crown Margin	0.73
Crown Energy Resources Levy	0.45
NGC buys from Crown	2.64

Note that neither the 'Crown Margin' or the Energy Resources Levy apply to new gases. The relatively low price for Maui gas may be an incentive for the Maui partners to try and get Maui gas used up quickly and in preference to other gas reserves they may have identified.

- In addition to this issue, current topical questions include:
- can the Maui partners produce gas from Maui licence margin blocks using existing facilities?
  - under what circumstances will Kupe development proceed?

**Conclusions**

Firstly, the demand for natural gas in New Zealand currently is largely determined by ECNZ and Methanex.

Secondly, strong growth in natural gas demand in the reticulated system will occur when customers, particularly industrial-based cogenerators and independent power producers, obtain relief and long-term protection from high fixed electricity charges in ECNZ and ESC tariffs.

Finally, NGC intends to actively participate in the future growth of the New Zealand gas business, by ensuring that a fully contestable open access transmission system operates in New Zealand with adequate capacity to meet future load growth, and by keeping the industry informed of supply, demand, and pipeline capacity issues, and through proactive development of its gas wholesaling activities.