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COMMERCE COMMISSION

Decision No. 414

Determination pursuant to the Commerce Act 1986 in the matter of an application involving:

BOC GASES NEW ZEALAND LIMITED

and

ASCO CARBON DIOXIDE LIMITED

The Commission:	M J Belgrave M N Berry P R Rebstock
Summary of Application:	The acquisition by BOC Gases New Zealand Limited of various business assets of ASCO Carbon Dioxide Limited relating to retailing of carbon dioxide in New Zealand.
Determination:	Pursuant to section 66(3)(a) of the Commerce Act 1986, the Commission declines to give clearance for the proposed acquisition.
Date of Determination:	2 February 2001

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THE PROPOSAL

1. On 5 December 2000, the Commission registered a notice pursuant to section 66(1) of the Commerce Act 1986 (the Act) seeking clearance by BOC Gases New Zealand Limited or any interconnected body corporate of BOC Gases New Zealand Limited (BOC) to acquire various assets comprising, in the form of notification, the following:

    - those business assets of ASCO Carbon Dioxide Limited (ASCO) relating to retailing of carbon dioxide in New Zealand;
    - A restraint of trade agreement preventing ASCO from directly or indirectly engaging in the sale, transfer or delivery of carbon dioxide in New Zealand for a period of 5 years from the asset sale;
    - A 10 year agreement for the purchase by BOC of all carbon dioxide produced by ASCO; and
    - A 10 year agreement appointing BOC as exclusive distributor in New Zealand of ASCO generators, other than those that use diesel as a feedstock.

THE PROCEDURES

2. Section 66(3) of the Act requires the Commission either to clear, or to decline to clear, a notice given under section 66(1) within 10 working days, unless the Commission and the person who gave the notice agree to a longer period. An extension in time was sought by the applicant, and by the Commission on two occasions. Accordingly, a decision on the application was required by Friday 2 February 2001.
3. The applicant sought confidentiality for specific information contained in the notice, and a confidentiality order was made in respect of this information for a period of 20 working days from the Commission's determination of the notice. When the confidentiality order expires, the provisions of the Official Information Act 1982 will apply.
4. The Commission's determination is based on an investigation conducted by its staff and their subsequent advice to the Commission.

THE PARTIES

BOC Gases New Zealand Limited (BOC)

5. BOC is 100% owned by BOC New Zealand Holdings Limited which is 100% owned by The BOC Group Plc, a global supplier of industrial and speciality gases and related consumables and services. The BOC Group which has operations in 44 countries had a turnover of £3,878.8 million for the year ended 30 September 2000 and a profit of £326.4 million. The turnover for its gases and related products business was £3,093.7 million and its operating profit, £467.9 million.

6. BOC is involved in the production, distribution and retailing of industrial and speciality gases, and the distribution of welding equipment and safety equipment throughout New Zealand. It is based in Auckland, has a production and distribution facility in

Christchurch and owns Gas and Gear outlets throughout New Zealand. BOC is not itself involved in the production of carbon dioxide. However, it sells carbon dioxide directly to customers or through the Gas and Gear outlets or through agents in smaller centres. BOC had a turnover of [

].

ASCO Carbon Dioxide Limited (ASCO)

7. ASCO is a member of a privately owned Swiss company group and is 100% owned by ASCO, Kohlensaeure AG. It is based in Christchurch.

8. ASCO is involved in the production and distribution of carbon dioxide, the construction and sale of carbon dioxide manufacturing equipment and plant, and vessels for liquid storage and transport. The largest part of its business is the production of carbon dioxide production plants, which use light fuel oil, heavy fuel oil, diesel, kerosene or natural gas as a fuel. [

].

9. ASCO sells the carbon dioxide it produces either through agents or directly to its customers in the South Island.

OTHER RELEVANT PARTIES

Air Liquide New Zealand Limited (Air Liquide)

10. Air Liquide is the only other major distributor of carbon dioxide in New Zealand apart from BOC and ASCO. It is owned by Air Liquide Australia and is part of the Air Liquide Group, which is an international group specialising in industrial and medical gases and related services. The Group operates in 60 countries through 125 subsidiaries. Its turnover for the year ended 31 December 1999 was 6,538 million euros, which resulted in net earnings of 563 million euros.

11. In New Zealand, Air Liquide produces atmospheric gases (other than carbon dioxide) from its facility at the Pacific Steel plant in Auckland. It distributes most of its products throughout the North Island, although it also sells carbon dioxide cylinders in the Marlborough area, primarily to wineries. It has approximately 40 retail outlets in the North Island comprising service centres in the major cities and agents in smaller centres. Air Liquide's sales revenue in 1999 was [ ].

THE PROPOSED ACQUISITION

12. BOC states that it proposes to acquire, as a going concern, the assets of ASCO relating to retail sales of carbon dioxide in New Zealand. [

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13. After the proposed acquisition, ASCO will be focusing on the sale and construction of carbon dioxide generation equipment, primarily for export. The sale and purchase agreement will contain a restraint of trade preventing ASCO from engaging in the sale, transfer or delivery of carbon dioxide in New Zealand for a period of five years from the asset sales. BOC and ASCO will enter into a 10-year agreement for the purchase by BOC of all carbon dioxide manufactured by ASCO. They will also enter into a 10-year agreement appointing BOC an exclusive distributor in New Zealand of ASCO generators other than those that use diesel as feedstock.

14. The Commission notes that in the Commerce Act 1986, "assets" includes intangible assets. The Commission concludes that the restraint of trade agreement, the 10 year agreement for the purchase of all carbon dioxide produced by ASCO, and the exclusive dealership for ASCO generators (other than diesel) are assets which will be acquired by BOC and form part of the acquisition for which BOC seeks clearance.

INDUSTRY BACKGROUND

Carbon Dioxide

15. Carbon dioxide is a colourless, inert gas approximately 1½ times heavier than air. It can exist in three forms: as a gas, as a liquid, and as a solid in the form of dry ice. Carbon dioxide cannot exist under atmospheric conditions in liquid form. However, gaseous carbon dioxide can be liquefied under pressure provided its temperature is kept below 31°C. If the pressure of liquid carbon dioxide is suddenly released, a portion of that liquid will change to solid carbon dioxide or dry ice "snow". When the snow is compressed by hydraulic or mechanical action, blocks or pellets of dry ice are formed. The temperature of dry ice is -79°C.

Uses of Carbon Dioxide

16. The primary commercial uses of carbon dioxide in New Zealand are:

- carbonated drinks
- forcing liquid through lines in breweries, wineries and pubs
- some food processing
- heating of greenhouses
- welding
- refrigeration
- manufacture of crystals
- fire extinguishers.

17. Other applications include:

- pH control and regulation of waste waters, swimming pools etc
- carrier gas for deodorants, odorants, pesticides etc
- breathing stimulant

- cryosurgery.

Commercial Forms of Carbon Dioxide

18. Carbon dioxide is sold in three forms:

    - bulk
    - cylinders
    - dry ice.

Sources of Carbon Dioxide

19. Carbon dioxide is produced commercially by the combustion of high carbon content fuels such as oil which, when mixed with the right amount of air burns to produce around 15% carbon dioxide in the flue gases. This carbon dioxide is then separated from the flue gases. It is also collected as a by-product from other industrial processes.

20. BOC currently sources its carbon dioxide from Natural Gas Corporation of New Zealand Limited's ("NGC") carbon dioxide liquefaction plant at Kapuni. Liquid carbon dioxide is produced as a by-product during the processing of raw natural gas.

21. BOC's supply from NGC is the subject of an agreement, which terminates on [

    ]. During this period there would appear to be no extra NGC carbon dioxide available for a potential entrant to source.

22. ASCO produces carbon dioxide by means of its own diesel fuelled carbon dioxide generators in Christchurch. If it were acquired by BOC, it would continue to produce quantities of gas as a by-product of plant testing.

23. Air Liquide produces carbon dioxide at New Zealand Refining Company Limited's ("NZRC") refining operation at Marsden Point. Air Liquide uses a 'stack gas recovery plant' to convert stack gas into carbon dioxide. By virtue of this conversion process, Air Liquide may be viewed as a producer of carbon dioxide.

24. Currently, Air Liquide purchases the gas that it distributes in the Wellington region from BOC. In the latest financial year it purchased [ ] tonnes on an informal basis. The carbon dioxide is repackaged by Air Liquide into cylinders as compressed carbon dioxide. The price Air Liquide pays for this carbon dioxide is [ ] per kilogram, delivered to its Wellington distribution centre. Air Liquide stated that [

    ].

25. Outlined below in Table 1 are the production capacities and current production volumes for each of the sources of carbon dioxide in New Zealand.

Table 1
Production of Carbon Dioxide in New Zealand in 2000

Producer	Production Capacity	Current Production
Natural Gas Corp	[ ]	[ ]
Air Liquide	[ ]	[ ]
ASCO	[ ]	[ ]
Total	**[ ]**	**[ ]**

Source: data supplied by BOC, Air Liquide and ASCO

Production Costs

26. The cost of producing carbon dioxide depends upon the process used. [

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Transport Costs

27. Carbon dioxide is a low value, bulky product to transport, which generally results in proportionately high unit transport costs. Air Liquide and BOC transport carbon dioxide in bulk form from their respective sources to regional distribution centres, where it is either compressed into cylinders, processed into dry ice, or distributed in bulk form. The further a distribution centre is from a source of carbon dioxide, the greater the unit transportation costs. If a particular distribution centre is significantly closer to the source of carbon dioxide than a competing centre, then that centre would have a cost advantage because of lower unit transport costs.

28. BOC estimates that it costs [ ] to transport bulk carbon dioxide from its Kapuni source to its Christchurch distribution centre. Its delivered cost is [ ]. Air Liquide estimates that it would cost [ ] to transport bulk carbon dioxide from its Marsden Point source to Wellington. It estimates that it would cost a further [ ] to transport bulk carbon dioxide to Christchurch, with its total delivered cost being about [ ]. Air Liquide stated that such a strategy would require further investment in transportation and distribution assets.

Prices

29. Prices for carbon dioxide largely depend on the form, the volume purchased and the price negotiated by the parties. Compressed carbon dioxide in cylinders is more expensive because of the higher production costs. The price per kilogram varies greatly. The average unit prices per kilogram for compressed and bulk carbon dioxide are outlined below in Table 2.

Table 2
Market Prices for Carbon Dioxide

	Bulk Carbon Dioxide AUP Kilogram	Cylinders AUP Kilogram
BOC N.Isl	[ ]	[ ]
BOC S. Isl.	[ ]	[ ]
Air Liquide N. Isl.	[ ]	[ ]
ASCO S.Isl	[ ]	[ ]

*excluding a major customer which has negotiated significant discounts.

Customer Base

30. The customer base for compressed carbon dioxide is fragmented and the price per tonne generally (see Table 2) varies with the volume purchased. The applicant provided Commission staff with a list of its [ ] compressed gas customers and [ ] bulk customers situated in the South Island. [

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MARKET DEFINITION

Introduction

31. The purpose of defining a market is to provide a framework within which the competition implications of a business acquisition can be analysed. The relevant markets are those in which competition may be affected by the acquisition being considered. Identification of the relevant markets enables the Commission to examine whether the acquisition would result, or would be likely to result, in the acquisition or strengthening of a dominant position in any market in terms of section 47(1) of the Act.

32. Section 3(1A) of the Act provides that:

> ". . . the term 'market' is a reference to a market in New Zealand for goods and services as well as other goods and services that, as a matter of fact and commercial common sense, are substitutable for them."

33. Relevant principles relating to market definition are set out in *Telecom Corporation of New Zealand Ltd v Commerce Commission*,[1] *Commerce Commission v Carter Holt Harvey Building Products Limited*,[2] and in the Commission's *Business Acquisition Guidelines* ("the Guidelines").[3] A brief outline of the principles follows.

34. Markets are defined in relation to three dimensions, namely product type, geographical extent, and functional level. A market encompasses products that are close substitutes in the eyes of buyers, and excludes all other products. The boundaries of the product and geographical markets are identified by considering the extent to which buyers are able to substitute other products, or across geographical regions, when they are given the

[1] (1991) 4 TCLR 473.
[2] Williams J, 18 April 2000, HC, yet to be reported.
[3] Commerce Commission, *Business Acquisition Guidelines*, 1999, pp. 11-16.

incentive to do so by a change in the relative prices of the products concerned. A market is the smallest area of product and geographic space in which all such substitution possibilities are encompassed. It is in this space that a hypothetical, profit maximising, monopoly supplier of the defined product could exert market power, because buyers, facing a rise in price, would have no close substitutes to which to turn.

35. A properly defined market includes products which are regarded by buyers or sellers as being not too different ('product' dimension), and not too far away ('geographical' dimension), and are therefore products over which the hypothetical monopolist would need to exercise control in order for it to be able to exert market power. A market defined in these terms is one within which a hypothetical monopolist would be in a position to impose, at the least, a "small yet significant and non-transitory increase in price" (the "*ssnip*" test), assuming that other terms of sale remain unchanged.[4]

36. Markets are also defined in relation to functional level. Typically, the production, distribution, and sale of products takes place through a series of stages, which may be visualised as being arranged vertically, with markets intervening between suppliers at one vertical stage and buyers at the next. Hence, the functional market level affected by the application has to be determined as part of the market definition. For example, that between manufacturers and wholesalers might be called the "manufacturing market", while that between wholesalers and retailers is usually known as the "wholesaling market".

Relevant Markets

Product Market

37. The applicant has submitted that it competes in a market for industrial gases because the two major suppliers of carbon dioxide (BOC and Air Liquide) compete over a broader supply of an extensive bundle of gases. It states, however, that it accepts that the Commission may wish to test the possibility of a narrow market definition extending to carbon dioxide only, and has provided information on the basis of a carbon dioxide market.

38. As stated above, carbon dioxide has various applications. From a demand side perspective, for most of these applications there are no close substitutes in terms of price and functionality. BOC has claimed that argon can be substituted for carbon dioxide for welding but in fact, argon is ten times more expensive. BOC has also claimed that nitrogen can be substituted for carbon dioxide for refrigeration. However the difference in temperature of liquid nitrogen (- 186°C) and carbon dioxide (-20°C to -50°C) means that they are only substitutable with a change in process or equipment or both. Two other substitutes suggested by BOC were also not economically or practically feasible. There are no close substitutes for carbon dioxide in terms of performance and quality, for manufacturers of carbonated soft drinks or some drink dispensing systems.

39. There are significant variations in price per kilogram for each of the three forms in which carbon dioxide is supplied. On the face of it there is an argument for separate markets for bulk, cylinders and dry ice. Cylinders are used by small users and it would only be economic for a user to switch to bulk carbon dioxide if they were using more than 50

[4] A *ssnip* is regarded as an increase of 5-10% over 12 months.

tonnes a year. However, from a supply side perspective, suppliers of carbon dioxide supply all three forms of the product and supply can be effected without significant investment in sunk costs. If a hypothetical monopolist distributor of bulk carbon dioxide were to increase its prices by a *ssnip*, a distributor of compressed carbon dioxide could switch or expand to distribute carbon dioxide without significant investment in sunk cost. Generally, distributors of carbon dioxide all supply bulk, compressed and dry ice forms of carbon dioxide. The Commission therefore concludes that for the purpose of competition analysis, the relevant product dimension of the market is the market for carbon dioxide.

Functional Market

40. The applicant has submitted that the relevant functional level of the market is that for the distribution of carbon dioxide. It submits that it is not involved in the production of carbon dioxide, which it sources from NGC's Kapuni gas field, and it will not be acquiring the production capability from ASCO. However, the applicant will be acquiring carbon dioxide from ASCO on an exclusive supply basis.

41. The boundaries are, to some extent, blurred in the case of the distribution functions performed in relation to carbon dioxide. In most cases, carbon dioxide is sourced from producers (such as NGC), or produced internally (such as Air Liquide) and distributed direct to end users by distribution companies (such as BOC and Air Liquide). In other cases, there have been additional wholesale levels of distribution (such as BOC to Air Liquide in Wellington). In the case of ASCO, the carbon dioxide has been produced and delivered internally. ASCO's form of internal production and delivery will not continue post-merger. However, the various wholesale supply and distribution patterns mentioned above will prevail.

42. The Commission concludes that for the purposes of assessing competition implications of the proposed acquisition, the relevant functional dimension of the market is that for:

    - the wholesale supply and distribution of carbon dioxide.

Geographic Market

43. This acquisition will result in aggregation of business activity occurring within the South Island of New Zealand, as ASCO only operates in that Island.

44. The applicant submits that the relevant market is the national market for the distribution of carbon dioxide. It claims that the range and location of carbon dioxide sources, combined with the cost effectiveness, regularity and volume of inter-island transport supports this market.

45. The principles the Commission considers when defining the geographic dimension of the market are outlined in its *Business Acquisitions Guidelines*.[5] The Commission considers evidence of past and forecast buyer and seller behaviour. It will also assess the practicality of transporting a particular product by different modes over various distances and the costs of doing so relative to the value and profitability of the product. Where transport costs are high relative to the final value of a product, the Commission will

[5] Ibid 13

generally adopt a narrower geographic market. Where markets appear to be local or regional in extent, the markets may overlap to form a market covering a larger geographical area through a 'chain of substitution'.[6]

46. The high cost of transportation results in regional distribution centres, which have storage facilities and plant capable of refilling the carbon dioxide. These centres are mostly located in Auckland, Hamilton, Wellington and Christchurch. These regional centres service a more extensive regional branch/agency network of supply channels. Carbon dioxide is generally delivered in bulk from the source to the regional distribution centres. BOC rail freights bulk carbon dioxide in special containers to its Christchurch distribution centre, where it is stored in a "tank farm" and then repackaged or delivered in bulk throughout the South Island.

47. Generally, Christchurch-based distributors of carbon dioxide face similar costs of distributing the product throughout the South Island. If a hypothetical monopolist supplier of carbon dioxide in Southland were to increase its prices by a *ssnip,* a supplier to a neighbouring region from Christchurch, could supply Southland and constrain the behaviour of the monopolist. Through a chain of substitution, the geographic market would extend to the whole of the South Island However, if there were only one Christchurch-based distributor, that distributor would have considerable price discretion in regions that are further away from a distributor in a neighbouring region. Such a monopoly supplier would only face competitive constraint in the northern part of the South Island from a Wellington-based distributor. The further away an end user is from a competing distributor's source of supply, the more pricing discretion the hypothetical monopolist would have.

48. The Commission has identified [ ] of the applicant's compressed carbon dioxide customers that have annual purchases of one tonne or more. This group represents [ ]. A weighted average price for compressed gas of [ ] was determined for this group, to use in a *ssnip* analysis. The same method was used to identify an average weighted price of [ ] for bulk carbon dioxide. In each case, if a *ssnip* were applied (13 cents and 4.6 cents respectively) by the hypothetical monopolist, the costs of transportation that Air Liquide would face from Wellington to Christchurch (50 cents and 48 cents respectively),[7] would be substantially greater than the increase in price, making it unprofitable for Air Liquide to supply the majority of the South Island, and the hypothetical monopolist would profit from the *ssnip*.

49. Air Liquide does transport product to the northern part of the South Island, but, this area represents a small part of the total South Island volume, and such supply would only constrain the hypothetical South Island monopolist within this region. Technically, because of this supply by Air Liquide, this region could be considered to be in a separate geographic market than the rest of the South Island. However, the proposed acquisition will result in very little aggregation of market share within this region [ ], with little impact on the competitive environment. There is only a small quantity of carbon dioxide [ ] which flows between the two Islands at the distribution level of the market. This product is presently distributed by Air Liquide from Wellington to Marlborough, and all

[6] Ibid
[7] [ ].

of this is sourced from BOC. For the purposes of a competition analysis, the geographic dimension of the wholesale supply and distribution market is therefore defined as the South Island.

50. The analysis above, is consistent with the actual flows of carbon dioxide products throughout the South Island, where cylinders and the bulk form of carbon dioxide are all distributed from Christchurch, throughout the South Island. The only exception is that Air Liquide distributes cylinders to Marlborough from its Wellington distribution centre.

51. The Commission concludes that for the purpose of assessing the competition implications of the proposed acquisition, the relevant geographic market for the distribution functional level is the South Island of New Zealand.

Conclusion on Markets

52. The Commission concludes that the relevant market is that for:

- the wholesale supply and distribution of carbon dioxide in the South Island of New Zealand.

COMPETITION ANALYSIS

Introduction

53. The competition analysis assesses competition in the relevant markets in order to determine whether the proposed acquisition would not result, or would not be likely to result, in an acquisition or strengthening of **dominance**.

The Dominance Test

Section 47(1) of the Commerce Act prohibits certain business acquisitions:

> "No person shall acquire assets of a business or shares if, as a result of the acquisition, -
>
> (a) That person or another person would be, or would be likely to be, in a dominant position in a market; or
>
> (b) That person's or another person's dominant position in a market would be, or would be likely to be, strengthened."

Section 3(9) of the Commerce Act states:

> "For the purposes of sections 47 and 48 of this Act, a person has … a dominant position in a market if that person as a supplier … of goods and services, is or are in a position to exercise a dominant influence over the production, acquisition, supply, or price of goods or services in that market and for the purposes of determining whether a person is … in a position to exercise a dominant influence over the production, acquisition, supply, or price of goods or services in a market regard shall be had to-
>
> (a) The share of the market, the technical knowledge, the access to materials or capital of that person or those persons:

(b) The extent to which that person is … constrained by the conduct of competitors or potential competitors in that market:

(c) The extent to which that person is … constrained by the conduct of suppliers or acquirers of goods or services in that market."

The test for dominance has been considered by the High Court. McGechan J stated:[8]

> "The test for 'dominance' is not a matter of prevailing economic theory, to be identified outside the statute."
>
> …
>
> "Dominance includes a qualitative assessment of market power. It involves more than 'high' market power; more than mere ability to behave 'largely' independently of competitors; and more than power to effect 'appreciable' changes in terms of trading. It involves a *high degree of market control*."

54. Both McGechan J and the Court of Appeal, which approved this test,[9] stated that a lower standard than "a high degree of market control" was unacceptable.[10] The Commission has acknowledged this test in its Business Acquisitions Guidelines (page 21):

> "A person is in a dominant position in a market when it is in a position to exercise a high degree of market control. A person in a dominant position will be able to set prices or conditions without significant constraint by competitor or customer reaction.
>
> "A person in a dominant position will be able to initiate and maintain an appreciable increase in price or reduction in supply, quality or degree of innovation, without suffering an adverse impact on profitability in the short term or long term. The Commission notes that it is not necessary to believe that a person will act in such a manner to establish that it is in a dominant position, it is sufficient for it to have that ability."

55. The role of the Commission in respect of an application for clearance of a business acquisition is prescribed by the Commerce Act. Where the Commission is satisfied that the proposed acquisition would not result, or would not be likely to result, in an acquisition or strengthening of a dominant position in a market, the Commission must give a clearance. Where the Commission is not so satisfied, clearance must be declined. The dominance test is applied in the following section.

The Market for the Wholesale Supply and Distribution of Carbon Dioxide in the South Island

Market Concentration

56. An examination of concentration in a market is often an indicator of whether a merged firm may or may not be constrained by others participating in the market, and thus the extent to which it may be able to exercise market power.

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[8] *Commerce Commission v Port Nelson Ltd* (1995) 5 NZBLC 103,762 103,787 (HC).

[9] *Commerce Commission v Port Nelson Ltd* (1996) 5 NZBLC 104,142 104,161 (CA).

[10] *Commerce Commission v Port Nelson Ltd* (1995) 5 NZBLC 103,762 103,787 (HC). and *Commerce Commission v Port Nelson Ltd* (1996) 5 NZBLC 104,142 104,161 (CA).

57. The *Business Acquisitions Guidelines* specify certain "safe harbours" which can be used to assess the likely impact of a merger in terms of s 47 of the Act -

> "In the Commission's view, a dominant position in a market is generally unlikely to be created or strengthened where, after the proposed acquisition, either of the following situations exist:
> the merged entity (including any interconnected or associated persons) has less than in the order of a 40% share of the relevant market;
> the merged entity (including any interconnected or associated persons) has less than in the order of a 60% share of the relevant market and faces competition from at least one other market participant having no less than in the order of a 15% market share." (p 17)

58. These safe harbours recognise that both absolute levels of market share and the distribution of market shares between the merged firm and its rivals are relevant in considering the extent to which the rivals are able to provide a constraint over the merged firm. The Commission went on to state that:

> "Except in unusual circumstances, the Commission will not seek to intervene in business acquisitions which, given appropriate delineation of the relevant market and measurement of shares, fall within these safe harbours."

59. Although, in general, the higher the market share held by the merged firm, the greater the probability that dominance will be acquired or strengthened (as proscribed by s 47 of the Act), market share alone is not sufficient to establish a dominant position in a market. Other factors intrinsic to the market structure, such as the extent of rivalry within the market and constraints provided through possible market entry, also typically need to be considered and assessed.

60. For the purposes of analysing the competitive effects of this proposed merger, the market to be analysed is the market for the wholesale supply and distribution of carbon dioxide.

61. The proposed acquisition would result in the merged entity having a [ ] percent market share. Market shares are given in Table 3. Currently BOC, ASCO and Air Liquide are the only suppliers of carbon dioxide to this market. BOC and ASCO supply all three forms of carbon dioxide, while Air Liquide supplies only compressed carbon dioxide in cylinder form. Air Liquide would have a market share of [ ] percent. These levels of market share are well outside the Commission's safe harbour guidelines.

Table 3
Estimated Market Shares of Carbon Dioxide Supply in the South Island

Supplier	**Volume tonnes pa**	**Market Share %**
BOC	[ ]	[ ]
ASCO	[ ]	[ ]
Merged Entity	**[ ]**	**[ ]**
Air Liquide	[ ]	[ ]
Total	**[ ]**	**[ ]**

Source: Data supplied by BOC, ASCO and Air Liquide

Constraint from Existing Competitors

62. The proposal will result in the merger of the two competitors present throughout the South Island. The merged entity would only face limited competition in the upper South Island from Air Liquide, which is currently supplying the Marlborough region of the market from Wellington. A large proportion of carbon dioxide consumption in the South Island is in Christchurch and the area south of Christchurch. This area is well beyond the ability of Air Liquide to supply profitably, and at the moment only BOC and ASCO compete here.

63. At most, Air Liquide may provide some competition in the Marlborough region. Currently, Air Liquide is obtaining supply for its Wellington distribution centre from BOC, which allows it to supply the Marlborough region. However, post acquisition, the competitive dynamics which allow Air Liquide to obtain a competitive wholesale supply may change. This would effect Air Liquide's ability to offer an effective constraint in Marlborough.

64. If the merged entity were to increase its price per kilogram for compressed carbon dioxide by a s*snip*, the price per kilogram would increase from [ ],[11] an increase of [ ]. However Air Liquide would incur transport costs of approximately [ ]to transport compressed carbon dioxide to Christchurch. The costs to Air Liquide of diverting or expanding production to the majority of South Island, would make its product uncompetitive. The expansion or diversion by Air Liquide would not be profitable and it would not be able to constrain the merged entity in the event that a *ssnip* were imposed.

65. The same analysis applies to the other carbon dioxide products. Currently, Air Liquide purchases [ ] of bulk carbon dioxide from BOC, and if it was to expand into the South Island it would have to access increased supplies from BOC, leaving it exposed to discriminatory pricing behaviour. Air Liquide estimates that if it were to deliver bulk carbon dioxide to Christchurch from its Marsden Point source, the cost would be about [ ] per kilogram, whereas the average selling price is 25-35 percent less than this figure. Dry ice would not be economic to transport from Wellington because of the characteristics of the product. It sublimates during transportation, resulting in a reduced quantity and increased cost.

66. If it were to have access to a competitively priced supply of carbon dioxide, Air Liquide could expand by investing in the necessary distribution assets (transportation assets, storage tanks, cylinder filling equipment) and distribute both forms of carbon dioxide around the South Island from a Christchurch distribution centre. Such an expansion could be done with a minimal investment in sunk costs and done in a timely manner. Such a strategy could also involve the distribution of other industrial gases, including the higher margin gases of argon, argoshield and acetylene. Carbon dioxide represents a relatively small proportion of industrial gas distribution in New Zealand, and such a strategy would ensure increased efficiencies through achieving economies of scale in distribution.

[11] The weighted average price of the applicants [ ] customers who have annual purchases over 1000 kilograms pa, and which represent a large part of the market in terms of volume, is [ ]. Refer paragraph 48.

67. Air Liquide's ability to compete effectively in the South Island depends upon its access to a competitive supply of carbon dioxide. Currently, it is not competitive for it to supply this market with carbon dioxide from its Marsden Point source (see paragraphs 27 and 28 above). Notwithstanding this, the Commission has been advised [

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68. Another possible source of carbon dioxide for Air Liquide would be the [

]. [

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69. Air Liquide's most likely strategy for expansion is a broad based distribution strategy. [

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70. [

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71. [

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72. Currently carbon dioxide is not imported into New Zealand, because of the high costs of transportation.

73. Air Liquide's only option for a competitive source of carbon dioxide is for it to increase its bulk purchases from BOC.[12] However, such a strategy would leave Air Liquide

[12] [ ].

exposed to discriminatory pricing behaviour of BOC. In the circumstances, such expansion by Air Liquide would not be likely.

Conclusion on Constraints From Existing Competitors

74. BOC and ASCO are the only competitors present throughout the South Island at the moment. Air Liquide cannot compete effectively in the majority of this market, because it is uneconomic for it to do so. This proposal will result in the removal of the only real existing competition. It will also change the competitive dynamics, which currently allow Air Liquide to obtain a competitive supply of bulk carbon dioxide from BOC, for distribution to Marlborough.

Constraint from Potential Competitors

75. A business acquisition is unlikely to result in the acquisition or strengthening of dominance if there is a credible threat of market entry. Potential competition can act as a constraint on market power, and so an examination of the nature and extent of this constraint is part of the Commission's assessment of competition.

76. Entry conditions, including the nature and height of any entry barriers, must be considered before the threat of new entry, which might constrain the conduct of a merged entity, can be evaluated.

77. A wholesale supplier or distributor of carbon dioxide must have access to a competitive source of carbon dioxide. In the South Island, post acquisition, carbon dioxide could be obtained either by purchasing it from BOC, as other current or potential sources would not be competitive, or by investing in generation capacity and producing it internally. Air Liquide could also expand into this market from its supply base in Wellington. Each of these entry options have different capital requirements and conditions. The viability of each of these options will be discussed below.

Capital Costs

78. If an entrant were to adopt a similar business model to ASCO, and produce carbon dioxide from a generator using diesel fuel as feedstock, a capital investment of between [ ] would be required. The total value of this wholesale supply and distribution market is estimated at [ ]. This capital investment would include a diesel generator, cylinders and bulk storage facilities, and other plant and equipment. This particular generation equipment is produced by ASCO in Christchurch, and would be available to a new entrant. However, the costs of operating such a generator are sensitive to the costs of diesel, so that operating margins are greatly reduced when the price of diesel is high, as it has been in recent months.[13]

79. Under the proposed acquisition, BOC will acquire the right to distribute in New Zealand all ASCO carbon dioxide generators that do not use diesel fuel as a feedstock. Such generators include natural gas-powered generators and a [

]. This combination of circumstances limits the opportunities for an entrant to enter profitably by producing its own supplies of product.

[13] Refer paragraph 88.

80. A new entrant could also invest in a "stack gas recovery" plant, which recovers carbon dioxide from industrial flue stacks. Currently, there are very few industrial plants providing the scope for gas recovery in New Zealand, and any such source would have to be close to the South Island to ensure the gas could be distributed at a competitive price. Currently, Air Liquide's system at NZRC's Marsden Point facility, is the only recovery operation being used in New Zealand.

81. An entrant investing in a "stack gas recovery" plant would face capital costs of between [ ]. This would include an investment of $1.5m in the recovery plant, an investment of [ ] in cylinders and further investment in storage facilities.

82. A further option is that an entrant to the South Island market could transport carbon dioxide in bulk from the lower North Island. This strategy would require investment in truck and trailer units, which would cost $250,000 each, or in ISO modules used in rail transport, which cost $180,000 each. Further investment would be required in storage facilities. A total investment of between [ ] would be required to ensure sufficient scale was achieved. However, such a strategy is based upon the premise that the entrant could obtain a competitive supply of carbon dioxide, for distribution into the South Island, which is far from being assured.

83. An entrant could also obtain wholesale supply from BOC at some delivery point within the South Island. This strategy would require an investment in bulk storage facilities and possibly investment in truck and trailer units, and would cost about $1m. However, such a strategy would rely upon supply from BOC and would leave the entrant exposed to discriminatory pricing behaviour, because BOC would be the only competitive source.

84. The absolute capital investment figures discussed above appear not to be onerous, but when viewed against the total value of the market [ ], they can be considered as moderately high. However, these costs do not involve a large degree of sunk cost, as the plant and equipment does have a long economic life and could be sold second-hand. As long as the entrant was achieving a sufficient operating margin and return on investment, such capital costs would not be regarded as an onerous barrier to entry.

Scale Economies

85. Economies of scale may limit entry in several ways. An entrant might be unable to reach an efficient level of output, or producing at minimum efficient scale might add so much to existing market output as to drive prices below a level that is profitable.[14]

86. An entrant is most likely to enter distributing a portfolio of industrial gases to reduce the unit costs of distribution. Such a strategy would spread fixed distribution costs over more units, providing an advantage to a broad based distributor. Such a distributor would also offer large customers the advantages of dealing with only one industrial gas supplier.

[14] P E Areeda, H Hovenkamp, and J L Solow, *Antitrust Law: An Analysis of Antitrust Principles and Their Application* (Vol IIA, Little, Brown and Company, 1995), 63.

87. ASCO is a carbon dioxide only supplier. However, this results from the fact that its core business is the manufacture of carbon dioxide generation equipment. ASCO's production of carbon dioxide results from the operation of a generator for trial purposes. It is not interested in supplying other industrial gases to the market, and its position can be described as unique.

88. [

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89. Presently, the applicant's largest customer of compressed carbon dioxide is [

]. The applicant's largest bulk customers are [

]. These two contracts represent about [ ] of the total market and would be important contracts for a new entrant to win since they would provide the opportunity for achieving economies of scale.

90. Air Liquide have informed the Commission that [

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91. Other volume purchases of bulk carbon dioxide are generally a lot smaller, with some customers being on supply contracts and others making spot purchases. This provides the opportunity for the merged entity to aggressively contest all potential purchases, thereby likely to deny an entrant the opportunity to achieve scale economies in production.

92. The applicant has submitted that a likely strategy for Air Liquide would be to [

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93. The applicant's submission is based upon the assumption that Air Liquide could profitability transport carbon dioxide cylinders from its Wellington distribution centre. However, the Commission's analysis has found that such a strategy would not constrain the merged entity. Air Liquide could subsidise the cost of distributing carbon dioxide cylinders from the higher margin gases. However, the most likely strategy would be to invest in storage and filling equipment in Christchurch. This strategy would not involve a significant investment in sunk cost. However, such a strategy is based upon the assumption that Air Liquide could obtain increased supply from BOC, to its Wellington distribution centre under its current informal supply relationship. Such a strategy would leave it exposed to discriminatory pricing behaviour of BOC, because it would be the only competitive source in the South Island.

94. An entrant who adopted a vertically integrated entry strategy and who operated at less than minimum efficient scale at the production level, would be exposed to the merged entity which would have lower average unit costs. Achieving the necessary scale economies is regarded as a moderate barrier to entering this market for an entrant adopting a vertically integrated entry strategy. Scale economies would not be regarded as a barrier to entry for an entrant adopting a straight wholesaling and distribution strategy. However, the issue in respect to this strategy is the ability of an entrant to obtain a competitive supply of carbon dioxide.

Incumbent Response

95. The merged entity has an established position in the market, and through its broad based strategy of distributing a range of industrial gases, it would have low unit costs. Expansion from the North Island would not be economic for Air Liquide in the event of a *ssnip*, and the most likely strategy for an entrant would be investment in a carbon dioxide diesel or natural gas fuelled generator.

96. The merged entity, with its lower units costs, could undercut an entrant's prices to win back business lost to the entrant. Such a response is likely for this commodity based product and entry would not be sustainable.

97. [

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Access to Needed Inputs

98. Generally, inputs required for entry into different markets are seldom in short supply. However, in some instances, a necessary input may be available but only at higher costs than borne by incumbents. The effect of entry will depend upon the size of the cost disadvantage relative to any supracompetitive pricing of the finished product.[15]

99. The most important input in this wholesale supply and distribution market is carbon dioxide. For a distributor to compete effectively, it must have access to a competitive supply of carbon dioxide. This can be supplied internally by investment in generation equipment or recovery equipment, or it could be purchased from a carbon dioxide producer or wholesaler. Each of these possibilities will be discussed below in the context of the South Island market.

NGC

100. Currently, NGC has a supply contract with BOC which ends on [

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ASCO

101. After the sale of its distribution assets, ASCO will reduce its production of carbon dioxide from a current [ ] tonnes, as it divests its distribution business. It will continue to produce some carbon dioxide, which will be a by-product of its generator trialing process. However, as part of the acquisition, BOC is acquiring a ten year right to purchase all carbon dioxide produced by ASCO. This has the effect of closing a possible source of supply of carbon dioxide to an entrant.

102. The sale and purchase agreement between BOC and ASCO will contain a restraint of trade preventing ASCO from directly or indirectly engaging in the sale, transfer or delivery of carbon dioxide in New Zealand for a period of 5 years from the asset sale. This prevents ASCO from re-entering the wholesale supply and distribution market.

103. Under the proposed acquisition, BOC will have exclusive distribution rights for ASCO generators which do not use diesel as a feed stock, which have high operating costs. [

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[15] P E Areeda, H Hovenkamp, and J L Solow, *Antitrust Law: An Analysis of Antitrust Principles and Their Application* (Vol IIA, Little, Brown and Company, 1995), 67.

NZRC

104. NZRC is not a potential source of supply because [

].

New Sources

105. Through its position as sole New Zealand distributor of ASCO's generators which do not use diesel as a feedstock, the applicant would be in a position to inhibit entry for an entrant wanting to produce its own carbon dioxide from a locally supplied generator. It could refuse to supply any entrant which wanted to purchase ASCO's [

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106. An entrant could purchase carbon dioxide generation equipment overseas and import it. However, currently the capital cost of such equipment has increased as a result of the depreciation in the New Zealand dollar. Such generators also use diesel and natural gas as a feedstock, which results in significantly increased operating costs, when the cost of these inputs is high.

107. The applicant has submitted to the Commission that a new entrant could obtain a supply of carbon dioxide from a yet undeveloped source, and provided the examples of the Kupe and Pohokura gas fields. [

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108. The applicant has also submitted that carbon dioxide is readily available from a large number of industrial flue stacks, which include [

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BOC

109. Carbon dioxide could also be purchased in bulk from existing competitors. Currently, Air Liquide purchases its carbon dioxide requirements for its Wellington distribution centre from BOC, because it is more economic for it do so than to transport supplies from Marsden Point. This supply agreement is informal, with Air Liquide contacting a toll free number in Australia to arrange supply like any other customer. In 2000, Air Liquide purchased [ ] tonnes from BOC for its Wellington distribution centre. This method of accessing carbon dioxide results in Air Liquide's source of carbon dioxide for the South Island market being controlled by a competitor and vulnerable to discriminatory pricing behaviour.

110. Air Liquide also have an agreement with BOC for the supply of a minimum of [

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111. Air Liquide have stated [

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112. On the facts known to the Commission at the time of this investigation, access to a supply of carbon dioxide on a sufficient scale and at a competitive price to constrain the merged entity, can be considered to be a significant barrier to entering the South Island wholesale supply and distribution market.

"LETS" Test

113. In assessing the constraint available from market entry, the Commission's approach is to consider whether the entry of new participants in response to the exercise of market power is likely, sufficient in extent, timely, and sustainable. This is referred to as the "*lets*" test.

Likelihood and Sustainability of Entry

114. In order to be an effective constraint on incumbent market participants, entry into the carbon dioxide wholesale supply and distribution market must be considered likely on commercial grounds. In addition, entry is likely only if there is likely to be a lasting economic incentive.

115. For the purposes of a competition analysis, the geographic boundaries of this market have been defined as the South Island of New Zealand. The largest metropolitan area in the South Island is Christchurch. Because of Christchurch's high relative population and industrial base, a competitor could constrain the behaviour of the merged entity if it could economically supply that region.

116. It is not profitable for Air Liquide to expand from its Wellington base because of the high cost of transporting cylinders of carbon dioxide to the majority of the South Island. It would also have to rely on BOC for a supply of bulk carbon dioxide, which would make it vulnerable. It is not economic for it to transport bulk carbon dioxide from its Marsden Point source to supply the South Island.

117. Another likely entry strategy would be to capture several large cornerstone contracts, invest in the necessary plant and equipment and build up the business around that to achieve minimum efficient scale. However, one of the two large contracts which would provide an entrant with sufficient volume does not come up for renewal until [ ]. Moreover, such a strategy would add significant capacity to a mature market. The entrant would be at risk of the incumbent utilising its lower unit costs to undercut the entrant's prices to win back or keep contracts and spot business lost to the new entrant.

118. An entrant would have to invest in a diesel or natural gas fuelled generator, which generally have high operating costs because of the sensitivity to cost of these inputs. This results in reduced operating margins and the ability to compete. Such entry would not be sustainable and would leave the new entrant's significant investment very exposed.

119. [

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120. [

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121. There have been two entrants into this market within the last 13 years. ASCO entered in 1987 when it acquired its current business from Waste Management. ASCO entered into carbon dioxide production, wholesaling and distribution through a vertically integrated strategy. Its market share has continued to grow to its present level of about [ ]. Upon entry, ASCO adopted an aggressive strategy based upon price and service. [

]. The supply of industrial gases is not a core business of ASCO, and one of its reasons for entry was because carbon dioxide was a by product of its core business. ASCO can be described as being in a unique competitive position because of its carbon dioxide generator trialing process. Air Liquide is the other entrant, and has been supplying compressed carbon dioxide to the Marlborough region in small volumes for about 3 years.

122. It is the Commission's view that entry to this market would not be likely because an entrant is not likely to obtain a competitive supply of carbon dioxide which would enable it to compete effectively. Such entry would not be sustainable because of the need to achieve economies of scale in production, and the likely aggressive response from the incumbent which would have lower unit costs.

Extent

123. If it is to constrain market participants, the threat of entry must be to such an extent as to cause the market participants to react in a significant manner.

124. The new entrant would need to have access to a significant source of carbon dioxide to compete to a sufficient extent. As stated above, this source is not apparent, [ ].

125. As discussed above at paragraph 90, an internal generation strategy would add capacity to the market with resulting downward pressure on prices. The merged entity, through its established position and lower unit costs would be in a better position to compete on price. There are two significant contracts in the South Island, which combined represent [ ] of the market. One of these contracts, [ ]. The other contract, [ ], and if an entrant was successful in obtaining this business, it could enter to a sufficient extent to constrain the merged entity. However, as discussed above at paragraphs 95 to 97, such an entrant would be exposed to the merged entity's response.

126. It is highly unlikely that the merged entity would supply an entrant with sufficient carbon dioxide at a competitive price, which would enable the entrant to compete effectively and constrain the behaviour of the merged entity. [ ].

127. The Commission considers that the "Extent" requirement of the "Lets" test is not satisfied.

Timeliness

128. To effectively constrain the exercise of market power to the extent necessary to alleviate concerns about market dominance, entry must be likely to occur before consumers or users in the relevant market are detrimentally affected to a significant extent. As a guide, the Commission considers that, for most markets, entry which cannot be achieved within two years from initial planning is unlikely to be satisfy the timeliness requirement of the *lets* test. The Commission has noted, however, that the relevant time period has to be considered on a case-by-case basis.

129. Setting up a greenfield operation would take considerably longer than expanding supply from a neighbouring market. However this could still be done within two years, if a competitive supply of carbon dioxide could be obtained.

130. [ ]

131. The Commission considers the timeliness requirement for the "*lets*" test is not satisfied.

Conclusion on "*lets*" test

132. It is the Commission's view that entry to this market is not likely nor sustainable. This conclusion is based upon the proposition that an entrant would not be able to obtain a large enough supply of carbon dioxide at a competitive price to offer effective constraint to an incumbent with a market share of [ ]. An entrant adopting a vertically integrated strategy would add capacity to the market and it would be exposed to

the merged entity utilising its lower unit costs and reacting aggressively to an entrant making entry unlikely and unsustainable.

133. It is the Commission's view that it is highly unlikely that the merged entity would supply an entrant with sufficient carbon dioxide at a competitive price, which would enable the entrant to offer effective constraint to the merged entity in this wholesale supply and distribution market.

134. Because of the high relative transportation costs, the merged entity would have considerable price discretion before expansion by supply from neighbouring markets was effected. The merged entity would profit from a *ssnip*, and entry would be highly unlikely in such a scenario.

Countervailing Power of Purchasers

135. Purchasers of carbon dioxide are generally fragmented, resulting in a low degree of purchaser countervailing power.

Conclusion on the Market for the Wholesale Supply and Distribution of Carbon Dioxide in the South Island

136. The proposed acquisition will remove the only current competition taking place in the South Island, and it will make Air Liquide totally reliant on BOC for a competitive supply of carbon dioxide to enable it to continue to compete in Marlborough. The merged entity would have [ ] percent market share and would have considerable price discretion before expansion was induced from competitors in neighbouring geographic markets. Air Liquide is the competitor which could offer effective competition to the merged entity. However, on the facts, there are very real concerns at Air Liquide's ability to obtain a supply of carbon dioxide at competitive prices to constrain the merged entity.

137. [

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138. Entry by a vertically integrated strategy of internal generation and supply is also unlikely and not sustainable. The merged entity with its established position and lower unit costs, could react aggressively to entry by lowering prices to win back lost business. An entrant with higher unit costs would be very vulnerable to such a strategy.

OVERALL CONCLUSION

139. Having regard to the various elements of section 3(9) of the Act, and all other relevant factors, the Commission is not satisfied that the proposal would not result, or would not be likely to result, in any person acquiring or strengthening a dominant position in the market for the wholesale supply and distribution of carbon dioxide in the South Island of New Zealand.

DETERMINATION ON NOTICE OF CLEARANCE

140. Accordingly, pursuant to section 66(3)(b) of the Act, the Commission determines to decline to give clearance for the acquisition by BOC of those business assets of ASCO identified in paragraph 1 of this decision.

Dated this 2nd day of February 2001

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M J Belgrave
Chair