QUEENSLAND COMPETITION AUTHORITY

Criteria for the Identification of Monopoly Water Supply Activities

March 2009

Level 19, 12 Creek Street Brisbane Queensland 4000
GPO Box 2257 Brisbane Qld 4001
Telephone (07) 3222 0555
Facsimile (07) 3222 0599

general.enquiries@qca.org.au
www.qca.org.au

PREAMBLE

In order to assist the Premier and Treasurer (the Ministers) to decide whether or not to declare a candidate water supply activity a monopoly water supply activity under the pricing and supply of water provisions of the *Queensland Competition Authority Act 1997* (the QCA Act), the QCA Act requires the Authority to develop, and may revise, criteria for the Ministers to use in making the necessary decision.

The Criteria, originally issued in 2000, have been updated to reflect presentational changes introduced following the release of *Criteria for the Identification of Non-Government Monopoly Business Activities* in November 2008. References to the South East Queensland (SEQ) Water Corporation Ltd have been deleted to reflect their removal from the QCA Act. Nevertheless, the substance of the criteria remains unchanged.

The absence of vigorous rivalry and the existence of barriers to entry constitute the primary test for a monopoly water supply activity. Where the primary test is inconclusive, for example through a lack of relevant information, the second test relating to the evidence of the exercise of substantial market power is applied.

It is important to note that declaration as a monopoly water supply activity does not automatically subject the monopoly water supply activity to an investigation by the Authority. This requires a separate decision by the Ministers. In this regard, the Ministers may refer the monopoly water supply activity to the Authority for an investigation into its pricing practices where the Authority must make a written determination.

CRITERIA FOR DECIDING WHETHER TO DECLARE A CANDIDATE WATER SUPPLY ACTIVITY TO BE A MONOPOLY WATER SUPPLY ACTIVITY

A candidate water supply activity should be declared a monopoly water supply activity wherever competitive pressures do not effectively constrain its provider's commercial behaviour.

The criteria to be addressed in determining this are:

(a) [**water supply activity**] The activity involves carrying on a business, the main purpose of which is: water storage, including water storage for another person; or water delivery services; or supplying water to another person, other than supplying bottled or containerised water;

(b) [**candidate water supply activity**] The water supply activity is:

- carried on by a water supplier; and
- declared under a regulation to be a candidate water supply activity; and

(c) [**commercial behaviour not constrained by competitive pressure**]

- There is an absence of vigorous rivalry in the market in which the activity occurs **and** barriers to entry into that market exist;

  OR

- If the evidence regarding rivalry and barriers to entry is inconclusive, there is evidence that the provider of the activity is exercising substantial market power. This may include that it is earning an excessive return, would be earning an excessive return were it not operating inefficiently, or is cross subsidising.

The attached paper elaborates on the criteria.

TABLE OF CONTENTS

EXECUTIVE SUMMARY

The *Queensland Competition Authority Act 1997* (the QCA Act) requires the Queensland Competition Authority (the Authority) to develop criteria to assist the Premier and the Treasurer (the Ministers) in deciding whether to declare a candidate water supply activity to be a monopoly water supply activity, under Part 5A of the Act.

The Criteria, originally issued in 2000, have been updated to reflect presentational changes introduced following the release of *Criteria for the Identification of Non-Government Monopoly Business Activities* in November 2008. References to the SEQ Water Corporation Ltd have been deleted to reflect their removal from the QCA Act. Nevertheless, the substance of the criteria remains unchanged.

The test for identifying monopoly water supply activities is based upon an assessment of whether these business activities have sufficient market power such that they are capable of persistently behaving in a manner different to that which would occur in a competitive market. In competitive markets, sellers increase their prices or reduce the quality of their products or services at their peril, as consumers are able to find alternatives relatively easily.

Where an incumbent possesses substantial market power, the rigours normally provided by competition to protect customers and to innovate are substantially weakened. This is likely to occur where:

(a) a water supply activity enjoys a substantial influence in a market;

(b) a water supply activity can act to an appreciable degree independently of its competitors[1]; or

(c) a water supply activity's competitors are unable or unwilling to effectively compete with it.

Figure 1 gives a simplified description of the framework within which the Authority recommends monopoly water supply activities be identified. Basically, a three step process is envisaged:

step 1 – determines whether the activity is a candidate water supply activity;

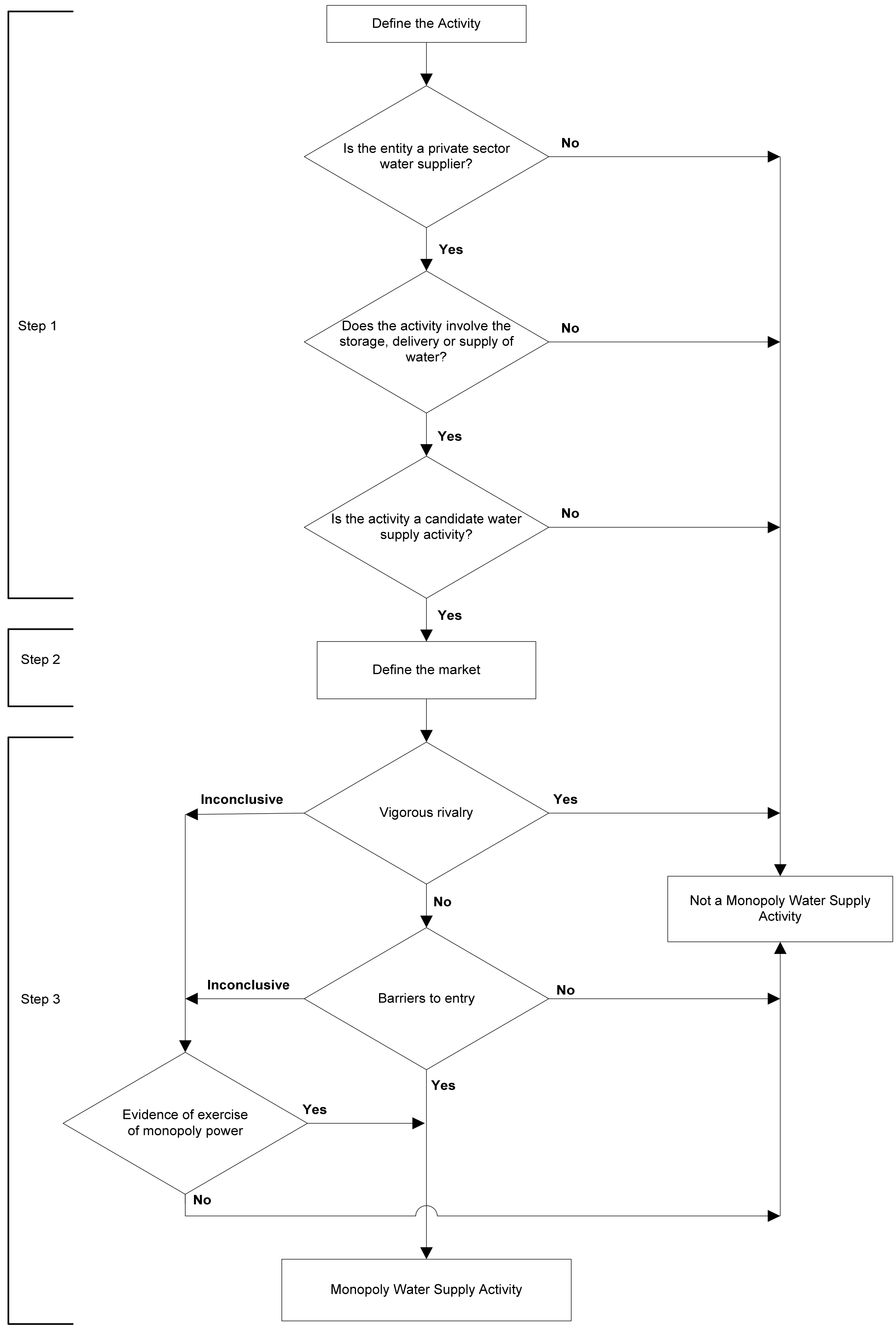
step 2 – defines the markets in which the water supply activity operates; and

step 3 – assesses the intensity of competition in those markets relevant to the enquiry.

Declaration as a monopoly water supply activity does not automatically subject the monopoly business activity to investigation by the Authority. This requires a separate decision by the Ministers. In this regard, the Ministers may refer the monopoly business activity to the Authority for an investigation of its pricing practices.

1 The term "competitor" refers to actual or potential competitors.

Figure 1: Simplified Framework for Identifying Monopoly Water Supply Activities



Step 1 – Determining Whether the Activity is a Candidate Water Supply Activity

The first step in the process is to properly identify the activity that is to be the subject of the analysis with a view to determining whether it is a candidate water supply activity. There are three requirements under the QCA Act to be addressed in this context. The first requirement is that the water supply activity must be carried on by a water supplier. A water supplier carries on, or negotiates to carry on, the water supply activity and is not owned, whether legally or beneficially and whether entirely or in part, by the State or a government agency (State or local) – essentially, a private sector water supplier.

The second requirement is that the water supply activity must involve carrying on a business, the main purpose of which is: water storage, including water storage for another person; or water delivery services; or supplying water to another person, other than supplying bottled or containerised water.

The third requirement is that the water supply activity is carried on by a candidate water supply activity. Candidate water supply activities are water supply activities carried on by a water supplier and declared under a regulation to be a candidate water supply activity.

In practical terms, a candidate water supply activity becomes:

> *An activity undertaken by a private sector water provider that is declared by regulation to be a candidate water supply activity, and where the main purpose of the business is water storage, delivery services or supplying water other than supplying bottled or containerised water.*

A water supply activity may undertake several distinct business activities. Consequently, precisely defining the product or service that is the subject of the analysis is essential to correctly identify the water supply activity and to define the relevant market, which is the next step in the process.

Step 2 – Market Definition

A market is an area of close competition or rivalry. If there is no close competition this can, of course, indicate a monopolistic market. Defining a market involves drawing a line in the chain of substitutes for a product or service that potentially compete with it. In defining and analysing a market, it is important to consider the purpose of the investigation, which, in the case of identifying monopoly water supply activities, is to assess the extent of competitive pressure.

The analysis will need to address the product market (alternative products or services that can be used instead of those provided by the candidate water supply activity), the geographic market (the geographical region from which alternative sources of supply may be found), the relevant functional level of the market under consideration and the period of time allowed for an effective competitor to enter the market.

Once the relevant market has been defined, the intensity of competitive pressures can be assessed and other relevant factors, such as the extent of barriers to entry, can be considered.

Step 3 – Assessing the Level of Competition in the Market

The principal factors which assist in determining if a water supply activity is not effectively constrained by competitive pressures in a market are:

(a) the absence of vigorous competition in the market together with barriers to entry for new entrants into the industry (or to the expansion of existing rivals); and

(b) evidence of the exercise of substantial market power by the water supply activity (e.g. by way of excessive pricing, inefficient operations or cross-subsidisation).

An absence of vigorous rivalry and the existence of barriers to entry constitute the primary test. If there is an absence of vigorous rivalry and barriers to entry exist then the activity is a monopoly water supply activity. If there is evidence of vigorous rivalry or if no barriers to entry exist, then the activity is not a monopoly water supply activity.

Where the primary test is inconclusive or there is insufficient information for it to be applied, the second test relating to evidence of the exercise of substantial market power is applied.

1. INTRODUCTION

1.1 Need for Updated Criteria

The *Queensland Competition Authority Act 1997* (the QCA Act) requires the Queensland Competition Authority (the Authority) to develop criteria to assist the Premier and the Treasurer (the Ministers) in deciding whether to declare a candidate water supply activity to be a monopoly water supply activity. The Authority may revise the criteria on its own initiative or if requested by the Ministers.

The current *Criteria for the Identification of Monopoly Water Supply Activities* (page ii) and supporting information are provided for this purpose.

The Criteria, originally issued in 2000, have been updated to reflect presentational changes introduced following the release of *Criteria for the Identification of Non-Government Monopoly Business Activities* in November 2008. References to the SEQ Water Corporation Ltd have been deleted to reflect their removal from the QCA Act. Nevertheless, the substance of the criteria remains unchanged.

The absence of vigorous rivalry and the existence of barriers to entry constitute the primary test for a monopoly water supply activity. Where the primary test is inconclusive, for example through a lack of relevant information, the second test relating to the evidence of the exercise of substantial market power is applied.

1.2 Implications of Declaration as a Monopoly Water Supply Activity

Declaration as a monopoly water supply activity does not automatically trigger a prices oversight investigation by the Authority. This requires a separate decision by the Ministers.

In this regard, the Ministers may refer the monopoly water supply activity to the Authority for an investigation into its pricing practices and the Authority must make a written determination.

1.3 Differences between Part 5A and Part 3 of the QCA Act

A key difference between the treatment of monopoly water supply activities (under Part 5A) and government and non-government monopoly business activities (under Part 3), is that, under Part 5A, the Authority or another person can apply to the Supreme Court to enforce the Authority's water pricing determinations. The Authority can only make recommendations in relation to investigations under Part 3.

2. MARKET POWER

The explanatory note to the QCA Act in 1997 made it clear that the use of the term "monopoly" was not intended to limit prices oversight to a situation where there is only a single supplier in a particular market. It was intended to extend to "near monopolies" where an entity conducting a business activity has substantial market power.

Market power arises where an incumbent is capable of persistently behaving in a manner different to that which would occur in a competitive market, including markets where potential competition is an effective fetter. In competitive markets, sellers increase their prices or reduce the quality of their products at their peril, as consumers are able to find alternatives relatively easily. Where an incumbent possesses substantial market power, the rigours provided by competition to:

(a) price and produce efficiently;

(b) satisfy customers with quality relative to price; and

(c) innovate,

are substantially weakened.

2.1 Sources of Market Power

A water supply activity's market power may arise from its superior performance or innovation, or from other factors, such as:

(a) legal restrictions which preclude competitive provision of a service (e.g. due to patent or other intellectual property legislation);

(b) a natural monopoly, where the least costly means of meeting demand is through production by a single entity; and

(c) poorly contestable markets, where competition does not operate effectively in markets despite the absence of legal restrictions.

Entrenched market positions enjoyed by incumbents often provide them with substantial advantages relative to new entrants. These "first mover" advantages may mean that a monopoly water supply activity retains much of its market power, at least for a prolonged period. Consequently, the introduction of regulatory or structural reform of itself may not cause a water supply activity to cease to be properly categorised as a monopoly water supply activity.

2.2 Market Power Threshold for Monopoly Water Supply Activities

The extent of an entity's market power is a question of degree and reflects the extent to which competitors constrain its conduct. The question arises as to the appropriate market power threshold for a water supply activity's market power to characterise it as a monopoly water supply activity.

If it is to be classified as a monopoly water supply activity, a water supply activity's commercial behaviour should not be effectively constrained by competitive pressures (exerted by either actual or potential competitors). This is likely to occur where:

(a) a water supply activity enjoys a substantial influence in a market;

(b) a water supply activity can act to an appreciable degree independently of its competitors; or

(c) a water supply activity's competitors are unable or unwilling to effectively compete with it.

A water supply activity may be taken to have a substantial influence on a market if its commercial behaviour is not subject to the disciplines competitive markets normally impose. It may also be able to use that influence to its advantage in shaping the market as it evolves over time, especially if it controls access to essential infrastructure (e.g. dams and pipelines). However, absolute control of the market is not necessary for a substantial influence to be established.

A water supply activity with a substantial influence on a market may choose to (or may have already chosen to) "give less and charge more" without suffering at the hands of its actual or potential competitors. Accordingly, a water supply activity with a substantial influence on a market may have the capacity to influence the competitive conduct of its rivals in turn enabling it to act, to an appreciable degree, independently of its competitors. This may occur, for example because rivals choose simply to "follow the lead" of the water supply activity instead of competing with it.

The capacity to act, to an appreciable degree, independently of rivals may be demonstrated by evidence that a water supply activity has in the past been able to alter its relationship with its customers to its advantage without adversely affecting its market share. There are many dimensions to the supplier-customer relationship.

Perhaps the most obvious aspect of the relationship is the price a customer must pay for a product or service. An indicator of a water supply activity's ability to act independently of rivals is a capacity to increase the price that customers are required to pay to a premium above that which reflects efficient costs of service delivery and still retain market share.

Other dimensions to this relationship include the capacity to reduce service quality, or impose onerous terms and conditions, such as requiring the customer to purchase other products or accept take or pay conditions. Of course, in some instances, these conditions may be reasonable, such as where contracts underpin a substantial investment which will be sunk once it is made. The nature of the contractual terms must therefore be considered in the context of the commercial relationship between the parties. The responsiveness of customers to a change imposed by the water supply activity will assist in ascertaining its degree of independence from its competitors.

Competitors may be unable or unwilling to compete with the water supply activity. They may be unable to compete because they lack the capacity to do so sustainably without jeopardising their long term future or because they rely upon a water supply activity for an essential input that is not available elsewhere. Alternatively, they may be unwilling to effectively compete because they perceive that doing so is incompatible with the pursuit of their commercial objectives.

This will particularly be the case where the water supply activity is in a strong position to "punish" competitors. One way in which a water supply activity can punish competitors is to heavily discount its product or service in particular markets or otherwise act to inflict economic harm on an "excessively aggressive" competitor and then subsequently raise prices above a competitive level. In such a situation, would-be competitors may carefully calculate their strategy so as not to attract the water supply activity's attention. In such an environment, competitive rivalry in the market may be severely constrained.

The meaning of competitors in this context is not limited to actual competitors (i.e. those actually involved in the same market as the water supply activity), but extends also to potential competitors (i.e. those most likely to be capable of successfully entering the market). That is, if the market is contestable, it is not a monopoly or near monopoly. However, actual competitors, with a current presence and operational capacity in the market, will normally be a far more effective constraint on the conduct of water supply activities than potential competitors.

2.3 Matters to be Taken into Account in Assessing the Effectiveness of Competitive Pressure

In assessing the effectiveness of competitive pressure as a constraint on a water supply activity, the following factors are relevant:

(a) the extent to which vigorous rivalry exists and the extent of barriers to entry; and

(b) whether there is any evidence of the water supply activity exercising substantial market power, which may include, for example, pricing excessively.

An absence of vigorous rivalry and the existence of barriers to entry constitute the primary test. If there is an absence of vigorous rivalry and barriers to entry exist then the activity is a monopoly water supply activity. If there is evidence of vigorous rivalry and no barriers to entry exist then the activity is not a monopoly water supply activity.

Where the primary test is inconclusive or there is insufficient information for it to be applied, the second test relating to the evidence of the exercise of substantial market power is applied.

3. PROCESS FOR IDENTIFYING MONOPOLY WATER SUPPLY ACTIVITIES

In ascertaining whether or not competitive pressure is exerted upon a water supply activity, it is necessary to thoroughly investigate the relevant industry. Basically, a three-step process is envisaged:

step 1 – determine whether the activity is a candidate water supply activity;

step 2 – define the markets in which the water supply activity operates; and

step 3 – assess the intensity of competition in those markets that may be relevant to the enquiry.

3.1 Step 1 – What are Candidate Water Supply Activities?

The first step in the process is to properly identify the product or service to be the subject of the analysis. This will also enable the candidate water supply activity to be defined.

The QCA Act defines a water supplier as an entity, other than the State or a government agency that carries on, or negotiates to carry on, a water supply activity and is not owned, whether legally or beneficially and whether entirely or in part, by the State or a government agency (State or local).

A 'government agency' means a government company or part of a government company; or a State instrumentality, agency, authority or entity, or a division, branch or other part of a State instrumentality, agency, authority or entity; or a department or a division, branch or other part of a department; or a government owned corporation; or a local government entity. A local government entity means a local government or part of a local government, or a local government owned corporation

Further, the QCA Act defines a water supply activity as an activity that involves carrying on a business, the main purpose of which is:

(a) water storage, including water storage for another person; or

(b) water delivery services; or

(c) supplying water to another person, other than supplying bottled or containerised water.

A candidate water supply activity refers to water supply activities that are carried on by a water supplier and are declared under a regulation to be a candidate water supply activity.

In practical terms, a candidate water supply activity becomes:

> *An activity undertaken by a private sector water provider that is declared by regulation to be a candidate water supply activity, and where the main purpose of the business is water storage, delivery services or supplying water other than supplying bottled or containerised water.*

It is important to recognise that a water supplier may undertake several distinct water supply activities. For example, a water supplier may operate a number of geographically or topographically separated businesses or water supply schemes with different customer bases. The level of market power that the water supplier can exercise may differ between these businesses or schemes.

Moreover, even within a water supply activity, there may be more than one business activity, if for example, there are distinct markets served by that activity. For example, a water supplier may have less market power for the supply of water to irrigation customers than for its urban or industrial customers. Another example would be the provision of treated and untreated water by one water supplier. In such cases, the two or more markets served may be considered as separate business activities.

Consequently, it is critical to precisely identify the product or service that is the subject of the analysis. This is essential in order to correctly define the relevant market, which is the next step in the process.

3.2 Step 2 – Market Definition

Market definition is a critical step in the process of identifying market power. Adopting too narrow a market definition will tend to exaggerate the degree of market power ascribed to a water supply activity. Conversely, defining a market too widely could effectively "hide" a position of market power.

This highlights the very important role of market definition in providing insight into the likelihood of an incumbent's ability to charge more or offer less. Indeed, the processes of market definition and assessing market power are intertwined – it is only for analytical convenience that they are considered separately.

What is a Market?

A market for a product or a service includes all products or services that are in close competition or rivalry with that product or service. However, some suppliers face little or no competition for the products and services they sell. Indeed, a single product or service may constitute its own market.

Defining a market involves drawing a line through the chain of substitutes for a product or service which potentially compete with it. Although there is no single universal or definitive test that can be applied, one approach is to look for a marked gap in the chain of substitution possibilities. Alternatively, one may consider the range of alternative suppliers who are likely to respond to a significant price increase (or to a change in some other variable in the customer supplier relationship, such as quality or availability) within a reasonable period and the extent of that response in terms of the likely volume of transactions.

In determining the magnitude of the price increase, one approach is to consider a 5-10% increase, which is broadly that currently adopted by the Australian Competition and Consumer Commission (ACCC). However, the critical issue is not the size of the price increase per se, but the relationship between price and profitability.

In addition, care must be taken in applying this test as it can lead to the perverse result where markets with prices currently above competitive levels appear to be more competitive than otherwise identical markets already experiencing competitive pricing. This is because a 5% price increase in an already competitive market may not attract any new entrants; yet induce new entrants into an otherwise uncompetitive market. This could lead to the conclusion that a market is competitive when in fact substantial market power had already been exerted.

In defining and analysing a market, it is important to consider the purpose of the investigation. In the case of identifying monopoly water supply activities, the purpose will be to assess the extent of competitive pressure exerted upon the water supplier. Pricing at levels above those which could be obtained in competitive markets by water supply activities has the capacity to undermine the international competitiveness of the Queensland economy, hinder the efficient development of this State's resources and cause adverse equity effects.[2]

Accordingly, the market should be defined from the perspective of the water supply activity under consideration by analysing the competitive pressures exerted upon it with a view to ascertaining the extent to which it is constrained by those pressures.

The analysis will need to address the following dimensions of market definition:

(a) the product market (i.e. alternative products or services or substitutes which can be used instead of the incumbent's products or services);

(b) the geographic market (the geographical region from which alternative sources of supply may be found);

(c) the relevant functional level of the market under consideration; and

(d) the period of time allowed for an effective competitor to enter the market.

In practice, it is often found that market definition involves a particular dimension of the market being contentious and consequently, in such a case, the analysis may need to focus especially on that issue. For example, if there are no close substitutes for a product as may be the case for water, attention may focus on the geographic dimension of the market.

Products Comprising a Market

The product market comprises products or services that are substitutes for the product or service in question[3]. To use an example outside the water industry, electricity and gas may be substitutes for one another in markets if a modest increase in the price of electricity causes consumers to readily purchase gas instead (although this may not be the case for consumers who can only switch energy sources after undertaking expensive alterations to their plant and equipment).

Unlike the energy sector, where users may switch between electricity, gas and other products, there is typically no alternative to water as a product. However, there may be alternatives in the quality or specification of the product – for example, treated or untreated water, or water supplied at different levels of reliability.

Alternatives for a particular water product are generally limited to sources of supply, if such alternatives exist. Alternatives to a water supplier's water storage and delivery activities could include, depending on practicality and availability, groundwater, rainwater collection, tailwater or wastewater recycling, flood harvesting or overland flow harvesting and even desalination. For some such alternatives, such as rainwater collection and flood harvesting, there may in fact be little or no price for the water, but there will be a cost in obtaining the water.

[2] From an economic perspective, the process of raising prices and forcing users to poor alternatives or going without, creates distortions in resource allocation because resources are directed away from their highest value use. For example, if a monopolist were able to charge very high prices for electricity that were well above the cost of supply, energy users could, over time, consume alternative fuels such as gas or oil, even though the cost of producing these alternatives was higher than the cost of supplying electricity. In addition, monopolists often devote considerable resources to protecting their position in a market, by investing in a way which discourages new entrants.

[3] An example of a product is water supply at a specified reliability, and water storage and pipeline delivery are examples of a service.

An existing or established water user may have recourse to the product of another supplier, where the product has a different quality specification or different level of reliability. Subject to geographical and topographical constraints, a customer may be able to source water from other suppliers in other catchments, but may need to meet higher pumping and infrastructure costs.

However, a prospective new water user that is not established in any particular region may choose between alternative new developments and, depending on the proposed product or use, may not be constrained geographically. The developer of a large new supply may need to compete with other developers in other regions to attract customers to its project.

The degree of substitution of water sources or suppliers depends upon the current prices and/or the associated capital and ongoing costs borne by the user in taking delivery of water from alternative sources and suppliers. A monopoly may increase its prices to the point where it faces some competition from other water sources or other suppliers. Indeed, it will often be in a water supply activity's commercial interest to raise its price to just below the point where customers are forced to consider what would be a high-cost alternative water source, a competitor's product or do without altogether.

Consequently, a water supply activity may have substantial market power despite it appearing to face competition. This situation can arise because the water supply business activity may have exercised its market power to the point where prices have risen sufficiently to induce new entrants into the market. This is discussed in more detail in step 3 below.

The past behaviour of buyers and suppliers of possible substitutes (for example, in the past, what price movement has been required before buyers and suppliers have altered their behaviour) can assist in ascertaining market boundaries. In reviewing this past behaviour, it will also be relevant to assess the relative price levels and price movements of the product compared to potential substitutes. Where the prices of the product and substitutes closely follow one another, it may be evidence that they are good substitutes. Other factors that may be relevant include buyer and supplier attitudes and technological change.[4]

Customer inertia occurs because of switching costs. Switching costs include all of the costs involved in a customer switching to an alternative water supplier or water source. The existence of switching costs means that customers may be reluctant to change supplier if they perceive the cost of doing so outweighs the benefit (even if this is not the case).

Switching costs and customer inertia may be critical in market definition. For example, it may be expensive for customers to switch from one water supply to another. Similarly, the cost of establishing production and distribution systems for alternative supplies will be critical in defining the extent of the market. If these costs prevent entry, then possible substitutes will in fact be poor substitutes.

Geographical region

The geographic region of a market is determined by assessing whether an increase in price in one location substantially affects either the sources of supply for that region or price in another region (where both regions are affected by the same market conditions).

[4] There appears to have been a greater preparedness by Australian courts to take account of factors other than substitution possibilities, such as "commercial realities", when defining markets. Commercial realities provide greater recognition of matters such as dynamic factors, potential competition, industry viewpoints and public attitudes. Again, however, one must be wary of the prospect of monopoly pricing inducing new entrants which would not be attracted into a market if it were not for the high prices charged by the water supply activity. In such a case, the water supply business activity could have substantial market power. In addition, care must be taken because price movements may be correlated for other reasons, such as commonality in costs or because of collusion across markets. One must always analyse the underlying circumstances.

Accordingly, defining the geographic market involves a similar process to that taken in defining the product market. The geographic dimension of the market is defined by the economic feasibility of sourcing alternative water services from elsewhere, such as from another catchment. The geographic constraint may vary for different products or services. For example, market boundaries may be markedly different for the provision of water supplies to established users compared to the market boundaries for the sale of new allocations for new users.

Factors which may impinge upon the geographic dimension of a water market include:

(a) transmission and delivery costs for alternative sources of supply – for example, the cost of transporting water may increase substantially with distance due to higher leakage or evaporation (where transported in open channels);

(b) environmental and resource management constraints on the ability to move water from one geographic region to another; and

(c) constraints on other suppliers selling to the water supply activity's customers – for example, once the capacity of the existing water distribution system is approached, the line becomes constrained.

Just as is the case with service markets, the cost of competing storage and distribution systems (if hydrologically possible) to supply the customers of the water supply activity and the cost, or inconvenience, for customers in switching to alternative sources of supply, will also be factors affecting market definition.

For example, a price rise for water in one region is unlikely to entice other water boards to compete because of the need to establish major infrastructure such as dams, pumping stations and pipelines. Likewise, while customers can relocate to another geographic region where prices may be lower, the cost of such relocation may be prohibitive.

Functional level

In defining a market, it is also important to remember that there can be several distinct phases to the production process (e.g. in the water industry, processes could include storage, bulk distribution, water treatment, retail distribution/reticulation and wastewater management).

For example, water bought at the retail level by an end user is often comprised of a range of products and services, including natural and manufactured supply sources, distribution and reticulation services. In addition, the end user may use water as an input to the production of a wide range of products and services. Each step in the production chain can constitute a different functional market with a different level of competition.

It is important that focusing on one functional level does not obscure the analysis of an entity's market power, which may arise through vertical integration with other functional levels. For example, an analysis of market power of a supplier should take into account its ability to supply, for example, both treated and untreated water, or both bulk and retail water. Accordingly, when defining the functional market for a water supply activity, it is necessary to be aware of the impact of vertical integration with other functions which may have greater significance for market power.

Time

The time dimension refers to the period over which substitution possibilities ought to be considered for the purpose of defining the market. The scope of the market will expand with the period of time allowed for a market definition.

Potential competition is not as effective a constraint as actual competition. Consequently, if a potential competitor requires new investment to enter a market, then it will not normally be included in the relevant market definition for a water supply activity. This is principally because these potential competitors are not in a strong position to exert competitive pressure upon an entrenched water supply activity.

For example, if a two-year delay is involved in developing storage and delivery infrastructure to enable a water supplier to compete with an incumbent, then that potential competitor may exert competitive pressure for a new mine due to open in two year's time. However, that potential competitor is unlikely to be in a position to effectively exert competitive pressure for the incumbent's business. Consequently, in general, it is proposed that only imminent developments should be taken into account for market definition for assessing whether a water supply activity should be classified as a monopoly water supply activity (although the approach will vary depending upon the circumstances of each case).

Once the relevant market has been defined, the intensity of the competitive pressures can be assessed and other relevant factors, such as the extent of barriers to entry, can be considered.

3.3 Step 3 – Assessing the Level of Competition in the Market

The principal factors that assist in determining that a water supply activity is not effectively constrained by competitive pressures in a market are the absence of vigorous competition in the market together with the existence of barriers to entry for new entrants into the industry (or to the expansion of existing rivals).

If the above factors are inconclusive, for example as a result of a lack of relevant information, a second test relating to evidence of the exercise of substantial market power by the water supply activity (e.g. by way of excessive pricing, inefficient operations or cross-subsidisation) is applied.

3.4 Lack of Vigorous Competition with Barriers to Entry

This element considers two factors, a lack of vigorous rivalry and the existence of barriers to entry. A water supply activity will be a monopoly water supply activity if there is a lack of vigorous competition in the market accompanied by the presence of barriers to entry.

Evidence of Vigorous Competition

Market share may appear an intuitive indicator of the effectiveness of competitive pressures in a market. A water supply activity's market share represents the proportion of market demand it fills, in terms of capacity or the value or volume of sales.

Generally, a water supply activity must have a significant market share for it to be not effectively constrained by competitive pressure. Leaving aside the underlying reasons why a particular market structure may evolve (which are considered below), the principal reason why a large market share is accepted as demonstrating a lack of vigorous rivalry is due to the practical inability in the short term for small competitors to increase their market share sufficiently in response to the water supply activity increasing its prices. Consider, for example, a water supply activity with a 90% market share. Assuming demand remains at current levels, competitors must be able to effectively double their market share from 10% to 20% in order to reduce the water supply activity's market share by 10%.

However, there is no agreement amongst competition agencies around the world on what thresholds are relevant. This is due to many reasons, including:

(a) a market share provides no information on the underlying market characteristics, as under some scenarios such as water supply shortages or peak usage periods, even a small water supplier could influence prices; and

(b) a water supply activity's market share does not indicate how it was achieved. For example, an entity's market share may be attributable to its relatively low prices, rather than its market power. Moreover, market share in the water sector may be difficult to define given that usage from alternative water sources such as the various forms of rainwater and flow harvesting are most likely unquantified.

Accordingly, whilst a substantial market share will be relevant in characterising a water supply activity as a monopoly water supply activity, a minimum threshold requirement should not be applied. Instead, the focus of the analysis should be on the more significant issue concerning the intensity of the competitive pressure within the market and the consequences of the incumbent charging more or giving less.

For example, volatile market shares (assuming there is no trend towards increasing the market share of the most significant supplier) can suggest a competitive market, even if one of the participants has a relatively high market share. This is because the changing market shares themselves can demonstrate that competitive pressures are operating within the market.

Whilst circumstances will vary, the existence of at least one vigorous competitor is critical to establishing the existence of a competitive market. A vigorous rival is one who actually exerts effective competitive pressures on a water supply activity. The presence of a vigorous rival substantially reduces the likelihood of a water supply activity being characterised as a monopoly water supply activity (unless rivals have been induced into the market by the water supply activity's monopoly pricing).

In this context, at least one vigorous rival's presence in the market place must be sufficiently substantial to ensure it is not only capable of exerting, but in fact exerts, effective competitive pressures upon the water supply activity. Generally, a vigorous rival must have the capacity to substantially increase its output within a reasonably short period of time in order to ensure the incumbent cannot successfully "charge more or give less" and preferably be an entity with significant financial backing.[5]

Vigorous rivalry is unlikely to exist where a water supply activity, through its position in the market, has the capacity to "punish" aggressive competitors, by, for example, deeply discounting products in particular markets that adversely affect particular competitors and subsequently raising its prices above a competitive level. This tactic can be used to ensure competitors do not encroach upon a water supply activity's market leadership. The capacity for an incumbent to engage in this type of conduct is facilitated where price discrimination is possible or where barriers to entry enable water supply activities to retain their market power.

[5] The existence of a highly concentrated market structure may give rise to concerns about collusion (or tacit collusion) between the market participants. The experience of competition policy has been that it is easier for a smaller number of firms to collude and behave as a single monopoly than for a larger number of firms. However, the appropriate response to collusive activity is to take action under the *Trade Practices Ac, 1974* rather than attempt to undertake prices oversight (unless such collusive behaviour is determined to be in the public interest by the ACCC).

Alternative water sources may or may not be considered as vigorous competitors. For example, a catchment authority or resource manager may sell flood harvested water or groundwater in competition with a water supply activity but, because no infrastructure is involved and the resource manager has a focus on environmental or catchment management objectives, it will generally not be an aggressive competitor. Competitive pressure from private harvesting of rainwater or overland flows may be more in the form of promotions by related service industries such as rainwater tank manufacturers or excavators. However, a water supply activity may encounter vigorous competition from another water supply activity in a neighbouring catchment subject to relativities in delivery costs and water scarcity.

The absence of vigorous competitive rivalry in the market raises the issue of the existence of barriers to entry.

Barriers to entry

Any business able to charge excessive prices will generate large profits in the short term. However, in general, these high profits will attract new entrants into the market and ultimately lead to increased competition and innovation. The existence of barriers to entry can frustrate this process by discouraging the new investment that market forces would normally be expected to entice.

Any factor that discourages new entry into an industry, so that water supply activities are not constrained to act competitively, can be accepted as a barrier to entry. Barriers to entry may be regulatory, structural, or strategic (i.e. created by an incumbent specifically in order to discourage entry). Thus any feature of an industry or a market which puts a potential entrant at a long run competitive disadvantage relative to incumbents, thereby preventing market forces from eroding an incumbent's market power, will be a barrier to entry.[6]

Barriers to entry can include:

(a) sunk costs, which are perhaps the best known structural barrier to entry. Sunk costs are the costs necessarily incurred in becoming a viable competitor that cannot be recovered if entry fails. In assessing the significance of sunk costs, it is not just the amount that is sunk that is important, but also the length of time expected to be required before these costs are recovered. Examples of sunk costs include the construction costs for a dam or water pipeline (since virtually all of these costs will be lost by investors if entry is unsuccessful), staff training and advertising and promotional costs associated with establishing a recognised presence in the market;

(b) legal or regulatory barriers, such as licensing requirements or legislated monopolies. An example in the water industry would be the requirement for a dam operator to hold a Resource Operations Licence specifying rules for flow management;

(c) access to scarce resources (including technical skills and intellectual property);

(d) cost advantages enjoyed by an incumbent firm (not related to the incumbent's superior productive efficiency directly attributable to the incumbent’s performance);

(e) informational advantages enjoyed by an incumbent - for example, where the market structure is such that a water supply activity immediately becomes aware of any existing customer changing supplier, it enables the water supply activity to subsequently target that customer - for example, where an incumbent will become aware of any customer seeking to use another provider;

[6] Barriers to entry may also arise from superior performance by a water supply activity.

(f) the nature of relationships in the market – for example, the existence of long term contracts (or vertical integration) in an industry can represent a major barrier to entry for a potential entrant due to these contracts (or the market structure) effectively rendering a proportion of the market non-contestable;

(g) brand loyalty and customer inertia. Whilst a degree of buyer loyalty exists for any product, in certain instances, the need to gain market acceptance of a new product can significantly delay successful entry and therefore constitute a barrier to entry. Inertia can arise for many reasons, including fear and uncertainty of change, lock-ins (e.g. where the customer will remain dependent on the water supply activity for other services such as sewerage), information and changeover costs, costs of relocation, the nature of customers' decision making processes and any other marketing advantages possessed by an incumbent;

(h) insufficient demand – for example, where the minimum efficient scale of an enterprise in the industry (i.e. the minimum size necessary for an entrant to compete with incumbents in the industry) is large relative to current demand, with limited opportunities for trade, the number of efficient firms in a market will be small. In such instances, the presence of an incumbent may preclude entry by prospective efficient entrants because the market simply may not be big enough to support them. This is likely to be the case where there are economies of scale or scope associated with production technology, or where there is already excess capacity in the industry;

(i) where a water supply activity controls an "essential facility" or a natural monopoly[7] such as a major dam and delivery facilities. Water supply activities may have natural monopoly characteristics where storage options are limited to only one or few large facilities and costs are minimised by having only one operator;

(j) environmental, river health, ecosystem and other resource constraints – water is clearly a finite resource in any given catchment and entry by a new supplier may be limited to the extent that there are undeveloped or unharnessed resources in the catchment. The Water Allocation and Management Planning (WAMP) process defines the sharing of water resources in any catchment between users and the environment, and specifies the water resources available for future allocation; and

(k) where a water supply activity can undertake strategic behaviour to discourage competitive conduct or entry. There are many forms of strategic behaviour which are designed to discourage competitive conduct or entry, including exacerbating customer inertia (described above), investing in excess capacity or otherwise generating uncertainty for any prospective entrant about the prices that are likely to prevail in the market after entry.

When assessing the impact of barriers to entry for a prospective competitor, it is important to consider the interaction of the barriers taken together, as they affect the best qualified competitor (i.e. the competitor most likely to successfully enter, or increase its share in, the market). In this regard, actual competitors are more likely to effectively constrain a water supply activity than potential competitors.

Examining the success or failure of new entrants in the past or the total absence of any new entrants in an industry that has generated high long-term profits, may also indicate that barriers to entry exist.

[7] A natural monopoly arises where the most cost effective means of meeting market demand is with a single facility, rather than any combination of smaller or more specialised facilities.

Accordingly, in the absence of vigorous competitive rivalry, the presence of any barriers to entry is likely to indicate the water supply activity is a monopoly water supply activity, especially if the best qualified entrant does not have an established presence in the market.

3.5 Evidence of Exercise of Market Power

Evidence of an absence of vigorous rivalry and the existence of barriers to entry is the primary test for a monopoly water supply activity. However, the absence of relevant information may render the first test inconclusive. For example, where there is more than one supplier, there may not be enough information in the public domain to conclude whether there is vigorous rivalry. Further, barriers to entry may hinge on contractual arrangements that are not publicly available.

Where the primary test is inconclusive, the second test relating to the evidence of the exercise of substantial market power is applied.

In order to ascertain whether a water supply activity is exercising substantial market power, the following considerations are relevant:

(a) the extent to which the water supply activity's economic income represents an excessive return on its asset base;

(b) whether there is a material difference between the productive efficiency of a water supply activity relative to best practice benchmarks (an example of a lack of productive efficiency arises with gold plating of assets or poor operational efficiency) and there is evidence that the water supply activity's economic income would be excessive if it were not for its inefficient operations; and

(c) whether the water supply activity cross-subsidises between profitable and loss making activities[8].

Clear evidence of a water supply activity's pricing or production behaviour persistently incorporating any of these elements suggests competitive pressures may not be exerted on the entity. In this regard, it should be noted that in competitive markets firms that persistently engage in these forms of conduct normally do not survive in the long run.

3.6 Summary of Analysis of Competitive Pressures

If the analysis of the market indicates effective competitive pressures are being exerted, because of vigorous rivalry or a lack of barriers to entry, then the candidate water supply activity will not be considered to be a monopoly water supply activity. If there is an absence of vigorous rivalry and barriers to entry exist, then the activity is a monopoly water supply activity.

Where the primary test is inconclusive, for example as a result of insufficient information for it to be applied, the second test relating to the evidence of the exercise of substantial market power is applied. In this instance, if there is evidence of substantial market power being exercised, then the activity is a monopoly water supply activity for the purposes of Part 5A of the Act.

[8] A cross-subsidy arises where a business activity receives less commercial benefit from a transaction (including, for example, the reasonably expected benefit of a customer's future business) than the cost to the business activity of the transaction.