
3. Directions for an effective water market

3.1. Introduction

In the preceding sections of this Report, we have summarised the existing water market arrangements in each State and Territory, including a discussion on the background to trade, and the scale of trade within and between jurisdictions.

In this section, we describe what we consider to be a benchmark for the overall design of an effective water market. In developing this design we have had regard to the features of what may be considered as 'successful' or effective markets, as well as the specific characteristics of the water sector.

In developing an overall design for an open, efficient and fully-functioning water market, we have considered:

- market and regulatory mechanisms for sharing delivery capacity and extraction rates;
- ways to manage changes in water usage patterns, channel capacity constraints and water quality issues;
- market characteristics which would desirably be compatible or consistent across jurisdictions;
- how to structure the market so as to allow the Government and other large users to participate to achieve public good outcomes, such as through the purchase of water entitlements or allocations for environmental flow purposes; and
- the existing product mix and possible product mix choices.

3.2. Context to market design

Markets are a feature of nearly every facet of economic activity. We interact with markets on a day-to-day basis, often without even realising this. Virtually every decision we make – where to work and live, what to buy, how to spend our free time, where to invest our savings - is influenced by or interacts within a market context.

The attraction of a market approach is that, provided a market is well designed and properly administered, it should encourage firms and individuals to act both in their own interests and encourage behaviours which collectively promote outcomes which are valued by the community more generally.

Most markets (such as Australia's water markets) evolve 'organically' where there exists a demand for coordinating processes markets provide. Where markets have been specifically created and designed, the impetus for their development is largely driven by the need for an efficient solution to a particular resource allocation problem. Creating such markets has necessitated that the underlying market failure – often related to deficiencies in property rights – be addressed.

Successful markets and market systems rarely are constructed from a zero-base. More commonly, markets need to be developed, modified and refined over time to account for changes to the market environment and characteristics, participants' increasing sophistication and to ensure that the market continues to achieve the objectives which are sought of it.

Indeed, this is an apt description of the current situation with regards to water markets in Australia as markets already exist and have been operating for quite some time. The issue is however more how to guide the market's evolution and continued development.

Any exercise in market design should be cognisant of the overall policy strategy for the sector. Markets are simply coordination instruments for the achievement of other policy objectives.

In this case this overall policy objective can be distilled from the objective and outcomes as set out in the NWI. This seeks to achieve the use of water in its most productive and societally-beneficial applications, to address the potential third party impacts of changes in where, when and how water is used, and to facilitate structural adjustment within the irrigated agriculture sector.

All successful markets/trading schemes have broad-based support from market participants. By this we mean that the market needs to be seen by participants as providing a useful service, and one they can readily integrate into the operations of their businesses. There is little point in designing a market which provides for transactions which no one values. Market design must therefore reflect what the market participants want, within those legitimate constraints that might be imposed by Governments and regulators on market conduct.

Market design should also to recognise that what participants want from a market will change over time and the market needs to be flexible enough to manage and adapt to such change.

3.3. Characteristics of well-developed markets

Markets can vary greatly, ranging from highly sophisticated, centralised markets built around common exchange-based systems, to decentralised, informal bilateral trading arrangements with few explicit rules other than the usual rules governing commerce, contracts and trade practices.

Markets are used to facilitate the trade of commodities as diverse as shares in a corporation's equity capital, livestock, real estate and used cars. Across markets, however, there are a number of common features that underwrite the effectiveness and efficiency of that market as a means of exchange. Some common threads which bind successful markets include:

- the commodity in question needs to be clearly defined, with exclusive ownership (exclusivity), and generally be separable from other commodities (divisibility and unbundling);
- markets work best with clearly defined and understood rules – these set the boundaries of the market and acceptable behaviour by market participants, reduce transactions costs by providing greater certainty, and also are more readily monitored for compliance;
- markets need to be supported by reliable information to allow buyers and sellers to make informed decisions;
- market mechanisms tend to work better where they use familiar trading mechanisms, such as contract forms and exchange mechanisms which are already used by market participants, or which have features which they are familiar with;
- administrative processes for effecting trade need to be reasonably clear and above all support the enforcement of the trade;
- the costs of transacting should be low compared to the value of the trade, and known in advance; and
- successful markets usually have few limitations on who can participate and generally a greater number of market participants positively impacts liquidity;.
- market supervision must provide for the timely and effective enforcement of trading rules where transgressions occur; and
- the community more broadly needs to accept the legitimacy of the transaction, and of trading in that commodity or service in general.

Without these aspects, markets will fail to be effective in coordinating the decisions of buyers and sellers, or will do so less effectively than they otherwise might.

Yet even though these are necessary features of successful markets, they do not sufficiently capture those factors which truly describe what makes a market 'work'. At their core, markets function by harnessing competition between different parties, for the rights to some commodity or other form of property of which there is a finite supply.

When looking at other examples of market design, it is common to find that much of the focus is on creating the necessary structural environment for competition to flourish.

Theory tells us that competitive markets require freedom of entry and exit; a pool of prospective buyers and sellers and competitive tension between them; full and symmetric information; and externalities which are addressed either through the way the market is designed or through supporting instruments. In practice, though, markets can work reasonably well even if some of these characteristics are less perfect than a 'textbook approach' may require.

Open participation by different parties is important because markets leverage off participant's different marginal valuations. A market may be operating effectively with very little trade observed at a point in time, simply because the value differentials between users, uses or locations are not sufficient to justify trade.

For trade to occur, a market needs to have buyers willing to pay more than what a prospective seller considers to be the value to them of retaining the commodity. If these marginal valuations are close there is a greater likelihood that the costs of identifying and executing the transaction, administrative or otherwise, will diminish the worth of the trade to each party and stop it from occurring. Given markets seek to facilitate the transfer of commodities between parties whom value it differently, the more prospective participants that are excluded from a market, the greater the chance that a valuable transaction will be foregone.

And finally, for a market to work there is a requirement for scarcity of supply and/or a meaningful opportunity cost of some alternative supply. No commodity has an economic value if it can be readily and costlessly recreated by another party.

3.4. Elements of market design

In considering a preferred market design for the water sector, we have considered the following dimensions of market design:

- whether the current structural characteristics of the market are sufficient to support competition, or whether further structural reform would be required;
- the definition of the market and the 'commodity' traded – a market in what?
- the rules which govern market transactions and whether restrictions on trade ought to be allowed and, if so, in what form?
- arrangements for regulation of market conduct, both of direct market participants (buyers and sellers) and of market intermediaries (brokers, exchange operators); and
- other ways in which the effectiveness of the market as a coordinating mechanism might be enhanced, such as through the provision of reliable market data to participants and the community.

In each case there are a number of alternative paths that could be travelled. In deciding between the alternative forms of market design, the choice should be informed by the core criteria of:

- Efficiency – adopting a form of market design which promotes market behaviour consistent with the principle of efficiency, having regard to both the short term and longer-term;
 - Efficiency might be looked at from the perspective of *productive efficiency* (goods and services are produced at least cost, using the optimal mix of production inputs), *allocative efficiency* (resources are allocated to their highest valued uses, consistent with the preferences of consumers), and *dynamic efficiency* (encourage behavioural change and investment to match consumers' changing requirements in an optimal way);
 - Third party impacts are really a subset of any efficiency criterion. Primarily we are concerned with those third party impacts which arise because of externalities, as opposed to impacts which are more tangential to the question of market design and trading, and are probably more related to processes on ongoing industry restructuring and rationalisation.

- Equity – as defined by the rights and expectations of existing market participants and the community more generally, and recognising that any market reform may impose a disproportionate share of the cost burden on certain stakeholders; and
- Administrative simplicity and practicality – recognising that more complex market structures may be ill-suited to the emerging sophistication of the water sector and may also impose transactions costs out of proportion to the benefits that may accrue;
 - Robustness to change is a particularly relevant feature here, as it is possible that the way the market operates in the future will be quite different to past trends, and the market design should contribute to the overall stability and coherence of the market in the face of such changes.

In the following discussion we have formed our views on what we consider to be the desired direction for the overall design of a water market, having regard to the criteria of efficiency, equity and administrative practicality.

In each chapter below we have summarised up-front the key findings or observations relevant to that dimension of market design. Specific recommendations are then provided after the following commentary and analysis.