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Discussion Paper 2007-04

Markets, Institutions and Sustainability

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ISSN 1443-8593
ISBN 978-1-86295-418-2

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by

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* This paper was prepared for the Australia and New Zealand Society of Ecological Economics Conference "Reinventing Sustainability: A climate for change" in Noosa, Australia, 3-6 July 2007. I am grateful to my doctoral studies advisor Associate Professor Peter Earl of the University of Queensland for his extensive comments.

Abstract

Encouraging and stimulating markets for new and innovative environmental goods and services is crucial to move our economy towards sustainability. Formal legislation, government policies, and price mechanisms alone, are not however, sufficient to guarantee the development of new markets. This paper demonstrates the importance of market participants developing their own 'rules of the game', their own sets of informal practices, routines, and institutions to make the market work. A case study on Australia's successfully developing wind energy market is utilised to illustrate these market processes in action.

Market 'emergence' or market 'creation' is explored from an institutional and evolutionary perspective. The first section is dedicated to elaborating the markets as institutions perspective whilst theoretical insights into how markets as institutions might emerge are detailed in the second section. In the third section institutional emergence of the wind energy market in Australia is explained by means of a theoretical framework developed from the case study. The research points to unique market behaviours, committed buyer-seller relationships, learned exchange capabilities, and institutionalised market practices as necessary features of successfully emergent markets. The paper concludes with directions to support new market development for environmental sustainability.

Keywords: Market, Institution, Emergence, Learning, Exchange

JEL Classification: D02, D40, D83, L14, M21

1. Markets as Institutions

> '…it is paradoxical how variously and vaguely defined the concept of market is' (Menard 1995:168)

The term 'market' has a history almost older than the discipline of economics itself. It is one of the few terms that characterise the field of 'economics' for laymen. It is regarded to be of central importance by economists' themselves. Yet as Menard notes, there remains a significant amount of dissension over the meaning of 'market', and as a consequence, much to be explored on their nature. This review will explore the 'markets as institutions' perspective. The exploration will begin with recognition of the commonality in the conceptions of 'market' held by most, if not all, economists. A very brief overview of the neoclassical conception of markets will follow to emphasise the significant differences in orientation. The review will then focus upon elaborating the 'markets as institutions' perspective, and conclude by examining the approach to institutions adopted by researchers in this perspective.

Markets are fundamentally about economic exchange. Through historical to contemporary thinking, across both neoclassical and institutional perspectives, the notion of economic exchange – of buying and selling – is central to our understanding of markets. Markets have long been considered in terms of a *space* of exchange, a space of buying and selling, and this remains a common theme uniting economists (Menard 1995:168). Also common across perspectives is the influence of a few key historical thinkers, in particular Smith and Marshall, and the tendency for contemporary authors to discuss, debate, and reference new research to selected works from these authors.

Beyond the common conception of market in terms of a space of exchange, the divergence in conceptions of market becomes increasingly obvious. The meaning of market in common parlance as 'geographical area, a group of traders, or a range of products' (Sawyer 1993:25) highlights the variety of differing approaches. The space of exchange here is defined alternately by physical characteristics, by the group of buyers and sellers, or by the product or service exchanged. Economists have unanimously clarified that space of exchange is an abstract space, although the difference in interpretation of historical works such as Smith and Marshall by neoclassical and institutional economists demonstrates striking differences.

In general, neoclassical economists focus on the space of exchange in terms of the set of exchanges that take place, or the set of buying and selling transactions that take place. For neoclassical economists, a 'market' is understood as a set of exchange relations (Sawyer 1993:22; Menard 1995:168), a set of trades of a particular item (Loasby 1999:107), that generate a ratio of exchange or price (Menard 1995:168; Earl and Potts 2004:1) – specifically, an equilibrium price (Casson 2003:80). For neoclassical economists the outcome of buying and selling is more important than the process of buying and selling (Casson 2003:80). Prices alone coordinate the intersection of supply and demand correspondences (Menard 1995:169; Loasby 1999:110; Loasby 2000:308) and any all adjustment of the equilibrium outcome is driven by changes in prices (Casson 2003:80). The market becomes merely an information processing and computation mechanism (Potts 2001:414). In specific though widely accepted formulations, the market is literally equated with the price mechanism and regarded as the single, fundamental, and exclusive mechanism directing economic behaviour (Coase 1991:228; Menard 1995:169).

In contrast, institutional economists focus on the space of exchange in terms of the setting in which the buying and selling occurs, the context of exchange. Two broad schools of institutional thought have influenced this view of markets. The first is the new institutional economics, or transaction cost economics. It argues that there are costs and benefits associated with exchange in markets that have been excluded from the neoclassical analysis of the price system (Coase 1991:230). The new institutional economics fosters a process view of markets, directing our attention to the process of discovering prices, negotiating exchanges, drawing up contracts, monitoring goods & services, and so on (Coase 1991:230).

Transactions costs perspectives do not offer a theory of the market however; they offer a theory of the firm, and more recently, a theory of hybrid institutional structures (Williamson 1993:3-5). The neoclassical assumption that the market, as an institutional structure, is equivalent to the price mechanism, has been retained in this stream of institutionalism (Coase 1991:230). The more important question for the new institutional economics has been the relative incidence of market, firm, and hybrid institutional structures across our economy (Williamson 1993:6-7). Consequently, it has been left to the school of old institutional economists to elaborate a view of markets that stretches beyond the strict domain of the price system.

Broadly termed the 'markets as institutions' perspective, the old institutional view focuses on markets as organised collective processes that enable and facilitate the matching of buyers and sellers in exchange relations. It prompts us to think about what is involved in market exchange – making contact with a buyer or seller, gaining knowledge of reciprocal wants, agreeing over price, exchanging custody of goods or services, gaining redress in the case of default, and so on (Casson 2003:84) – and then asks us what arrangements are in place to help us through these steps. The perspective is firmly rooted in the Institutional, Evolutionary, and Austrian traditions and has overlaps with network views of markets, where markets are described by the relations, or connections, between market participants (Simon 1991:25; Birner 1999:40; Potts 2001:419-23).

A market in the 'markets as institutions' perspective is understood as organised and institutionalised exchange (Hodgson 1988:174), exchange occurring within a framework (Birner 1999:41). A market is the set of mechanisms and processes that structure, organise and legitimate the contractual agreements and property rights transfers that characterise economic exchange (Hodgson 1988:174). These mechanisms and processes are understood to be standard or widely accepted behavioural or institutional arrangements (Arena and Charbit 1998:101; Arena 1999:24). They take specific form as habits, customs, norms, conventions, routines, procedures, and rules of thumb for engaging in buying and selling relations (Arena and Charbit 1998:99; Arena 1999:17-8; Loasby 1999:115; Nelson and Sampat 2001:45). Standard or widely accepted arrangements, known as institutions, reduce the costs of discovering and choosing who, when, where, what, and how to buy and sell (Hodgson 1988:180-1; Loasby 1999:125; Loasby 2000:300). Examples of market institutions are provided below in Table 1.

Table 1: Examples of Market Institutions
▪ Trade associations, that, for example, coordination standards of service offered by members and monitor them, or operate insurance funds to guard against customers suffering losses in the event of a member going out of business.
▪ Yellow Pages and other business directories.
▪ Tendencies of suppliers to stay in the same line of business for long periods and to try to make a name for themselves there.
▪ Conventions used in setting prices, such as holding prices steady in the face of fluctuating demand (except for well-known 'sale' periods, such as the New Year).
▪ Districts or particular roads known for groupings of particular kinds of firms, such as Silicon Valley, Hollywood, Madison Avenue, Broadway, the City of London, Fleet Street or Soho. These are known in the modern literature as 'Marshallian business districts' after Alfred Marshall, who drew attention to them over a century ago.
▪ Trade fairs, business conferences/conventions and exhibitions that enable rival suppliers and would-be customers to mindle with each other and gather intelligence about where the market may be heading.
▪ Trade press and other regular, well-known advertising forums.
▪ Websites that provide information on product reliability, specifications and prices.
▪ Experienced consumers, known for the expertise and willingness to share it.
▪ Voluntary codes of practice under which suppliers are widely known to be operating.
▪ Product standards for size, physical connections and functional compatibility.
▪ Statutory requirements, such as product safety and environmental protection legislation, or requirements that suppliers should be licensed and subject to periodic monitoring by a regulatory authority.
▪ The presence of anti-monopoly bodies (such as the Competition Commission in the UK) and consumer watchdog groups (such as the Consumers' Association) and their reputations (or lack of them) for stepping in when customer interests are threatened by suppliers' policies.
▪ Laws and legal institutions, including bodies such as small claims courts.
Source: Page 52-3, Earl, P. and T. Wakeley (2005). Business Economics: a contemporary approach, McGraw-Hill.

Markets as institutions provide the setting for not only for current exchange, but also for the evolution of exchange relations (Loasby 1999:107; Loasby 2000:308). Market institutions, the standard or widely accepted behavioural and institutional arrangements, emerge and evolve through the process of market participants developing and changing trading relations with buyers and sellers (Arena 1999:20; Loasby 1999:111; Loasby 2000:302-3). In particular, the literature has emphasised that developing and changing trade connections entails specific choices and actions in contract making, specification, negotiation, monitoring and enforcement (Loasby 1996:46; Casson 2003:84-9). In short, market institutions emerge and evolve through the very sequence of trading transactions themselves (Loasby 1999:120).

Market participants both discover and learn successful behavioural and institutional arrangements. Experimentation is central to the operation of markets (Potts 2001:423), and market participants not only continue successful arrangements, but they also experiment with new arrangements with trading partners. The widespread adoption necessary for the emergence of institutions also involves learning and mimicking the arrangements of other market participants (Arena 1999:18; Loasby 2000:305). The emergence of market institutions is a process that generates a variety of arrangements and selects successful arrangements, and is thus argued to be an evolutionary process involving both trial and error and learning (Loasby 2000:301; Nelson and Sampat 2001:52).

The important role of specific market participants has also been emphasised in a closely related literature on 'market making'. In particular, entrepreneurs are argued to play as significant role in making markets. The focus is often on the efforts of one or more of these

major participants, who invest in creating trading relations (Loasby 1996:43-4; Loasby 1999:118-20; Loasby 2000:301). It has also been argued that mediators, intermediary agents, and specialists play crucial roles in the ongoing evolution of markets from a market 'making' perspective (Arena 1999:16; Loasby 1999:109; Earl and Potts 2004:7). Market 'making' here is identified with creative and innovative behaviour on behalf of market participants (Bianchi 1995:197; Birner 1999:46-7).

Balancing this accent on the behaviour of individuals is a strong argument for the importance of considering collective and social aspects. This stands in stark contrast to most contemporary research on markets, which is strongly based on methodologically individualist foundations. As Hodgson notes, 'the common view is that the market is a kind of summation of individual actors, without a prior institutional framework' (Hodgson 1988:207). Rather, researchers in the 'markets as institutions' perspective emphasise that markets are social phenomena (Arena 1999:15; Birner 1999:45). They do not seek to reject the importance of individual choice and behaviour – in fact this focus is retained by researchers (Arena and Charbit 1998:84; Birner 1999:36,42,45). However researchers in this perspective do seek to moderate the individual focus by exploring the role of common experience, collective behaviour, and social structures and influences in markets.

Overall however, a detailed approach to the emergence and evolution of markets from an institutional perspective is lacking in the literature. The markets as institutions literature does not delve into the conceptual challenge of connecting institutions to habits, customs, norms, conventions, routines, procedures, and rules of thumb. Nor does the market as institutions literature elaborate on the origin of new habits, customs, norms, conventions, routines, procedures, and rules of thumb. Finally, the literature on market making makes little reference to 'institution making', despite the broad institutional perspective in which it lies. In this respect it appears that the markets as institutions perspective is still in the early stages of development.

2. Theoretical foundations

The institutional economics literature was interrogated further for possible insights to guide the investigation of the emergence of markets as institutions. Two promising avenues materialised. The first derives from the focus on trading transactions, trading relations, and trading partners evident in the markets as institutions literature. Curiously, researchers have not fleshed out any detail regarding these trading transactions, trading relations, and trading partners in the context of markets as institutions. They have however, focused on these issues in a related literature on inter-firms relations, which explores the variety of different connections and linkages between market participants. The second avenue is the literature on institutional change. This literature examines how institutions may emerge through the interplay of individual behaviours and social structures. It focuses on how institutions are made and on the path from habits, customs, norms, and so on to institutions.

2.1 Inter-Firm Relations

Institutional economists who are interested in the connections and linkages between market participants write in the literature on inter-firm relations. This is a literature shared with organisation theorists and strategic management researchers who also use the terms 'inter-organisational relations' and 'new organisational forms'. At its most basic, researchers are interested in the variety of vertical interactions and horizontal interactions in which firms engage. Vertical interactions refer to those interactions between producer and consumer, and

horizontal interactions to those interactions among producers or among consumers (Imai and Itami 1984:305).

This literature has origins in Marshall's concept of 'external organisation'. External organisation refers to the specific relationships, or trade connections, between a firm and its suppliers, customers and rivals (Loasby 1994:259; Loasby 1996:50; Arena 1999:20; Loasby 2002:17). Marshall set the scene for an analytical approach to understanding the structures of interactions between firms within and across markets. His work was of particular influence on latter economists Andrews and Richardson, who have also produced seminal works in the field. Andrews' contribution was to re-acquaint economists with the role of personal contact and ongoing relations in business interactions, highlighting the role of goodwill (Andrews 1951:135-7,147-8). Richardson's contribution was to highlight the 'paradox of cooperation', the necessity of cooperation between firms for the coordination of complementary but dissimilar activities (Richardson 1972:892; Ravix 1998:73; Richardson 1999:5).

Contemporary institutional economists have turned their attention to particular types of interaction, such as subcontracting, supply chain and distribution channel networks, franchising, collective trademark arrangements, partnerships, cooperatives, non-equity alliances and equity alliances or joint ventures (Menard 2004:348-50). Historically common types of interaction that have attracted interest include cultural cooperatives, cottage industries, and cartels (Hage and Alter 1997:94). Categorisations of these inter-firm relations abound, such as Kay's classification of joint ventures as business level or intra-firm forms, alliances and partnerships as corporate level or inter-firm forms, and clusters, networks and clubs as group level forms (Kay 1998:222,232; Kay 1998:97).

Conceptually however, inter-firm relations have caused some trouble for institutional economists. The analytical association between inter-firm relations, the market, and the firm has become confused. This confusion appears to a product of the movements in economic thought in the 20th century. The rise of neoclassical theory brought with it the assumption that economic interactions were driven exclusively by the price mechanism of the market. The retort of transaction cost theory was that economic interactions could be driven by the price mechanism of the market *or* alternately the authority mechanism of the firm. The identification of other forms of economic organisation by institutional economists brought the question of whether they too were an alternative driver of economic interactions.

The conceptual difficulty has been resolved in three different ways. The first approach proposes that inter-firm relations entail a mixture of market pricing and firm authority, which lie at extreme ends of a continuum or spectrum (Mariti and Smiley 1983:276; Hutter and Teubner 1993:706-7; Langlois and Robertson 1995:9; Menard 1996:155; Hollingsworth and Boyer 1997:8-9). The second approach proposes that inter-firm relations are a hybrid or combination of market pricing and firm authority (Imai and Itami 1984:293; Menard 1995:163,175; Menard 1996:285; Foss 2002:53,57; Foss 2002:5; Menard 2004:353). The third approach proposes that inter-firm relations are a completely different category that contrasts with market pricing and firm authority, such as market, cooperation, and direction (Richardson 1972; Kay 1998:223; Richardson 1998:44), or competition, cooperation, command (Loasby 1994:294), or market, network, and hierarchy (Hage and Alter 1997:96), or market, relational, and firm (Hodgson 2002:45,48-51). Which approach should be adopted?

This research seeks to transcend these issues by harking back to the simple vertical-horizontal distinction. Inter-firm relations are regarded as interactions between producers and consumers. They may include a great diversity of arrangements, from complex subcontracting agreements and equity joint venture alliances, to simple one-off trades and repeat shopping. The 'markets as institutions' view tells us that the interactions of market participants depend on the specific institutions that enable and constrain their behaviour in a given context. If institutions denote a framework of ways that participants trade, then the existence of different institutions suggests that there will be different types of inter-firm relations. As institutions change, we should expect to see changes in the interactions between market participants, changes in inter-firm relations.

Inter-firm relations viewed in this broad sense, become an analytical tool for the study of the emergence of market institutions. All three 'categories' are crucial – firms require markets to produce into and consume from, markets require firms to participate and trade in them, and inter-firm relations describe the interactions that connect firms into markets.
In short, this approach pursues the view that firm and market are complementary, which contrasts with the make-or-buy transaction costs view in which firm and market are substitutable (Sawyer 1993:33; Bianchi 1995:196-8; Turvani 1998:155,163; Loasby 1999:117; Loasby 2002:11,17).

2.2 Institutional Change

The thriving literature on institutional change provides a second avenue for acquiring insights into the emergence of markets as institutions. This literature focuses on changes in the institutional fabric of economic systems, on the emergence of new institutional patterns. Various theories of institutional change are reviewed before delving into details of a proposal by Nelson & Sampat that may incorporate aspects from across the perspectives (2001).

The range of theories addressing the issue of institutional change far surpasses the variety of views surrounding markets as institutions. Schmid (2004) & Aoki (2006) present classifications that incorporate both new institutional economics and old institutional economics theories of institutional change, whilst Dulbecco and Dutraive (2001) and Hodgson (2006) and place more emphasis on the Neoclassical, Austrian, Evolutionary or Institutional heritage brought by each of the various theories. Nelson & Sampat (2001) and Rutherford (1994) further discern between Veblen and Commons streams within the old institutional economics.

The most significant distinction shared by these authors is between those theories that assume institutional change is exogenous and those that treat institutional change endogenously. Theories from the new institutional economics are regarded as lying in the exogenous camp (Schmid 2004:258-60; Aoki 2006:1-2). They examine institutional change as a rational response to changes in transaction costs, driven by some external change of affairs such as increase in population, development of a new technology, discovery of a natural resource, or a shift in consumer preferences. Schmid calls these theories 'functional', whilst Aoki labels these as 'rational transaction-costs saving approaches'. Theories driven by insights from the Austrian, Evolutionary, and Institutional traditions on the other hand are understood to focus on endogenous change in the institutional structure of economic systems (Aoki 2006:1-2).

The Austrian tradition in particular has risen to great popularity with its Hayekian focus on the spontaneous emergence of institutions from the unplanned behaviour of individuals (Nelson and Sampat 2001:35-6; Hodgson 2006:13-5). Schmid discusses these Austrian

influenced self-organisation proposals under the banner of 'learning-evolutionary' theories. These theories frequently make use of biological analogy, particularly focusing on mechanisms of variation, selection, and retention (2004:262-66). Potts 'rule trajectory' theory of institutional change, proposing the origination of a new idea, the adoption of the new idea, and the diffusion of the new idea across a population as the central processes of institutional change is an example in this area (Potts 2007:344-6).

Evolutionary inspired theories of institutional change also share similarities with the process framework of the Schumpeterian innovation literature. New market creation is explained in this literature by the innovation, adoption, and diffusion of new products (Geroski 2003:145-89). Variations on this theme are common, such as Mantzavinos' compression of the theory into the two phases of innovation and imitation as knowledge-creation and knowledge-diffusion (Mantzavinos 2001:211-212), or Anderson and Gatignon's abbreviation of the theory into the two stages of adoption and diffusion driven by innovators and imitators (Anderson and Gatignon 2005:417-9). In both the Schumpetarian innovation theories and the Austrian and Evolutionary theories of institutional change individual choice is central (Dulbecco and Dutraive 2001:55-9).

In contrast, power structures and conflict are primary in the theories of institutional change inspired by Institutional traditions. Rutherford distinguishes between two streams of the tradition – the Veblen inspired stream and the Commons inspired stream (Rutherford 1994:173-4). The former is built upon the dynamic interplay of instrumental institutions and ceremonial institutions (Bush 1987-107; Bush 1994:651-2), whilst institutional change in the latter is driven by power dynamics and the resolution of conflicts (Samuels 1995:580-1; Dulbecco and Dutraive 2001:59-63; Schmid 2004:260-2). Nelson and Sampat argue that the Veblen inspired stream aligns more closely with the Austrian tradition as a consequence of its focus on unconscious evolution without design (Nelson and Sampat 2001:35-36), whilst the emphasis on conscious governmental design in the Commons tradition brings its closer to the new institutional economics. Both streams of the Institutional tradition are however, united in the recognition of the inherent interdependence of institutions (Hodgson 2006:13-5).

The institutional change literature in general provides a very broad view of the emergence of new collective behaviours from the actions of individuals. Whilst the terms habit, custom, norm, convention, routine, procedure, and rules of thumb are often used in this literature, none are particularly well defined for study in an empirical setting. The exception to this is the concept of routines, which has a discrete literature of its own. Nelson and Sampat propose to integrate the two literatures (2001:40-7). The routines literature has important parallels with the Austrian, Evolutionary, and Institutional traditions that suggest its usefulness for this study into the emergence of markets as institutions.

The concept of routines refers to dynamic processes occurring through time that 'take form only as the action unfolds' (Reynaud 2000:256). At their most basic, routines are patterns of recurring processes (Cohen, Burkhart et al. 1996:5-6; Reynaud 2000:250-1; Becker 2004:644-6). Researchers distinguish between cognitive approaches focusing upon patterns of rules, and activity approaches focusing upon patterns of action, interaction or behaviour. Routines are argued to emerge and change through processes of feedback and learning between individuals and the dynamics of political conflict and truce (Nelson and Winter 1982; Cohen, Burkhart et al. 1996:19-20,28; Lazaric 2000:163-5; Becker 2004:652-3). Routines help individuals to coordinate and control, deal with uncertainty by creating

stability, economise on limited cognitive resources, and solve problems and acquire knowledge (Cohen, Burkhart et al. 1996:19; Hodgson 1997:664; Becker 2004:662).

Routines are not typically associated with markets however. Routines are usually associated with firms. Arena argues that this is the consequence of three underlying assumptions about markets: that markets do not generate repetitive and stable activities, that agents in markets, particularly consumers, act as isolated actors rather than social actors, and that markets do not exhibit the structural characteristics required (Arena 2006:1). The 'markets as institutions' perspective provides ammunition to question these assumptions however. Thus, the study will follow in Arena's footsteps to explore market routines, as it is a potentially useful theoretical construct for understanding the emergence of markets as institutions.

3. The Institutional Emergence of the Wind Energy Market in Australia

In this section the emergence of Australia's successfully developing wind energy market is explored. The section begins with a brief note on the methodology of the study, the growth of the wind energy market by projects, and the scope of the institutions investigated. The overall theoretical framework resulting from the research is then briefly outlined before delving into detailed discussions of the institutional emergence of the wind energy market in Australia.

The chosen case study methodology of this research is influenced by two traditions. The first is the tradition of case studies pursued by Marshallian industrial economists such as Richardson, Andrews and Loasby (Finch 1999:165-70; Finch 2002:220-7). The related routines literature also recommends case studies (Cohen, Burkhart et al. 1996:30-2; Becker 2004). The second is the tradition of research fostered by scholars in the old institutional economics that emphasises the social construction of knowledge (Dugger 1984:317-9; Bush 1991:326-9; Samuels 1995:343-4). The social sciences literature on qualitative research provides the coherent link between these two traditions, identifying constructivist approaches with interpretive case studies (Denzin and Lincoln 1994:13). The chosen methodology involved prior theory development from the literature, archival and documentary data together with a series of interviews with selected market participants[1], and analysis focusing on iterative interpretation of patterns, following the guidance of seminal works in the field (Yin 1994; Stake 1995).

Wind energy technologies have had a long gestation period in Australia. Small-scale low capacity wind turbines have been manufactured in Australia for over half a century, although installations of these machines were largely restricted to rural and remote communities faced with the prospect of diesel energy generation alternatives. It took the oil shocks of the 1970s before attention was directed to the application of wind energy technologies for large-scale energy generation projects. Activities in the 1980s focused on research into available wind resources and the development of technologies for the Australian context.

Demonstration projects and the first 'wind farms' with multiple turbines, of up 10MW size, came to fruition in the 1990s. In the late 1990s the Federal government announced that there would be a renewable energy incentive, and this provided a mechanism for growth in Australia utilising primarily overseas wind turbine technologies. Although wind farms take a number of years to develop, wind farms of up to 25MW size were already operational in

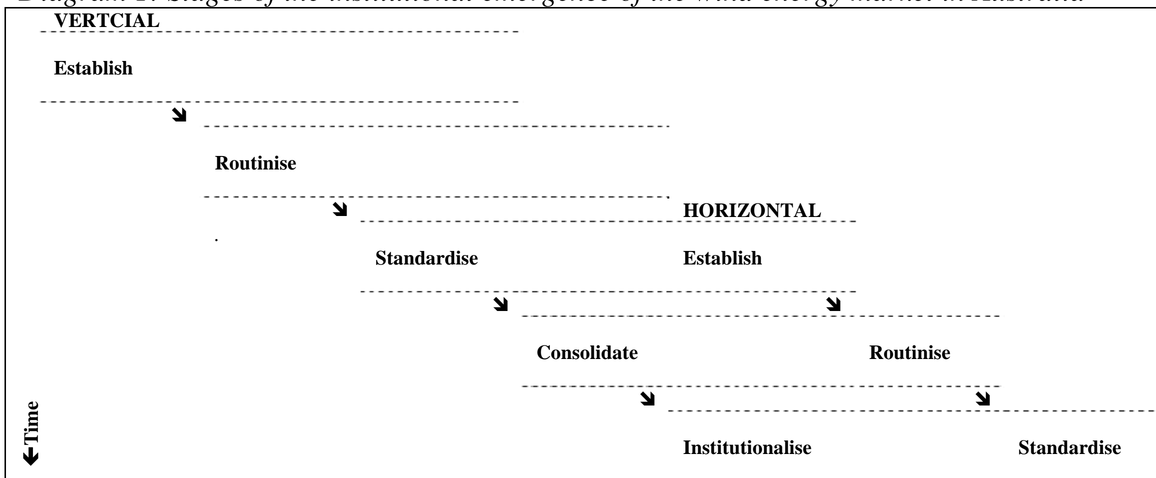
[1] These are commercial-in-confidence interviews. Consequently, only generalised insights from across the interviews are utilised here. The author wishes to thank all participants for their enormous generosity in assisting with the study and AusWIND for their assistance with various archival and documentary material.

Queensland, Western Australia and Victoria by the end of 2001, the year the Mandatory Renewable Energy Target scheme commenced. By 2006 there were over 15 wind farms across the country extending, into South Australia and Tasmania, and of a significantly larger scale, reaching up to 95MW size. Further projects currently under construction will expand the scale of wind energy projects in Australia up to sizes of over 190MW. In addition, over 5000MW of further projects are being investigated for future development.

At the outset it is also necessary to discuss the scope of the research. The case study aimed to explore the emergence of institutions specific to the wind energy market, but as the study progressed the necessity of emphasising the rich tapestry of institutions on which these depend became ever more apparent. The institutions of the renewable energy market in Australia, such as the Mandatory Renewable Energy Target, have been crucial to the development of wind energy specific institutions. The National Electricity Market, with all its intricacies of generator registration, participant exemptions, and centralised trading, has played an important role in framing the buying and selling interactions of market participants. Finally, without the fundamental institutions underpinning markets in general, such as property rights and contracts law, the wind energy market would be but a figment of our imagination. These wider institutions feature in the discussions.

The endogenous development of institutions specific to the wind energy market appears to involve five distinct stages. These stages flesh out the process of moving from business practices to collective institutions through dynamic interactions between diverse market participants. The first stage is characterised by entrepreneurial efforts to creatively establish new practices with vertically related participants. The second stage is characterised by ongoing cooperation between these participants to learn and refine successful practices into routine behaviours. The third stage is characterised by inexperienced entrants and the forging of interactions between entrepreneurial competitors to encourage standard use of appropriate market practices. The fourth stage is characterised by the development of routine relationships between these competitors to systematically identify practices to facilitate, structure, and legitimate exchange. The fifth stage is characterised by standard patterns of interaction across horizontally related participants that operate to publicly communicate and morally enforce these practices across the market. These stages are summarised in Diagram 1 below.

Diagram 1: Stages of the institutional emergence of the wind energy market in Australia



Economists would typically define the wind energy market based on the trades of wind energy. The exchange of property rights over wind energy takes place between wind farm developers (as producers of wind energy) and energy retailers (as consumers of wind energy). The institutions that have developed to support this trade include most notably: the Australian Wind Energy Association, firstly known as AusWEA and now known as AusWIND; the annual jointly held trade convention and conference of the Australian wind energy market; the Best Practice Guidelines for Implementation of Wind Energy Projects in Australia, now in its first revision; and the recently initiated project to design an accreditation system to operate under the framework of Australian Standards. A variety of less publicised business practices such as those relating to securing, negotiating, and implementing energy 'off-take' agreements for the purchase/sale of wind energy have also emerged as established and prevalent patterns of interaction.

These institutions importantly, guide more than the interactions between wind farm developers and energy retailers in the exchange of wind energy. These institutions also guide the multitude of diverse interactions that sustain the supply of and demand for wind energy. The interactions between wind farm developers (as producers of wind energy) and their stakeholders, from local communities to national financiers, legitimate, regulate and structure the possible contractual arrangements fostered with energy retailers. Similarly, the interactions between energy retailers (as consumers of wind energy) and their stakeholders, including business and consumer end users, help to organise exchange and establish price benchmarks for the trade of wind energy.

Wind farm developers for example, who foster strong ongoing relationships with the local community help to legitimate exchanges of wind energy in Australia by ensuring the social acceptability of such development. Engagement of the commercial services of reputable environmental consultants and cultural and heritage assessors helps to regulate the quality of wind energy traded, and commercial transactions with financiers and network providers structure the range of possible energy sale or 'off-take' agreements that can be negotiated. Energy retailers who participate in renewable energy accreditation schemes such as the national 'Greenpower' initiative encourage the differential pricing of wind energy and reduced reliance upon mandatory targets.

Whilst some of these institutions have been consciously designed, such as the Mandatory Renewable Energy Target, many have emerged from the process of exchange itself, from the interactions between market participants. The Best Practice Guidelines for example, specify appropriate practices for interacting with a variety of stakeholders including with landowners, local authorities, and regulators. Greenpower on the other hand, is an accreditation program that sets strict environmental and reporting standards for organisations selling renewable energy to business and consumer end users. These practices have their origins in the pioneering interactions of the early entrepreneurs and innovative firms. Bringing the first wind energy trades to fruition required strong relationships, and these relationships were built upon successful approaches to interacting with a variety of stakeholders.

There were for example, no precedents for how to sell the 'wind' part of wind energy before the first trades took place – selling wind energy was a speculative activity in the earliest stages of market emergence. Pioneering companies used the institutions they knew from other contexts, such as 'trading team' departments to make contact with potential buyers or sellers. Multiple approaches, creative negotiations, and many rounds of discussions, were crucial in creating demand and supply for a product that was previously unknown in the

Australian context. Similarly, wind farm developer interactions with wind turbine manufacturers typically involved standard engineer-procure-construct contracts with adaptations to suit the unique goals of the organisations involved, including writing in future projects and agreeing on local souring of components and services.

Establishing these new interactions in the absence of wind energy specific institutions required a great deal of patience and persistence, openness with information to 'educate' other parties and 'demystify' wind energy, and active working through issues, rather than walking away – not an option when there are few other choices of companies to engage. Wind farm developer interactions with the network service providers, the owners of the electrical distribution system, are particularly interesting cases in point, given the commercial sensitivity of the technical information changing hands. Early participants also demonstrated an acute understanding of the limits of their own institutional experience, and the necessity of enlisting the help others who had valuable historical experience in different institutional contexts. The important marriages between those experienced in the 'pin-strip suit world' of the national financial markets and those experienced in the rural communities where wind farms would be located, is a prime example. The involvement of not-for-profit environment organisations in the design and establishment of the Greenpower accreditation scheme is a further example.

By building upon their previous experiences, participants moved the development of institutions towards a second stage. Many of the early pioneering participants had several wind energy projects 'in the pipeline' at the time of their first project, whilst others in the emerging market keenly observed. Practices that had proven successful were used again, useful ideas developed through mutual deliberations were incorporated, and lessons were learnt for how not to engage with other market participants. Feedback focused about a stabilising set of practices characterised this stage in which routines started to emerge. Learning about how to contract, about how to interact in new exchange contexts, was greatly facilitated by repeat engagement with other participants. Switching suppliers/customers, as participants discussed, is costly for these very reasons. Reputation and goodwill were essential in this stage of the emergence of the market.

Wind farm developers encouraging landowners to take lease agreements to their own lawyers, for example, have helped to refine and develop lease agreements. Wind farm developers have included several clauses suggested through this process in what have become their standard agreements. The practice of offering two leases – one for feasibility and one for operation is another key practice that became a typical pattern of interaction. Feedback and learning with local communities centred wind farm developers on particular patterns of interaction, such as making initial and early contact by literally knocking on people's doors rather than holding community consultation sessions. Energy retailers advertising patterns for consumer end users progressed to include notifications on bills, newsletters, and website. Wind farm developers and energy retailers settled on the practice of negotiating the sale of 'wind' and 'energy' separately, involving options of sale/purchase of one or both components.

These early pioneering participants had by this stage, developed unique knowledge, experience and skills about how to engage in the process of exchange itself. Early wind farm developers understood for example, the importance of having connections with all the major players in the national electricity market – absolutely crucial in securing current and future wind energy sales. They understood the significance of employing specialist independent

consultants of high repute to undertake comprehensive environmental and cultural assessments to address council concerns. Their success however, combined with the commencement of the Mandatory Renewable Energy Target scheme, encouraged new entrants, who perceived and expected arbitrage opportunities.

The early participants however, who had first hand experienced pitfalls and peaks of fostering new interactions, and who were conscious of their own learning experiences, recognises the need for a new strategy. The establishment of a formal trade association and ongoing connections between competitors across the market signalled the third stage of the emergence of wind energy specific market institutions. The trade association at that stage operated more or less as a 'hobby club', in contrast to today's professional organisation. It did enable the establishment of dialogue between participants about their practices however. Through the association participants began to share, albeit cautiously, lesson learnt about how to interact, in the mutual recognition that problematic interactions would damage the reputation of the growing market in the eyes of its stakeholders. These horizontal interactions between firms focused on guiding and supporting ongoing market development.

Suspicions of such problems were not unfounded. Whilst some new entrants brought an understanding of the institutional context of exchange from related contexts, such as overseas wind energy companies or Australian energy market utilities, many new entrants were inexperienced and particularly lacking in capabilities relating to the exchange of wind energy. Inappropriate practices contributed to difficult and often failing interactions. Issues included players bypassing local council development assessment channels for state based assessments, and players signing up landholders to 'make a quick buck' selling on these contracts, without the intention of building a wind farm.

Early participants found themselves in the difficult position where new entrants actions were reflected on their businesses through the changing perceptions of 'wind energy' held by local communities, regulators, and financiers amongst others. Through the trade association they began to address the need to regain credibility for the market as a whole, to influence the institutional viability of wind energy in the context of other markets, such as energy and environment. With progressive organisation the association worked to produce the first version of the Best Practice Guidelines for Implementation of Wind Energy Projects in Australia to publicly advocate for appropriate practices, and organised the 'Yes-To-Wind' campaign to raise public awareness and the profile of the association. A variety of policy statements regarding siting near aviation and telecommunications were also released. In this stage the fine balancing act necessary to promote the emergence of market institutions is particularly notable – participants juggle cooperative dissemination of information to raise standards, with reservedness about key project details to avoid revealing competitive advantages.

The fourth stage of the emergence of wind energy specific institutions was ushered in by several marked changes. Inexperienced entrants started to fail and exit the market, due to over-promises to landholders, contractual issues with consultants, and failure to secure off-take agreements for example. Early participants also noted that their ongoing interactions often served to reinforce the use of routine practices, adapted appropriately to each context. These processes thus helped to consolidate the now standard approaches to engaging in the variety of wind energy interactions. The growing knowledge and certainty of how to engage in interactions provided experienced companies with a stable base on which to purse a variety of new strategies and interactions, such as joint ventures, joint marketing activities, and

innovative arrangements with business end users. Assisting this consolidation of practices was the recent entrance of one of the world's largest renewable energy companies, by takeover of an experienced existing player, and the move of one organisation to vertically integrate wind farms into their energy retailing business.

Connected changes in the trade association were fundamental in helping to stimulate these changes. Turmoil in the market place, particularly due to the increasing public awareness of the market driven unfortunately by the inappropriate practices of many of the 'cowboys', led participants in the trade association to pursue significant changes in the structure and operation of the trade association. The trade association was transformed towards a professional representative organisation with the hiring of staff, restructuring of fees and voting rights, and the development of formal working groups. An increasingly problem-solving orientation emerged, focusing on issues mainly internal to the market, such as regulator requirements for sensitive technical information about turbines, and the complex issue of landscape values and wind energy. A focus on developing external relations is also evident in the routine lobbying role that has emerged and the first joint conference held in association with the Global Wind Energy Council.

There were a few upsets that stalled the emergence of the market in this stage however, notably the turmoil over the broader social values inscribed in the institutional framework of the wider energy market. The first review of the Mandatory Renewable Energy Target was released in 2004, and although the report recommended both an extension and increase of the target, the Federal Government did not adopt either recommendation. This created significant institutional uncertainty, demonstrates the implications of the institutional interdependence. Recent State government moves to investigate and initiate targets and trading systems have partially mitigated this institutional uncertainty. The ongoing development of the Greenpower scheme and the end user market for renewable energy has also shown potential in helping to push the market towards independence from existing institutional supports. New organisations have entered to compete against traditional energy retailers, and a wind farm developer has become accredited to sell wind energy direct to business end users through this scheme.

The wind energy market appears to be on the cusp of the fifth stage of the institutional emergence. The association has commenced the process of developing an accreditation scheme under Australian Standards based on the recently revised Best Practice Guidelines, partially in response to the call for a National Code for wind farms. This will be a significant development in marking the emergence of wind energy specific market institutions. The growing internal activities and external relations of the association will also help this transition, particularly as the working groups are standardised into ongoing mechanisms to address market specific issues and as the staff and board operate to develop the role of wind energy in the greater economic context.

4. Directions

Exploring the emergence of the wind energy market from an institutional perspective provides us with a different view on the creation of markets. The orthodox view on market creation typically focuses on a life-cycle approach, detailing entry and exit of participants. The heterodox view on market creation typically involves an innovation perspective, focusing on spread of new technologies. An institutional view on market creation might encourage us to look at market interaction as a growth of knowledge problem. The key to the emergence of

markets, from an institutional perspective, is the cooperative process of learning how to interact.

So what lessons might we learn from the institutional emergence of the wind energy market? Firstly, the markets as institutions perspective suggests that we encourage the use of well tried and tested institutions used in many markets, such as conferences on environmental issues and trade fairs for new environmental technologies, to facilitate awareness and bring new developments out of the unknown. Secondly, the markets as institutions perspective may also advocate for the value of accreditations, certifications, or other schemes that require evidence of environmental credentials, to help distinguish the environmental aspects of products and services and enable differentiate pricing. Thirdly, examining the process of institutional emergence suggests that individual participants cannot develop institutions on their own, and that cooperation between competitors focused on discussion and critique of market practices at annual conferences or through trade associations is necessary. Finally, the emergent institutions of the wind energy market demonstrate the value of including a variety of stakeholders, through mechanisms such as research projects and development programs, to ensure that economic practices align with broader social and cultural values.

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