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The Law and Economics Basis of Enforcement of Governance of Private Joint Venture Network Markets: the case of NZEM

Terence Arnold QC

and

Lewis Evans

Executive Director

www.iscr.org.nz

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1. Introduction

Various factors have challenged the traditional practice of heavy regulation of networks.[1] These include a better understanding of the poor economic performance that has accompanied heavy regulation (Newbery (1998)), of the political economy of regulation and of the pervasive informational problems of regulation (Evans (1998)). In addition, recent technological advance has radically changed the potential for competition within and between networks. Key aspects of technological change have included: significant cost structure changes, the ability of networks with different technologies to productively interconnect, and product standardisation whereby new products are quickly available in relatively simple forms. Further, the current environment of rapid technological change is supportive of competition in that the technological uncertainty makes credible informal inter-firm relationships much more difficult to sustain, because the potential arrival of new technology may affect firms differentially. Finally, the impact of technological change on information transmission, storage and comprehension, has materially affected the asymmetric information issues of moral hazard and adverse selection that are so important in the design of optimal regulatory structures and organisational structures more generally. The implications of technological change for industry governance in telecommunications, electricity and payments systems are studied by Evans and Quigley (1998) who argue that they imply best practice regulation will be very light regulation of privately owned companies and that in this environment many of the co-ordination problems will be solvable by joint ventures.

Joint ventures are commonly used to provide inputs to a market where other members of the joint venture are competitors. Joint ventures are often a response to a co-ordination problem or the need for standardisation (Carlton and Frankel 1995; McMillan 1997). In network industries the potential for holdup and other forms of opportunism may be so great as to preclude a private independent firm from undertaking the functions of the joint venture. While this provides a rationale for each firm to internally undertake these functions, minimum average cost in the activity may be achieved at a level of output greater than or equal to the whole market. Furthermore, ownership of this activity by a single firm may raise the potential for monopoly profits. A joint venture offers an arrangement in which costs are minimised and the monopoly problem is dealt with. Because of technological change the rationale for any particular joint venture will change as pressures objectives and opportunities of joint-venture owners place stress on the common interest and external pressures affect the economic basis for the venture. These factors may explain the spate of formations and dissolutions of joint ventures that have taken place recently in telecommunications (Jamieson (1998)).[2]

The purpose of this paper is to point out the feasibility of joint ventures contracting out of using Courts to resolve disputes and to explain and assess the enforcement of the rules that form the governance of the New Zealand Electricity (spot) Market (NZEM). This market has no basis in statute. It includes a panel that has the responsibility for enforcement of the rules, and for the interpretation of them in the context of any dispute. In this paper we

- Examine the enforcement regime in relation to contract law,
- Examine implementation features of the enforcement regime,
- Set out the operation of rule enforcement in NZEM in terms of the law and economics approach to enforcement with a view to assessing the efficiency of this sort of joint venture governance arrangement,
- Show how the joint venture contract and its enforcement satisfy competition law, and
- Demonstrate the importance of the voluntary nature of NZEM, and of the ability of participants to alter the contract, for the operation of this contract spot market.

Because the NZEM does not have a statutory basis, because of the importance of joint ventures in emerging markets and because of the potential for industry governance to take this form rather than statutory regulation, the efficiency of this markets *modus operandi* is of direct public interest.

2. The NZEM

The NZEM is a joint venture represented by a network of contracts. It employs six Service Providers (SPs)[3] and the Market Administrator (MA)[4]. The SPs and MA provide services to

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[1] Government ownership is one form of heavy regulation.
[2] Carlton and Salop (1996) review efficiency aspects of joint ventures.
[3] These include: the Grid Operator, the Scheduler, the Dispatcher, the Reconciliation Manager, the Pricing Manager and the Clearing Manager.
[4] This was the Electricity Market Company (EMCO), but changed its name to M-co in 1998. It was set up in 1993) by state-owned generators and the transmission company and it was purchased by Rand Merchant Bank (Aust.) in February 1999.

the NZEM under the rules. Thus, NZEM should be classified as an independent system operator (ISO) as opposed to a TRANSCO wherein the system operator (SO) owns the transmission assets. This has fundamental implications for governance because the network of contracts is more extensive for an ISO than a TRANSCO which, by definition, carries out more of the system operator functions internally within the firm. The more extensive contracting renders ISO operations more transparent, but also more vulnerable to opportunism by function providers.[5] Internalising a contractual relationship within a firm reduces markedly the scope for using or challenging operations that otherwise would be represented by the terms of a contract.[6] Transparency is a desirable property of the governance structure of electricity *pseudo* spot markets in that it facilitates a market's credibility: that is, its certainty of operational process. Credibility is of direct concern to current and potential market members as well as competition authorities.[7] However, it is relatively more demanding of monitoring and enforcement processes.

The NZEM is a joint venture with open exit and entry. It does not own significant tangible physical assets: those that are required are provided under contract through service providers whose contracts are renewable on a contestable basis. Its central purpose is to effect the financial and physical operation of the price-discovery process of the NZEM spot market, and the screening of potential entrants.

Entry is open to any electricity generator, retailer and trader who meets prudential and other standards of NZEM. They become a Spot Market Participant (SMP) by signing a contract that is a commitment to abide by the rules of NZEM. Firms can exit, providing their obligations to NZEM have been met. The fact that the market does not own fixed assets, but leases service of these, keeps fixed costs to a minimum.[8]

Upon entry to NZEM all electricity market participants (EMPs, constituting the total of SMPs, SPs and the MA) are contractually obliged to submit, under the rules, to the jurisdiction of the Market Surveillance Committee (MSC).

[5] It also offers the ability to tender out a range of service provider functions and thereby promote cost effective provision. Of course, if a TRANSCO did this it would be operating as if it was an ISO.
[6] For example, those persons carrying out a function internalised within a cannot challenge a contract, and thereby the process by which a function is implemented (see Evans and Quigley (2000) for a New Zealand case of the use of competition law to breach a contract).
[7] Because of the importance of electricity to firms and households and because NZEM is a *pseudo* spot market that is organised by market participants there is public interest in the operation of the market: i.e. the rules of the contract that define how the market operates. The NZEM contract was reviewed against the requirements of competition law in 1996, before NZEM was established, by the Commerce Commission in Decision 280: illustrating the public expectation that transparent adherence to the contract is required if NZEM is to be credible.

The MSC exists for three main purposes. First, it provides a dispute resolution service that enables the joint venture contract to contract out of immediate access to the Courts for resolution of disputes. Its efficacy in dispute resolution is materially affected by the MSC's composition and its actions in implementing its other functions. Members of MSC are occupationally much more independent of the electricity industry than are the employees of any EMPs and of most consulting firms that include electricity in their client portfolio. Also, the MSC is representative of a range of areas of expertise that are relevant to the functioning of spot markets in general, and electricity in particular.[9]

The second MSC function is oversight of monitoring the EMP's adherence to the contract, and the third is to act as a judicial body in the event of a potential breach. As part of its judicial role the MSC has the right to interpret the words of the contract. Being an ISO with most services contracted out, the NZEM contract is very complex and monitoring EMPs actions under it requires active observational processes as well as self-reporting; active monitoring is required because of the contract's complexity and because adherence to the rules of NZEM is essential if there is to be sufficient confidence in the market for it to be credible. The oversight of monitoring and the composition of the MSC combine to yield an informed, independent, expert (IIE) panel. A panel of this nature has the advantage of IIE oversight of the monitoring process. An IIE panel might be expected to perform cost-effectively relative to the Courts in resolving disputes. There has been no quantitative evaluation of this proposition as yet.

The other institutional comparison that is relevant for NZEM is that of statutory regulation. In a regulatory institutional structure the spot-market rules would be promulgated under an enabling statute and a body would be appointed to administer them.[10] It is not the purpose of this paper to conduct a comparison of a regulatory structure with NZEM because it is a large topic and one that depends on the form of regulation. It any comparison, it will be the case that the NZEM structure has the advantage of industry development of the spot market. The fact that it is voluntary does not lock in a market structure for electricity, but allows competing forms of trading to emerge as technology and experience permit.

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[8] Although, the multi-year contracts with service providers constitute fixed costs entering members of NZEM make no access payment. SMP fees are involve a monthly fixed fee that varies by grid connection point utilised and an amount based on MWH's utilised.

[9] The current membership of the MSC consists of a former Court of Appeal Judge (the Chair), a lawyer expert in competition law (Queen's Counsel), a very experienced former bond trader, a consultant who has in-depth technical and practical knowledge of the electricity market, and a professor of economics. In the very rare event a potential conflict of interest arises the conflict is revealed and the involved person withdraws from the enforcement process.

In addition, the fact that NZEM is voluntary is very important for its operation, even existence, under contract. It means that participants who have alternatives have chosen to be parties to the NZEM contract, and this renders the contract itself more readily enforceable in a court of law. If participation was mandatory elements of the contract would be, possibly much, more vulnerable to challenge in court and it would alter the incentives for participants' opportunistic behaviour under the spot market contract. Indeed, it may alter these incentives to the point that mandatory regulation is required to operate the spot market efficiently.

The NZEM has imbedded in it a process for SMPs to develop and effect changed rules. This is important because it means that the operational rules of the market are not fixed but, through a well-defined process, can adapt to changing circumstances including that of new technology. In addition, it implies that NZEM is more robust against challenge to the Courts by any SMP. The existence of a rule change process within the contract renders it less likely that a Court would uphold a breach to the NZEM contract by a market participant because a) they have the opportunity to have the offending rule reviewed within the contract and b) the rules require that any rule change meet the Guiding Principles which specify economic efficiency.[11]

3. The Institutional Process of Enforcement

The NZEM rules specify a set of guiding principles, that taken together, imply economic efficiency.[12] This then is the benchmark by which interpretations of the rules may be judged. To the extent that the law of contract promulgates economic efficiency[13], it also places the enforcement of NZEM rules within the framework of the purpose of contract law. The terms and conditions agreed by parties to a contract establish their legally enforceable rights and responsibilities.

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[10] Examples of statutorily regulated electricity spot markets include the UK and Australia.
[11] The rule change process entails consideration of any rule change proposal by a group of representatives of the SMPs elected for that purpose. Adoption is determined by a voting mechanism. The rules also provide for any SMP that is dissatisfied with the proposal to refer the proposal to the MSC. In this event, only if the MSC determines that the proposed rule change violates the Guiding Principles of NZEM can it prohibit it proceeding to the adoption vote.
[12] This a most plausible interpretation of the guiding principles. The wording of these principles does not state economic efficiency *per se*.
[13] For a discussion of this point see Cooter and Ulen (1988).

From the perspective of economics, contracts provide a transactions-cost-minimising means of establishing constraints within which rational individuals maximise the pursuit of their goals consistent with the interests of other parties to the contract. The literature in economics (see Shavell, 1998) views contracts as a means of limiting parties' opportunism by constraining behaviour. Indeed, it is the transparent behavioural constraints represented by the NZEM rules that provides the confidence for SMPs to participate in that market.

The MSC has the responsibility for oversight of NZEM surveillance and is the judicial body for the enforcement of the rules. Broadly, its responsibilities include ensuring that reporting requirements of the SPs are met, ensuring that complaints and potential rule breaches brought to the attention of the MSC are investigated[14], deciding upon and dealing with potential rule breaches that appear to be of substance, and making rule interpretations that form the basis of disputes.[15] Administrative services are supplied to the MSC by Surveillance and Compliance (S&C) that has the responsibility of oversight of EMPs, particularly, SPs, actions within the rules.[16]

The establishment of a governance process in a voluntary market such as the NZEM inevitably involves some compromise between competing interests, in particular, between the desire for efficient administration and the desire to give effect to the requirements of natural justice. Generally speaking, commercial organisations like to know where they stand as soon as possible. This suggests rapid decision-making with limited procedural and appeal rights – ie, an emphasis on administrative efficiency. On the other hand, there is deeply rooted concern with fair process. This means that a decision adverse to an organisation should not be made without that organisation having a every reasonable opportunity to know and meet the case against it (the so-called "right to natural justice").

Meeting the requirements of natural justice tends to slow down decision-making, although natural justice is a flexible concept which does not have the same meaning in every context. The members of voluntary markets must decide what balance between administrative efficiency and natural justice concerns is appropriate for the decision-making or dispute resolution processes in their particular markets. The Foreword to the Listing Rules of the

[14] Any SMP or person can bring a complaint about the actions of any EMP to the MSC.
[15] These are the functions of the MSC that are germane to rule enforcement: other functions include ensuring service providers are audited as required by the rules and approving entry to and exit from NZEM.
[16] The MSC is serviced by Surveillance and Compliance (S&C), that is provided by the Market Administrator. S&C consists of approximately three persons who provide general administrative service to the MSC and the

New Zealand Stock Exchange describes the balance which has been struck in that market as follows:

> *The market may require speed and certainty of interpretation and administration of the Rules that will involve exercise of discretions in a way which may, on occasions, limit the opportunities for exhaustive investigation and long deliberation on issues. The Exchange does not believe that the commercial interests in speed, certainty, efficiency and minimisation of cost in reaching decisions, can co-exist with the full range of procedures developed in the context of administrative law controls on governmental and tribunal processes. Accordingly people choosing to use the facilities offered by the Exchange must accept that, in the interests of all participants generally, by participating they submit to exercise by the Exchange in good faith (directly or through the Panel) of its wide powers of administration of the Rules.*

While there is arguably a greater focus on meeting the requirements of natural justice within the NZEM than within the NZSE, the NZEM has recognised the need for effective and efficient rule administration by conferring on the MSC wide investigative and monitoring functions and powers, in addition to its adjudicative role. Obviously there is some tension between the MSC's surveillance and adjudicative roles.[17]

Some separation is preserved by the role of S&C. It is their responsibility to investigate any potential rule breach that comes to their attention through monitoring and investigative work, or reporting by any EMP. The process has operated in the following way. Any potential rule breach is brought to the attention of the MSC, normally by S&C, and the decision to develop a case is taken by the MSC. The case development process then is carried out by an investigator that is usually S&C.[18] Having assembled material that describes the potential breach the SMP or SP that may have breached the rules is asked if they admit the breach. If the breach is admitted a penalty is then assessed. If the SMP denies the breach then a procedure is implemented whereby the investigator assembles all relevant material according to a specified timetable at the conclusion of which a hearing is held where the investigator acts as the prosecutor and the MSC is the judiciary.[19] Having heard all the

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particular services of scrutiny of service provider reports, investigation of rule breaches, the development and putting of cases about rules breaches.

[17] We note that exactly the same tension is faced by the New Zealand competition law watch-dog, the Commerce Commission, in its processing of merger and restrictive practice authorisations.

[18] Because S&Cs employer, the Market Company (M-co), owns two service providers there is a conflict of interest for S&C when potential rule breaches may involve these service providers. In this circumstance, the MSC appoints an investigator other than S&C.

[19] Any complainant, or otherwise affected, market participant may also present their case at the hearing.

evidence and arguments at the hearing, the MSC on the basis of this information only, and in the absence of S&C, makes a decision that is binding on the SMPs.[20] If the breach has been admitted, or if there has been found to be a breach by the MSC, there may be a separate hearing on the question of penalty and compensation, if applicable. Costs are also assessed against a transgressor.[21]

For admitted breaches, there is a facility for S&C to broker a settlement as regards to compensation between affected SMPs and penalty. Any settlement is subject to the approval of the MSC. This process illustrates that the MSC is involved in the decision to prosecute and, to a limited degree, in the oversight of the investigatory process. Natural justice is served by the hearing process wherein all relevant information and arguments are exposed among all relevant parties, and the MSC, in isolation, uses only this information in making its decision. It is buttressed by the availability of an appeal process.

The arrangement has three cost and efficacy advantages over a situation where the decision to investigate and prosecute is devolved entirely to a separate independent legal body. Firstly, its surveillance role means that the MSC is continually informed about the operation of NZEM. This information enables it to make better decisions, and to avoid costly updates on the operation and state of NZEM. Also, the process of monitoring reveals problems with the operation of NZEM that the MSC can refer to the Market Administrator.[22] Secondly, the process widens the scope of any EMP who is accused of breaching the rules to choose the degree of formality of representation. The fact that the MSC is an IIE panel enables EMPs to treat the MSC more as an expert panel and rely on the substance of argument, or to shift the emphasis to that of a judicial body. Some choose to defend their actions on the basis of form – the literal interpretation of the rules – as well as substance, and this is typically more costly than those who choose a balance that is more in favour of substance. A more distant MSC, as is implied by a separation of the S&C prosecutorial function from any oversight by the MSC, is likely to entail a shift in the balance to form and to increase costs of process.

[20] MSC decisions are open to appeal, where an *ad hoc* appeal board is appointed by the Market Administrator. There was been one appeal in the first two years of NZEM and two in the last year. The latter two are under consideration: the first appeal failed.

[21] The costs of the MSC and S&C are borne by NZEM unless they can be attributed to EMPs who have breached rules. Thus, if as the result of an investigation an EMP is found not to have breached a rule NZEM meets the MSC and S&C costs of the investigation.

[22] The advantage lies in a contribution from those (the MSC) who are not involved with the day-to-day operation of NZEM.

Thirdly, if the S&C function is to include decisions about which potential breaches to prosecute, then natural justice and the credibility of the enforcement process requires that S&C must be completely independent of all other EMPs. This requires that the employer of S&C have no service provider role in NZEM. Such an arrangement may increase costs, and it would affect the information flows about market performance to S&C. While costs may not increase if S&C were employed by a Market Administrator that did not own service provider functions, the oversight of a range of decisions with respect to breach prosecution by a body that largely draws on input from outside the electricity market would be lost. The consequent effect of this would be to change the accountability for rule enforcement and associated credibility of the market to lie between two bodies. Currently, the responsibility lies squarely with the MSC.

These comments serve only to list the key pros and cons of the current approach and a possible alternative. Under the rules of NZEM the choice is that of the market participants (SMPs).

4. Contract Law and NZEM

As we have noted, the NZEM Rules are set out in a multi-lateral contract to which all SMPs must agree as a condition of entering the market. Service providers (SPs) are distinct from SMPs and are bound by the rules by virtue of the terms of their service provider contracts. Both SMPs and SPs fall within the jurisdiction of the MSC that is defined in the contract rules.

Under the Rules the MSC has wide powers to deal with breaches of the Rules. Where a breach has occurred, the Committee may (among other things):

- Take no action;
- Issue a private or a public warning;
- Terminate or suspend membership of the market;
- Impose a fine;
- Order that compensation be paid;
- Make an order as to costs
- Impose an audit of a process that the affected EMP must pay for.

As a practical matter, the imposition of a fine is the remedy which the MSC most frequently utilises. There are several interesting features of the way in which the fining regime has operated:

- In the period April 1997 to August 1999 the MSC imposed fines in respect of 70 breaches of the Rules (we have excluded from these figures a fine of $75,000 which was imposed by the Committee in respect of a breach by a SP but is under appeal).
- These fines ranged from a low of $270 to a high of $20,000, for an overall total of approximately $150,000.
- Only 9 of the fines imposed in this period equalled or exceeded $4,500. 26 of the fines were $500 or less, 1 was for $750 and 34 were between $1,000 and $3,200.
- 28 of the fines related to breaches by SPs, the remainder to breaches by SMPs. Of the 9 fines of $4,500 or more, 7 related to breaches by SPs.
- In conjunction with a fine the MSC generally orders the party in breach to pay the costs of the investigation and of the MSC's consideration of the matter.
- Each year the amount collected in fines is divided amongst SMPs in accordance with their voting rights.

The distribution of fines reflects their use in a wide range of circumstances. Small fines are imposed for minor breaches such as data-file errors that result in reconciliation breaches. Although their financial cost is minimal they are an effective public signal as to breach by the company involved.[23] [24] The MSC has ordered a complete audit of a company's reconciliation processes as part of the penalty for a rule breach.

Despite its extensive use, the MSC's power to fine has caused some legal controversy. This has arisen because contract law has traditionally refused to allow for the payment of penalties in respect of breaches of contract, ie, the Courts have refused to enforce contractual terms which they consider to be in the nature of "penalties". In this section we look briefly at the background to this controversy and its implications for this type of joint venture.

We begin by saying something of the role of contract law. In a community such as ours, contract law plays a critical role. It is facilitative, that is, it is the mechanism by which certain

[23] All Decisions by the MSC are published.
[24] The financial effect of these penalties depends to some extent on the ownership of the entity being penalised. A penalty may be more material to a small self-contained entity, than to the same entity embedded in a large company.

types of voluntary transaction are made possible. If contract law is perceived to be defective, either substantively or procedurally, there is a real risk that that will introduce significant inefficiency into commercial and other dealings (at the very least by increasing transactions costs).

Assume, for example, that the Courts had the power to change the terms of contracts whenever they considered them to be unfair or inappropriate in some way. Contracting parties would be faced with considerable uncertainty as to whether the terms of their contracts would be upheld or struck down. The introduction of this type of uncertainty or risk would undoubtedly affect the willingness of firms to enter into contracts. One consequence of the Courts having the type of discretion assumed might be that contracting parties would be deprived of what they would view as important contractual rights contrary to their expectations when they entered into the contract.

The same would be true if the substantive law of contract was soundly based but the law or institutional mechanisms for the enforcement of contractual obligations were deficient. Firms would presumably be reluctant to put themselves in the position of having to rely on contractual rights which they could not enforce as a result of the absence of effective remedies through the courts or similar institutions.

Generally, remedies for breach of contract are designed to:

- Ensure that contractual undertakings are performed (specific performance or injunctions);
- Compensate one contracting party for any loss which it suffers as a result of another contracting party's failure to perform its contractual obligations (damages).

The parties to a contract may include a clause in the contract which attempts to fix the amount which one party is to pay the other in the event of a breach. Such clauses are often referred to as liquidated damages clauses. (A clause of this type should not be confused with a limitation of liability clause, the intent of which is to place a cap on the damages that the "innocent" party can obtain from the party in breach). A clause fixing the amount that will be paid by one party to another on breach will be upheld if the Court regards it as being a genuine pre-estimate of loss, but struck down if the Court regards it as being a penalty.

The figure fixed by the contract will not be classified as a penalty simply because it exceeds the amount of the loss actually suffered on breach. Rather, only where the figure is large enough so that it can not properly be said to be a genuine pre-estimate of loss.

There is some dispute about the precise origin and rationale for the prohibition on penalties in contracts. The doctrine seems originally to have been an equitable one and to have been based on notions of fairness. As the Courts saw it, a penalty was not compensatory (obviously, since by definition a penalty was a figure that exceeded any amount that might reasonably represent the actual loss suffered by the innocent party as a result of a breach). Rather, a penalty over-compensated the victim. Accordingly a penalty did not conform to the Courts' perception of the role of damages in contract (to provide compensation) and so was viewed as oppressive and contrary to public interest. Generally speaking, the Courts did not consider that it was the role of civil law to impose penalties (ie, to punish or sanction) – that was the task of criminal and regulatory law.

Attempts have been made to justify the prohibition against penalties in contracts on economic grounds, although the prohibition has also been attacked on economic grounds. Supporters argue that, if penalty clauses could be enforced, efficient breaches of contract would be deterred. Those who believe in the concept of efficient breach argue that there will be occasions where economic efficiency demands that a party to a contract break the contract and compensate the innocent party for any loss arising from the breach, thus permitting resources to go to their most valued use. To the extent that penalty clauses deter such optimal breaches, they are inefficient and rightly struck down.

However, others argue that the prohibition on penalties is inefficient. They argue that a promise to pay a penalty on breach is in effect a form of insurance given by the promissor to the potential victim. This may be important where performance of the contract is critical to the potential victim but the failure to perform would be difficult to compensate using traditional damage measures. In addition, a penalty clause may be a useful way of dealing with reputational issues: by confirming the confidence of the promisor in its ability to perform, for example. For these reasons, penalty clauses should be enforced.

A neglected area of the debate arises in the relationship between penalties and monitoring. It is a well established economic proposition that there is a trade-off between monitoring costs and incentives in inducing behaviour under any contract (see Milgrom and Roberts (1992)). For example, rather than monitor a contractual party a prospective penalty may be included in order to provide an incentive for that party to adhere to the intent of the contract with less monitoring and thereby less resource use by other parties. There is no reason to limit such a penalty to the level of compensatory damage. To set aside the penalty upon breach is to reduce the contract possibilities for contracting parties. In general, we presume that lawful contracts should be enforced with their penalties.

In any event, rightly or wrongly, the prohibition on penalties in contracts is firmly established as part of the common law. The question is, does it apply in respect of the MSC's power to impose fines on those who breach the NZEM Rules, the Rules being contained in a multi-lateral contract?

This issue was raised with the MSC at the outset of the market by a SMP. The MSC took legal advice from two legal sources (Queen's Counsel). They expressed diametrically opposing views. The MSC has continued to impose fines in appropriate cases, without objection as to its jurisdiction to do so.

We have no doubt that the MSC's power to impose fines is an important element in the efficient operation of the market. It is supported by the weight of arguments in the legal advice obtained. We would be very surprised if a Court were to hold that the power was unlawful.

The doctrine against penalties was developed in the context of bi-lateral (or limited party) contracts. It has no necessary relevance to a voluntary market which operates by means of a multi-lateral contract. To the extent that the underlying justification for the doctrine is to be found in the notion that the imposition of penalties is inconsistent with the compensatory role of damages, we suggest that that notion does not apply in the case of a voluntary market operating through a multi-lateral contract.

The reason for this is that an important purpose of the multi-lateral contract is to provide the governance structure for the market. That governance structure must perform the functions of both the criminal law and the civil law in normal society; that is, it must deal with breaches of operating norms (ie, perform the function of criminal and regulatory law) as well as provide a mechanism whereby those who suffer loss as a consequence of rule breaches by other contracting parties can obtain compensation (ie, perform the role of contract law etc). To achieve these goals the Rules must provide for the imposition of penalties as well as the granting of compensation.

To put the point another way, in the context in which the doctrine of penalties originally developed (bi-lateral or limited party contracts), it is difficult to see any social interest which requires protection by the imposition of a penalty on breach. Setting aside the monitoring-incentive trade-off, arguably at least, the social interest in the case of such contracts is simply in ensuring that a party which suffers loss from a breach has access to effective remedies whereby it is able (if it wishes) to obtain compensation from the party which caused the loss.

There is, however, a further dimension to a multi-lateral contract governing the operation of a market. Even though a breach of the rules may not cause loss to any individual market participant, it may do significant damage to the market; by, for example, undermining confidence in the integrity or robustness of its processes. If the governance structure did not permit an effective response in such situations it would, in our view, be deficient. The imposition of a fine in such cases allows the MSC to take account of the harm to the market generally, as opposed to any losses to specific individuals within it. A fine reflects the social, as opposed to the individual, cost of a breach. It is perhaps in recognition of this that fines are distributed annually to SMPs in accordance with their voting rights.

We offer a concrete example. The Rules provide for a clearing and payment system. Approximately $100 million per month passes through that system. The Rules set out prudential requirements for spot market participants (SMPs) which a service provider, the Clearing Manager, is obliged to operate. Assume that a particular purchaser SMP does not meet the prudential requirements imposed on it under the Rules but continues to trade on the market and that the SP fails to identify or deal with the issue. Both the SMP and the SP are in breach of the Rules. This situation remains undiscovered for many months before being detected and rectified. During those months the SMP meets the financial commitments arising from its on-market electricity purchases without default. In these circumstances, there has been a serious breach of the Rules on the part of both the purchaser SMP and the SP. Although no individual SMP has suffered loss as a consequence, there was a probability of an event occurring that would have had a major effect on SMPs and on the credibility of the market.

In this assumed case, we consider that the efficient operation of the market requires the imposition of a monetary penalty, even though no SMP has suffered loss, in order to create appropriate incentives for compliance (or to deter non-compliance). In our view, the law would have failed to keep pace with the move away from intensive Government regulation and towards voluntary mechanisms if it precluded the imposition of a penalty in such a situation simply because the jurisdiction to impose that penalty was conferred in a contract. It seems to us unlikely that a Court would adopt such an approach.

5. Enforcement

Enforcement of rules is subject to the same issues and principles of contract law that seek to appropriately account for the fact that different individuals have different financial incentives and different information that may not be known to others. In this, there is a trade-off between the cost of providing incentives for delivery under the contract and providing resources for monitoring. They interact in various ways in enforcement. Firstly, potential penalties affect compliance because they provide an anticipated cost of violating a rule, and hence they provide incentives to comply with the rules. Secondly, incentives for the provision of information help economise on monitoring costs. The opportunity for compensation, for example, increases the incentive of SMPs to report rule breaches by others. The standard literature on contract enforcement argues for a balance between monitoring and incentives (Milgrom and Roberts(1992)). This balance being a choice in a trade-off between monitoring and incentives. The stronger the incentives for compliance with the rules the fewer resources that need to be allocated to monitoring to achieve a given level of compliance.

A system that provides certainty about the potential penalty costs of noncompliance, means that incentives are known with a degree of confidence that facilitates EMPs assigning priorities in designing systems that efficiently avoid penalties. This is a strong argument for transparency in the processes and principles adopted in enforcement.

In contrast, monitoring that has a deliberate element of uncertainty generated by randomisation may be efficient if it raises the probability of detection for a given level of monitoring resource, or maintains the probability of detection for a lower level of monitoring. Randomness in monitoring can break up behaviour that minimises the probability of detection. It entails inspection of processes without notice. Random monitoring has not been used in NZEM to this point, although currently consideration is being given to it.

Incentives for compliance are provided by:

- penalties and the award of investigative and judicial costs for breaches,
- compensation to other SMPs affected by a rule breach,
- adverse reputational effects from the publication of rule breaches and their circumstances, and
- for service providers, any potential adverse future effects on the evaluation of their contracts with NZEM.

Penalties, costs, compensation and reputational effects of publication are reflected in decisions taken by the MSC. The MSC does publish its decisions as a matter of course and they are worded to reflect the circumstances of the event. This section focusses on the determination of penalties and compensation.

Monitoring entails devoting resources to acquiring information about the operation of the market; in particular, the extent to which the rules are being complied with. Largely, NZEM relies on breaches being reported. Incentives for reporting rule breaches differ. In particular,

- Service Providers must report regularly to the MSC, are closely monitored, and are required to report any potential rule breach that comes to their attention. The Market Administrator is also obliged to report any potential breach, and
- Market Participants are not monitored except in-so-far as there is an incentive for other SMPs, and a requirement for service providers, to report on SMP potential breaches. They are not required to report potential rule breaches.

The central topic of this section is the basis for setting penalties to ensure efficient enforcement of NZEM rules. The enforcement principles of Posner (1985) and subsequent developments (Garoupa (1998)) are here applied to compliance in NZEM. As will be apparent, the approach uses a mixture of strict liability and negligence. It is summarised in the following set of points.

Expected penalty for a breach is the average damage to NZEM times the probability of detection. Average damage is the average (expected) damage across the range of possible damage outcomes for that breach.

Damage to NZEM that could materialise from the particular act of non-compliance should be measured as an assessment of the present value of market efficiency foregone. Generally, this will not be quantifiable, but must be qualitatively assessed.

The magnitude of the penalty should be the average damage from the breach if it is always detected, but if the probability of detection (equivalently the amount of monitoring) is low, the penalty should exceed the average damage. This renders the expected penalty (recall that this takes account of the likelihood of detection) to approximate the expected damage. Because service providers are continually monitored by S&C, through the reports they must submit, the probability of detection is quite high for most of their breaches. In this case, penalties that are close to the average damage across all outcomes are appropriate. The situation differs for SMPs, because they are not monitored as intensely as SPs. This is an argument for higher penalties, for the same offence, for SMPs as opposed to SPs.

Calculation of the penalty should take some account of affected non-market participants (NEMPs). For the market to be efficient it should discover of prices that accurately reflect the state of supply and demand in the New Zealand electricity market, and thus provide appropriate incentives for investment. Supply and demand, and financial instruments based on NZEM prices, will reflect actions and expectations of both EMPs and NEMPs. Thus, effects on NEMPs of a breach can be injurious to NZEM as well as the electricity market as a whole. Breaches that affect NEMPs affect the credibility and thereby the long term performance of NZEM, and this should be subjectively factored into the penalty.

Actual damage from a particular breach may be a poor indicator of average damage to NZEM from the breach. Thus, a fine may be (much) greater or less than the actual damage resulting from a breach.

Where damage is attributable to identifiable EMPs compensation may be calculable and represent (some) of the damage to NZEM. In this case compensation may be paid between affected parties and a fine may be (perhaps much) less than total damages. The existence of potential compensation for a breach that adversely affects them provides an incentive for SMPs to report these breaches.

When damage cannot be ascribed precisely to identifiable EMPs because it is too diffuse or can only be qualitatively assessed, or, as with our example of fiduciary requirements, there is potential damage, then compensation may be infeasible at any reasonable cost. In these cases, depending upon the qualitative assessment of damage, the fine may be substantial.

There is a trade-off between the size of the penalty and the extent of monitoring in achieving a particular level of compliance This point is of more relevance to the design of the NZEM regulatory structure, than setting fines under the existing structure.

Certainty about the penalty for any particular breach helps NZEM function efficiently in that expected costs of noncompliance, and hence incentives, are known with some precision. non-random, or consistent application of factors to determine penalties provides a certainty that enables the factors that led to a breach to be taken into account.

Penalties vary according to circumstances of a breach. Here the negligence approach to liability will be efficient. If, for the same breach, penalties increase from a very low level for almost *Bona Fide* events, to a high level for a deliberate acts, an incentive is provided that induces EMPs to focus on controllable factors that can reduce the incidence of breaches. It implies that fines should not be imposed mechanistically upon the realisation of a breach. It does not prevent the imposition of reasonable fines for breaches that in the short term are hard to control. The incidence and severity of some (potential) breaches, such as certain software breaches, can be reduced by changed systems in the longer term. The effect of circumstances on the penalty may include the treatment of the breach by the EMP in breach; for example, the fine may be affected by whether the market was immediately informed of any material impact of the breach on the market. Circumstances may include a documented series of breaches: these reasonably might draw a fine that reflects the collective breaches in addition to the potential damage and the circumstances of the individual breaches.

The same expected penalty may yield different compliance because changes in the probability of detection and the penalty that do not affect the expected penalty will alter the risk characteristics of the anticipated penalty: some, perhaps more risk averse individuals, may be more likely to comply under the larger penalty and lower detection likelihood. Because EMPs are largely corporate entities this point is not an issue in NZEM. However, it does arise in contractual limitations on compensatory damages payable by SPs that do not exist for SMPs. It reflects the allocation of risk for parties under the NZEM contract.[25]

[25] While no cap is placed on fines, there are caps on compensation payable by service providers, not by spot market participants. These caps reflect risk sharing in the contract, in that without such caps the service

Resource costs associated with penalties exist and take a number forms. While the costs of monitoring are obvious, the costs of penalties require further explanation. A fine is not a fee-for-service and, although prospective fines can affect monitoring resource costs, it is regarded as a transfer rather than a cost that represents resource use.[26] Penalty resource costs include the costs of ensuring that an offence has actually been committed and the costs of the prosecution and judicial process. These can be quite substantial and they are properly the liability of the EMP found in breach. Such costs are levied by the MSC. Another cost to the economy is that the higher the penalty the less willing will be an company to admit noncompliance and the more resources it will put into defending the case, the higher will be the resource use of the prosecution, and the less likely the penalty will actually be paid; although legal and other costs may be considerable. This suggests that a system that facilitates the admission and settlement fines and compensation are in the interest of efficiency and the parties concerned. The NZEM enforcement procedure facilitates the settlement approach.

Each EMP is responsible for its contract with NZEM and thus is responsible for breaches that occur, even if they involve services not contracted explicitly with NZEM. This is an application of the principle of strict negligence. If a breach occurs because of the actions of a party that has contracted with an EMP, but not with NZEM for the service where the breach occurred, then the penalty applies directly to the EMP. Whether or not the EMP seeks recompense or other action from the contractor is up to the EMP and the particular contract. This approach economises on surveillance costs by NZEM and it provides incentives for the EMPs to ensure that their contracts with their parties do not facilitate breaches of the rules.

6. Concluding Comment

The NZEM contractual spot market enters its fourth year having transacted a very large volume of business that draws on complicated real time physical and economic models. The fact that it has satisfactorily existed and developed during this period has facilitated

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providers would demand much higher fees for their services and interest in service provider functions would be limited to firms with large resources.

[26] This, presumably, is why fines do not draw the value-added tax, GST.

restructuring of the various aspects of the electricity industry. In a world where markets are emerging in areas where hitherto none could be contemplated, the governance of NZEM might be considered as one that enables markets to evolve in tune with changing technology and supplier and consumer requirements.

As with any contract the enforcement mechanisms are a critical element. The penalty mechanism in NZEM is still developing as experience is gained and new rule violations, and different circumstances of breaches, are assessed. The Rules themselves are changing over time; partly in response to information gained in the enforcement process. The historical record of MSC-imposed penalties provides a very broad guide to the application of the above factors to the quantum of penalty, but the application will change as the market has new experiences.

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