FOUNDATIONAL ELEMENTS SHAPING THE MARKET SURVEILLANCE ADMINISTRATOR'S APPROACH TO BIDS AND OFFERS

1. Introduction

The Market Surveillance Administrator (MSA) initiated the current consultation with an Issue Identification roundtable February 18, 2010. The agenda for the meeting summarized concerns that had been raised about offer behaviour that may not be consistent with s.6 of the *Electric Utilities Act* (EUA) and pointed to the opportunity to consider the implications of the coming into force of the *Fair, Efficient, Open Competition* (FEOC) Regulation (AR 159/2009), particularly in relation to subsections 2(j) and 2(k).[1]

On March 11, 2010 we provided an update on the expected next steps in the consultative process.[2] We indicated that we would work to establish two foundational elements:

(i) provide views on subsections 2(j) and 2(k) of the FEOC Regulation; and

(ii) articulate definitions of efficiency (both static and dynamic) and how, as a consequence, conduct might be inconsistent with a *fair, efficient and openly competitive* market.

Both of these elements are included in this Discussion Paper, along with a more general consideration of the legislative framework relevant to expectations of conduct. Since this Discussion Paper considers what the MSA believes to be foundational elements, the scope is necessarily broader than a strict focus on offer behaviour alone.

The main thesis of this Discussion Paper is that the legislative framework is constructed to allow competition, not regulation (and particularly not quasi-price regulation), to shape market outcomes.[3] A key role of the MSA is then to monitor whether competition and competitive market outcomes are impeded by market participant conduct, by rules or by other means. If competition is enabled and allowed to deliver an efficient outcome, regulatory intervention is not warranted. In our view, the Discussion Paper does not signal a change in the approach of the MSA but rather begins to describe and document it in more explicit terms.

The rest of this Discussion Paper is structured as follows:

- **Section 2: The Legislative Framework** considers the purposes of the Act and the nature of rules within the Alberta market and what this means for the role of the MSA.

[1] http://www.albertamsa.ca/files/MSA_Roundtable_Agenda_100218.pdf

[2] http://www.albertamsa.ca/files/Notice_Market_Behaviour_Next_Steps.pdf

[3] Previously the MSA has used the phrase 'let the competition do the heavy lifting'. See http://www.albertamsa.ca/files/CERI2004MartinMerritt.pdf

- **Section 3: General Comments on the Fair, Efficient, Open Competition Test** examines the meaning of Section 6 of the EUA in more detail. The section considers the meaning of 'fairness' and 'openly competitive' in terms of opportunities before turning to consider the meaning of 'efficiency' within the context of an energy only market.
- **Section 4: MSA's Enforcement of FEOC Regulation Subsections 2(j) & 2(k)** considers two subsections of the Regulation related to 'manipulation' and 'gaming' of market rules. Each element is considered in the context established by section 2 and 3 of this paper.
- **Section 5: Conclusions and Next Steps.** Building on the elements contained herein, the MSA is currently working on a second discussion paper which is intended to provide some details of the analytical framework the MSA will use for monitoring offer behaviour and general market competitiveness.

2. The Legislative Framework

The FEOC Regulation came into effect in September 2009. As there is no jurisprudence yet that interprets its provisions, our starting point is the legislative framework within which the mandate of the MSA and the FEOC Regulation sit.

The FEOC Regulation provides specific direction on a non-exhaustive subset of behaviours subsumed in the fundamental organizing principle for Alberta's electricity market, that is, section 6 of the EUA:

> *"Market participants are to conduct themselves in a manner that supports the fair, efficient and openly competitive operation of the market."*

Section 39 of the *Alberta Utilities Commission Act* (AUCA) sets out the mandate of the MSA in some detail, requiring in subsections 39(3)(a) and 39(3)(b) that the MSA assess whether market participants have complied with section 6 (above) and the EUA, its regulations, the ISO rules, market rules and any arrangements entered into under the EUA or its regulations.

2.1 Purposes of the *Electric Utilities Act*

The MSA is also guided by the statutory language setting out the purposes of the EUA in section 5, in particular:

> *"The purposes of this Act are…*
>
> > *(b) to provide for a competitive power pool so that an efficient market for electricity based on fair and open competition can develop, where all persons wishing to exchange electric energy through the power pool may do so on non-discriminatory terms and may make financial arrangements to manage financial risk associated with the pool price;*
> >
> > *(c) to provide for rules so that an efficient market for electricity based on fair and open competition can develop in which neither the market nor the structure of the Alberta electric industry is distorted by unfair advantages of government-owned participants or any other participant;*
> >
> > *(d) to continue a flexible framework so that decisions of the electric industry about the need for and investment in generation of electricity are guided by competitive market forces;*
> >
> > *(h) to provide for a framework so that the Alberta electric industry can, where necessary, be effectively regulated in a manner that minimizes the cost of regulation and provides incentives for efficiency."*
>
> (Emphasis Added)

The striking feature of these provisions is that they place principal reliance on competitive market forces to achieve the desired outcome, to be supplanted by regulation only "where necessary" and then in a manner "that minimizes the cost of regulation and provides incentives for efficiency." An efficient market, including investment in generation, is the desired (and expected) outcome from competitive market forces.

2.2 Implementation of the Legislative Framework

Outside of legislation, the reliance on competition and participant conduct is reinforced by the other mechanisms in place to constrain market participants' bids and offers. The mechanisms provide for a considerable freedom of action within given bounds. In some cases, constraints are motivated by reliability or operational concerns. For example:

- **Price cap / floor** – Offer and bid prices must be greater than or equal to $0 and less than $1000/MWh [ISO Rule 3.9(a)]. Currently, events at, or close to, either the floor or the cap are very infrequent. After reaching the floor or the cap non-market mechanisms come into play in order to balance supply and demand. The MSA believes it is important that these mechanisms are not employed frequently, i.e. outcomes should normally be decided by market forces.

- **Restrictions on Offer / Bid restatements** – Offer and bid restatements made for non-operational reasons are not allowed within two hours of a settlement interval (T-2). The MSA understands this restriction was put in place by the AESO for reliability reasons. Outside this restriction market participants are free to restate for non-operational reasons. [ISO Rule 3.5.3.3]
- **No requirement for bids** – Pool participants with sink assets (Loads) may submit a bid if they wish – there is no requirement that they must bid [ISO Rule 3.5.4.1].
- **Restrictions on Market share offer control** – Offer control is restricted to 30% [Section 5 FEOC Regulation]. Currently, no market participant is close to this restriction.

The MSA itself may not make rules respecting market participant conduct but may make guidelines (Section 39(4) of the AUCA). In the past the MSA has chosen to do so only infrequently. The MSA's forbearance powers (Section 57 of the AUCA) also contemplate a tempered approach to enforcement – permitting refrain in whole or in part if a matter is subject to competition sufficient to protect the public interest.

2.3 MSA's Role

Based on a review of the legislative framework the MSA sees its role, not as an economic regulator ordering outcomes, but as a supporter and promoter of competitive market forces; a guardian of fair, efficient and openly competitive markets, as articulated in section 6 of the EUA and given specific expression in the FEOC Regulation.[4] To be explicit: where competition is enabled and seen to be delivering economic efficiency the MSA does not have the authority to, directly or indirectly, administer or mitigate bids or offers. Our driver is the assessment of competitiveness and the returns to economic efficiency. Our role does not include managing consumer (and supplier) wealth distribution concerns associated with the movement of the pool price.[5] Should this view change the Minister may direct otherwise.[6]

3. General Comments on the Fair, Efficient and Open Competition Test

Section 6 of the EUA reads as follows:

> *"Market participants are to conduct themselves in a manner that supports the fair, efficient and openly competitive operation of the market."*

[4] This organizing principle is expressed in the MSA's Vision (*A self-sustaining competitive market that delivers fair and efficient outcomes.)* and Mission (*Taking action to promote effective competition and a culture of compliance and accountability in Alberta's electricity and retail natural gas markets.*).

[5] Subsection 5(b) of the EUA makes clear that parties "…may make financial arrangements to manage financial risk associated with the pool price."

[6] Subsection 59(1)(a) of the AUCA states that: "The Minister may make regulations adding to, clarifying, limiting or restricting any of the Market Surveillance Administrator's powers and mandate or regulating how the powers are to be exercised and the mandate to be carried out;"

The first observation is that this is a conduct oriented test and not necessarily an outcome based test as is found in companion statutes, such as the federal *Competition Act*. In other words, it is not in all cases necessary for the MSA to be satisfied that the *fair, efficient and openly competitive* operation of the market was actually undermined in order to launch an application before the Alberta Utilities Commission (AUC). Rather, depending upon the nature of the alleged contravention, it may be sufficient to show that the conduct of a market participant (or more than one market participant) is inconsistent with what a reasonable business person would regard as supporting the *fair, efficient and openly competitive* operation of the market.

The second observation is that section 6 does not contain any qualifying adverbs like 'substantially', 'unduly' or 'unreasonably'; thus, materiality is not an explicit element of this conduct standard. As a practical matter, however, this does not mean the MSA is prepared to take a case based on the barest evidence of 'conduct not supporting'.

The third observation is that the wording in section 6 best implies a conjunctive interpretation of the terms "*fair*", "*efficient*" and "*openly competitive*" operation of the market. In other words, a single substantive test in which each of the terms would be considered as part of the overall standard of conduct; the terms are assessed individually but considered as a whole to find a breach.

That is not to say that the meaning given to the individual terms is not important. It is. We endorse, as a starting point, the consensus view expressed in the 2007 Section 6 Committee Report, which reads as follows:

> (a) **"*Fairness*" requires that everyone is working on a level playing field (i.e., "equality of opportunity").** *"Fairness" speaks to fair competition, not to the market outcome (i.e. the perceived "fairness" of prices).*
>
> (b) **"*Market Efficiency*" requires that transactions between willing counterparties are unimpeded.** *"Efficiency" relates to market efficiency, not to power system efficiency.*
>
> **(c) "*Openly Competitive*" requires that competition is unimpeded.** *"Openly competitive" relates to the opportunity to compete, not to the amount of competition.*[7]
>
> (Emphasis in original)

The terms "*fair*" and "*openly competitive*" are expressed as opportunities, as opposed to outcomes. The MSA has previously identified six high level principles consistent with a

[7] *Alberta Electric Utilities Act (EUA): Section 6 Committee, Phase I Interim/Progress Report*, March 28, 2007, p.4.

fair, efficient and openly competitive market which we continue to believe are helpful direction.[8] Four of these relate to opportunities. They are:

- *Information rich environment:* Participants operating in an information rich environment are better placed to make rational and informed decisions that are consistent with the *fair, efficient and openly competitive* operation of the market.
- *Balance between risk and reward:* In a competitive market there should be opportunities for profit for those willing to take risks. For reasons of equity and efficiency it is important that potential risk and reward are balanced.
- *Level playing field:* A level playing field is a fundamental part of promoting confidence in a fair and openly competitive environment.[9]
- *Opportunity to compete:* Market participants (and potential participants) should have the opportunity to compete or contest in any part of the market without undue barriers or interference, whether structural or by a competitor.

The MSA interprets its role with respect to "*fair*" and "*openly competitive*" to be generally concerned with identifying and making a case for the removal of impediments to competition (i.e. enhancing opportunities). These may be structural in nature; for example, impediments arising from a particular ISO rule. An impediment may also be created by market participant conduct; for example, restricting or preventing competition, such as, a competitive response or market entry by another person.

The "*efficient*" operation of the market is outcome focused, and speaks more to the two remaining high level principles identified by the MSA:

- *High fidelity price signal:* A price signal that is reflective and responsive to changes in fundamentals such as fuel prices, outages, and supply-demand balance. It is particularly important in an energy only market that prices are able to reflect conditions of scarcity. Absence of a high fidelity price signal suggests the market may be inefficient and/or not openly competitive.
- *Competitive response:* In a competitive market, if a participant is able to profit from an innovative strategy, there should be a timely response from other market participants to contest this profit. Absence of such countervailing forces suggests an inefficient and/or unbalanced market.

In constructing our enforcement framework, we focus extensively on the meaning given to efficiency. This is described in the next section.

[8] See *Undesirable Conduct and Market Power*, July 2005, http://www.albertamsa.ca/254.html

[9] The original list included examples under 'level playing field'. During the roundtable one stakeholder indicated it did not believe the examples were appropriate. Since none of the other principles contain examples we have reproduced the list of principles without those examples.

3.1 Efficiency: A Guiding Principle of MSA Enforcement

As stated earlier, efficiency is a core objective in the Alberta market framework. As a consequence, the MSA has developed specific views drawn from the literature and experience in other markets to shape our approach to bid and offer strategy.

Economists typically evaluate whether an outcome is efficient using three concepts: allocative efficiency, productive efficiency and dynamic efficiency.

- **Allocative efficiency** – at a given point in time if resources are allocated such that the net benefit attained through their use is maximized, then a market is said to be allocatively efficient. The role of price is key in achieving allocative efficiency since it serves as a signal to:
    - consumers to consume until the price rises above their willingness to pay; and
    - producers to produce until the price is insufficient to cover the costs of production.

  If it is possible for both a producer and a consumer to gain through additional trade then the market is not allocatively efficient.
- **Productive efficiency** – at a given point in time if a given level of output is produced consuming the least amounts of inputs then the outcome is said to be productively efficient.
- **Dynamic Efficiency** – Allocative and productive efficiency are static concepts – they are tests conducted a given point in time. Dynamic efficiency recognizes that over time there is the ability to innovate and invest leading to superior allocative and productive outcomes over time. In a market economy the forces of competition are seen as key in providing the correct incentives to innovate and adapt. Many economists view the true benefit of competition as being the spur to dynamic efficiency that can outweigh static efficiency losses. That, of course, requires a longer term perspective.

At a given point in time the electricity market achieves productive efficiency if the least cost resources are dispatched in order to meet demand. Note that productive efficiency does not require that generators offer at cost, merely that the costs of production are minimized. There is no loss in productive efficiency if a generator offers above its marginal cost unless its offer price is sufficiently high a generator or generators with a higher cost are dispatched instead. This behaviour is commonly referred to as economic withholding.

The electricity spot market would also achieve allocative efficiency if price is such that no additional benefits could be realized from trade between consumers and generators. At a given point in time, opportunities for trade no longer exist where the short run

marginal cost of generation equates to the short run marginal benefit derived from consumption.

If both conditions are met the spot market would be efficient from the perspective of static efficiency. Both allocative and productive efficiency would be met in a spot market where all generators offered at short run marginal cost and where price was set at the offer of the last dispatched generator. This short run cost-based standard and associated efforts to police against the exercise of market power is important for most other competitive electricity markets in North America because they rely on separate capacity markets to ensure adequate new investment in generation. As is well known, this is not the case in Alberta. In our view the weight given to static efficiency concerns is not appropriate in an energy only market like Alberta because it can chill the incentive to innovate or invest and is therefore likely to fail to achieve dynamic efficiency. That is not to say that static efficiency losses should not be monitored in Alberta (to be described in our forthcoming, second discussion paper).

However, from the perspective of the MSA, conduct inconsistent with static efficiency can be acceptable so long as there is a corresponding benefit to dynamic efficiency, and thus a net efficiency gain, that results (or will likely result) from the forces of competition.

In practice, leaving aside any relevant application of the specific conduct tests set out in the FEOC Regulation, in the view of the MSA this means that economic withholding or offering below avoidable cost are acceptable practices if they result (or are likely to result) in an overall gain in market efficiency.

3.2 Does the Alberta market exhibit indicators of dynamic efficiency?

In coming to a view as to whether the Alberta market is delivering dynamic efficiency gains we believe it is important to examine the historical evidence.

Assessment of dynamic efficiency gains is difficult but a review of high level indicators of dynamic efficiency is positive. Over 5600 MW new generation has been added in Alberta since 1998.[10] Equally important from the perspective of efficiency has been that older less efficient generation has been retired from the market. As an example, four older gas units situated at Clover Bar have been replaced on the same site with three new generation units that are more responsive and efficient.[11] The Alberta market has also been successful in attracting a considerable amount of investment in wind and

[10] http://www.energy.alberta.ca/Electricity/682.asp

[11] The older Clover Bar units required market heat rates in excess of 12 GJ/MWh to cover variable costs, a 10 hour lead time to start the units and a long ramp time to full generation output (http://balancingpool.ca/uploads/presentations/2005AGMpresentationApril20.pdf?phpMyAdmin=A37wAoUBSkMAbJziuhsSbnW4Hdd). The new generation are lower heat rate (higher efficiency) and are able to ramp more quickly. On a per MWh basis they also use water more efficiently and have lower emissions of nitrous oxide (http://www.newswire.ca/en/releases/archive/January2010/20/c2297.html)

interest in other renewable technologies despite the absence of feed-in tariffs or similar mechanisms offered in other markets.

In the MSA's view the broad outcomes delivered by the energy only market over the last nine years have been indicative of fundamentals. In Figure 3.1 we show the annual average Pool Price and the Implied Market Heat Rate (Pool Price / Gas Price). The Implied Market Heat Rate provides a simple way of adjusting electricity prices for changes in gas prices. The pattern over the last nine years shows annual prices responsive to the supply / demand balance. For example, relative scarcity in 2008 drove higher prices,[12] followed by a drop in prices in 2009 largely due to lower natural gas prices and the economic slowdown. At the end of Q1 2010 prices and heat rates continue to be at low historic values (close to $40 and under a 10 heat rate).

Figure 3.1: Pool Price and Implied Market heat Rate (2001-2009)

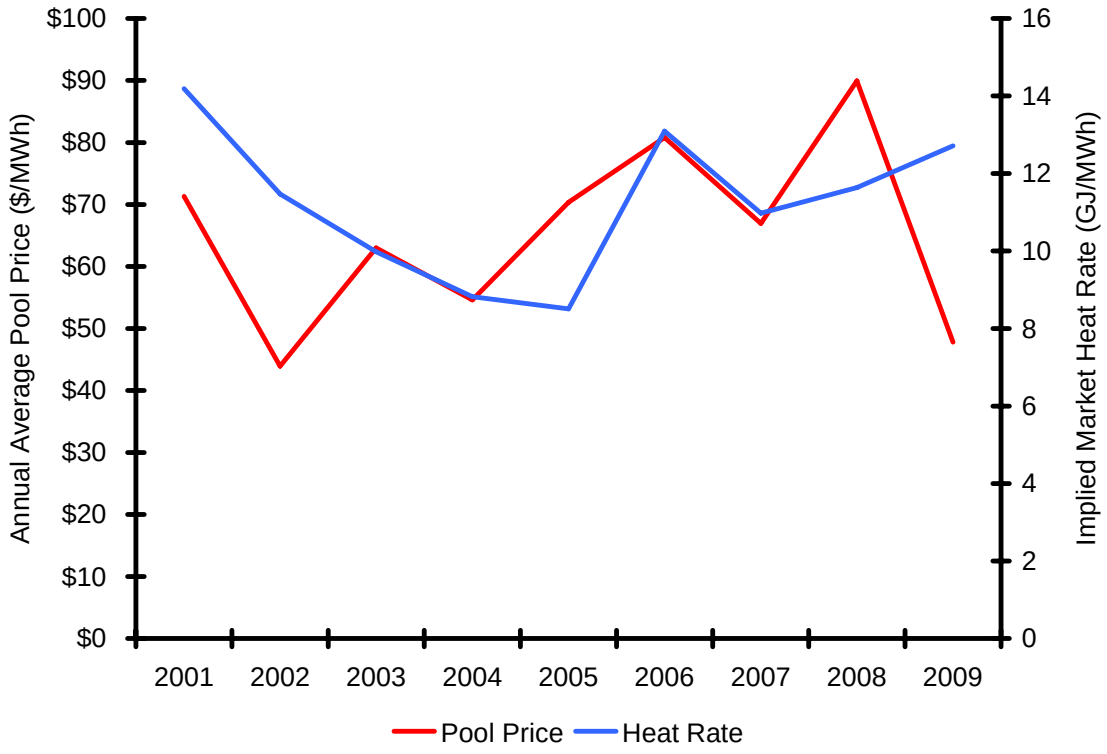
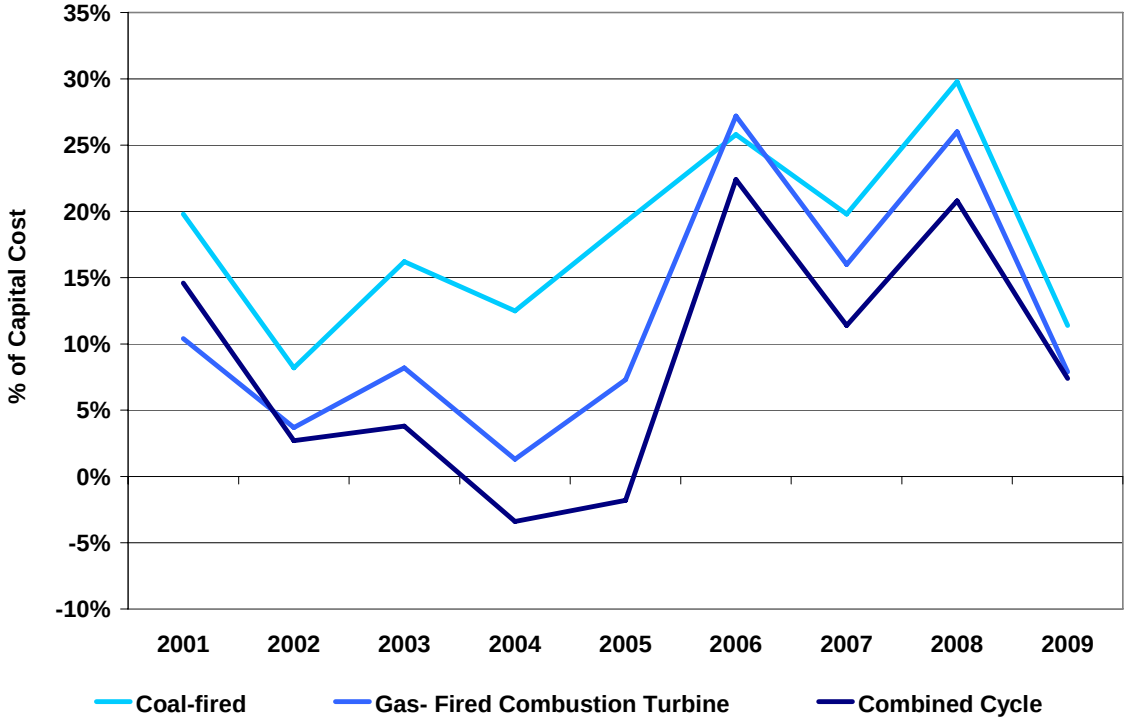


Figure 3.1 also shows that even on an annual basis the energy-only market generates volatile prices. This is not an unexpected or undesirable outcome. However, over time the market must demonstrate that it is capable of returning sufficient revenue to recoup the costs of new investment and a return on capital.

[12] For further examination of the price drivers in 2008 see Section 1.1 in http://www.albertamsa.ca/files/2008_Year_in_Review_amended_140509(1).pdf

In Figure 3.2 we show the estimated annual returns accruing to a hypothetical investment made in 2001 in one of three indicative generation technologies. The Figure shows that since 2001 the Alberta market has generated acceptable, albeit cyclical, returns to spur new investment. This compares favourably to results in other markets.[13] While the MSA believes the returns are acceptable they do not appear excessive. Over the time frame considered, this gives the MSA some confidence that the market signal is capable of attracting sufficient investment. The MSA views the results as indicative but not exact. While the costs of similar generation technologies today may be significantly greater today than in 2001 it appears the market has functioned as intended.[14]

Figure 3.2: Annual Returns as a Percentage of Capital Cost



4. MSA's Enforcement of FEOC Regulation Subsections 2(j) & 2(k)

In implementing the enforcement approach described in the previous sections, the MSA pays close attention to the specific language in the FEOC Regulation. The FEOC Regulation provides a non-exhaustive list of types of prohibited conduct that are for the most part *per se* offences. We believe the first set of enumerated provisions, subsections 2(a) through 2(i), are relatively well understood and we do not plan to speak to them in

[13] See, for example, results in the 2009 PJM State of the Market Report at pp. 133-34 (www.monitoringanalytics.com) or various reports on Ontario by the Market Surveillance Panel (www.oeb.gov.on.ca).

[14] In Appendix A we show the assumptions made concerning each generation technology.

detail in this document. However, we do provide guidance on how the MSA intends to enforce subsections 2(j) and 2(k) of the FEOC Regulation, which read as follows:

> *"2 Conduct by a market participant that does not support the fair, efficient and openly competitive operation of the market includes the following:…*
>
> > *(j) manipulating market prices, including any price index, away from a competitive market outcome;*
> >
> > *(k) carrying out actions or transactions to circumvent any enactment, order or decision of the Commission, ISO rule or other rule applicable to a market participant."*

In developing its enforcement stance for these provisions, the MSA is of the view that both subsections may be broadly applicable to conduct, i.e. they are not limited in applicability to energy market offer behaviour. For this reason, this Discussion Paper will consider the broader interpretation of each (rather than examining how each might relate only to energy market offer behaviour).

Based upon experience to date, our view is that conduct such as portfolio offer behaviour is most likely to raise questions under subsection 2(j) of the FEOC Regulation. Subsection 2(k) addresses offer behaviour that is tantamount to gaming of the rules.

4.1 Elements of Subsection 2(j)

Subsection 2(j) reads:

> *"(j) manipulating market prices, including any price index, away from a competitive market outcome;"*

We consider each element in turn.

4.1.1 "Manipulating"

The term "manipulating" (or manipulate) may be applied to conduct which controls or manages an outcome. It is important to distinguish the concept of manipulation from conduct which by its nature affects an outcome.

The MSA accepts that the word "manipulating" in subsection 2(j) implies intentional conduct; that is, conduct intended to control or manage an outcome. Given that an offer always has some effect insofar as the setting of pool price, that effect alone would not necessarily mean that each offeror was engaging in manipulation of the pool price. The intent behind that offer must be determined (along with a realistic expectation of success).

It is possible for intent to be shown via evidence of 'subjective intent'; the so-called 'smoking gun' contained in a document, email, voice recordings or other record. Such evidence is recognized to be highly difficult to obtain in most circumstances, even if it exists.

The MSA has previously indicated its view that market participants are deemed to intend the reasonably foreseen and likely outcome of their actions.[15] This is consistent with the approach taken in other jurisdictions; for example, the approach taken by the Competition Bureau.[16] The approach enunciated above is the so-called 'objective intent' test. In the context of subsection 2(j), the MSA would seek to lead evidence showing that a reasonable business person, understanding the facts and market circumstances at the time, would conclude that the consequences of an offer strategy would be to move prices away from a competitive market outcome.

4.1.2 "Market Prices"

Section 2(j) incorporates the phrase 'market prices, including any price index'. The MSA is of the view that this includes, but is not limited to:

- Pool price
- Prices for operating reserves on Watt-Ex markets
- Forward prices of transactions that are revealed publicly, or a potential constituent component of a number that is made public. For example, forward transactions that influence the pricing of Regulated Rate Option (RRO).

The MSA is of the view that this would not include:

- operating reserves procured over-the-counter
- prices that result from bilateral negotiations and are not disclosed to the public or potentially impact any publicly disclosed number.

4.1.3 "Competitive Market Outcome"

In some markets the appropriate competitive benchmark is set to be what economists would describe as a perfectly competitive equilibrium, where price is equal to marginal cost and both productive and allocative efficiency are achieved. Achieving this benchmark in the Alberta market design could, however, prevent any future gains from dynamic efficiency and in the MSA's view, consequently be inconsistent with the intent of the legislation. It is notable that in electricity markets where bidding is constrained to be close to marginal cost it is usual that a capacity market is created to provide incentives for investment and dynamic efficiency. In such a design, spot markets are intended to promote productive and allocative efficiency.

In Section 3.1 above, we take the position that losses in productive and allocative efficiency are acceptable if there are compensating gains in dynamic efficiency as a result of competition. To provide a more practical interpretation of this statement in the context of subsection 2(j), the MSA is of the view that 'competitive market outcome' in the Alberta spot market is likely to be a range of outcomes. At any instant in time a

[15] See *Undesirable Conduct and Market Power*, July 2005, http://www.albertamsa.ca/254.html

[16] For further details see the Competition Bureau's Abuse of Dominant Position Enforcement Guideline at pp. 16-18. (www.competitionbureau.gc.ca).

competitive market outcome could be consistent with a large range of possible prices and, as noted above, these may involve static efficiency losses. As the time horizon gets longer, competitive responses from other market participants should increasingly come to bear and the range of outcomes consistent with a competitive market should narrow. Absence of competitive responses may result in a failure to reach a competitive market outcome and therefore a failure to achieve the correct signal for dynamic efficiency gains.

For a change in market prices to be considered as one 'away from a competitive market outcome' our view is that this means that market prices would need to be moved a large amount over a short period of time, or a smaller amount over a long period of time away from levels suggested by fundamentals. In the past the MSA has used the terms 'material', 'sustainable' and 'repeatable' to capture a similar dimension to conduct.[17]

4.1.4 Requirement for Effect

Subsection 2(j) addresses conduct "manipulating market prices…..away from a competitive market outcome". In our view, this means that the conduct must lead to an effect on prices that is not consistent with a competitive market outcome. In other words, effect is an element of subsection 2(j). For example, an attempted manipulation of pool price through offer strategy, without that ultimate effect, will therefore not contravene subsection 2(j).

4.2 Elements of Subsection 2(k)

Subsection 2(k) reads:

> *"(k) carrying out actions or transactions to circumvent any enactment, order or decision of the Commission, ISO rule or other rule applicable to a market participant."*

Again, we consider each element in turn.

4.2.1 "Actions or transactions"

"Conduct" in the EUA and in the FEOC Regulation is defined to include "acts and omissions". In the MSA's view, subsection 2(k) requires a narrower definition such that breaches of this subsection can only occur through a positive act, not an omission.

Further, notwithstanding that the conduct is described in plural form (actions or transactions), the MSA takes the view that a single act or transaction may be sufficient conduct to contravene subsection 2(k).

4.2.2 "Circumvent"

The term "circumvent" connotes conscious avoidance or evasion.

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[17] Previous versions of the *MSA Investigation Procedures* contained some discussion around 'material', 'sustainable' and 'repeatable' . See, for example: http://www.albertamsa.ca/images/MSA_Investigation_Procedures100506.pdf

As in the case of 'manipulation', we take the view subsection 2(k) requires intent. For the same reasons given regarding subsection 2(j), the MSA believes that it is reasonable to apply a standard of objective intent.

However, unlike subsection 2(j), the MSA does not see that the conduct must necessarily achieve the effect of circumventing the obligation, duty or requirement seen as applicable to the market participant (for example, ISO rule) in order to contravene subsection 2(k). Attempted circumvention will breach subsection 2(k).

4.2.3 Scope

The scope of subsection 2(k) is broad covering "any enactment, order or decision of the Commission, ISO rule or other rule applicable to a market participant." In the MSA's view this would include rules regarding participation on an exchange (such as NGX) and encompass reliability standards.

5. Conclusions and Next Steps

In this Discussion Paper we have provided our views on the intent of the legislation shaping the MSA's role in ensuring the *fair, efficient and openly competitive* operation of the market. The view we have provided is that effective competition should be relied upon wherever and whenever possible. In addition, two foundational elements are addressed. First, a discussion of efficiency that places emphasis on the dynamic rather than the static. Secondly, detailed views around subsections 2(j) and 2(k) of the FEOC Regulation are set out.

These views reflect the MSA's intention to focus resources on matters involving the largest potential efficiency gains, not to imply an absence of an effective enforcement or monitoring function. With that in mind the MSA is currently working on a second paper intended to build on the body of work contained in this discussion paper. The second paper will set out some details of the analytical framework the MSA will use to guide its enforcement actions and also consider how the MSA will focus resources on other matters that may relate only indirectly to the MSA enforcement function – for example, identifying impediments to competition that result from market rules and/or outcomes inconsistent with dynamic efficiency that are not primarily resultant from market participant conduct.

We expect that by sharing this framework we will achieve a number of goals without the need for a more prescriptive guideline; these include providing market participants a greater understanding of:

- What types of conduct are likely to attract investigative action and the reasons for this;
- Why the MSA inquires on certain matters to assess market health or the state of competition rather than participant conduct;
- Why the MSA continues to believe reporting on market outcomes and publishing explanations of significant events remains an important function.

Following the consultation on the second paper the MSA expects to be in a position to produce a draft statement.

Appendix A: Assessment of Returns to Hypothetical Generation Investments

The MSA's annual *Year in Review* we have often included a Net Revenue analysis of the previous year to assess the profitability of a hypothetical new entrant.[18] The analysis included in Section 3 of this report is a variant of this – considering a hypothetical plant constructed and operational in 2001 and examining the returns in each year up to and including 2009.

Table A.1 summaries the key technical assumptions which could have applied to at the time the hypothetical plant was constructed in 2001. An availability factor was applied to account for outages and derates by applying a percentage reduction to revenues and variable costs (rather than using a predictive model). Some costs were updated annually:

- An inflation rate of 1.5% per year was applied to the annual fixed costs, O&M variable cost and Start-up cost.
- Transmission charges are based on the AESO's yearly rate schedule included in the tariff. From 2006, the Interconnection and Operating Reserve Charge no longer applied to generators.
- Losses were updated annually based on the annual actual average system losses (i.e. units were not assumed to have a specific geographic location)

[18] See, for example, Section 1.2 in *Year in Review 2008* (http://www.albertamsa.ca/files/2008_Year_in_Review_amended_140509(1).pdf)

Table A.1: Assumptions

		Coal-Fired	Gas-Fired Combustion Turbine	Combined Cycle
Maximum Output	(MW)	450	47	250
Availability Factor	(%)	92%	94%	92%
Capital Cost	($)	$800,000,000	$35,000,000	$200,000,000
Cost per Installed MW	($/MW)	$1,777,778	$744,681	$800,000
Annual Fixed Cost		$30,000,000	$2,700,000	$15,000,000
Minimum Output	(MW)			85
Variable Cost				
O&M	($/MWh)	$1.00	$0.50	$1.00
Fuel Cost	($/MWh)	$10.00	variable	variable
Heat Rate - Full Load	(GJ/MWh)		10	8
Heat Rate - Min Stable	(GJ/MWh)		10	10
Transmission (2001 values)				
STS - Losses	(%)	4.81%	4.81%	4.81%
STS - Interconnection	($/MWh)	$2.34	$2.34	$2.34
STS -Operating Reserve Charge	(%)	3.6%	3.6%	3.6%
Start up Cost	($/start)		$300	

Each generation technology was assumed to respond differently to the prevailing Pool Price:

- **Coal-Fired Unit** was assumed to run at maximum output when available.
- **Gas-Fired Combustion Turbine** was assumed to run at maximum output during hours in which the Pool price was greater than the variable operating cost. Start-up Cost was assumed to be incurred in each hour the unit started operation.
- **Combined Cycle Unit** was assumed to run at maximum output when Pool Price was greater than variable operating cost at a heat rate of 8. At all other times the unit was assumed to run at minimum stable generation (85MW) with a heat rate of 10.[19]

Assumptions were selected to be indicative of a hypothetical unit that could have been built in 2001. Capital costs for the three technologies are significantly higher in 2010. For comparison, we refer the reader to MSA's *Year in Review 2008*.

The annual net revenue for a hypothetical investment was calculated as:

Annual Net Revenue = [Sum of Hourly(Revenue – Variable Cost) x Availability] – Annual Fixed Cost

where:

[19] In practice a combined cycle unit should be able to outperform the simple mode of operation assumed in this analysis i.e. by turning the unit off during low price periods. For this reason the returns for the combined cycle unit may be understated.

Hourly Revenue = Generation X Pool Price
Hourly Variable Cost = O&M + Fuel Cost + Transmission + Start up Cost