

The First Interim Report of the Market Design Committee was submitted to the Minister of Energy, Science and Technology on Tuesday March 31, 1998 by the Chair of the Committee Ronald J. Daniels.

This interim report provides the Committee's advice and recommendations on two critical threshold issues: governance, operation and regulation of the Independent Market Operator, and principles of market design.

The Minister has received the Committee's Report and will consider its recommendations as the Ministry proceeds with drafting legislation.

The Committee is now moving to Phase II to refine the market design, to explore issues related to market power and retail access, and to review options for integrating environmental considerations into the market rules. Phases III and IV, to be undertaken through the summer and fall, will focus on technical and operational issues related to: market power; Independent Market Operator governance; wholesale market settlement system design; transmission and distribution; retail market and settlement system design and the Independent Market Operator systems development program.

The Committee will continue to post its papers on this website. We welcome comments on the interim report and on any future documents that will be posted.

First Interim Report of the

Market Design Committee

To the Honourable Jim Wilson
Minister of Energy, Science and Technology

March 31, 1998

Market Design Committee

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Tuesday, March 31, 1998

The Honourable Jim Wilson
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Dear Minister Wilson:

I am pleased to submit the first report of your advisory committee on electricity market design.

The Market Design Committee (MDC) was anticipated in the Government's November White Paper on electricity sector reform, entitled *Direction for Change: Charting a Course for Competitive Electricity and Jobs in Ontario*, and was announced on January 20, 1998 pursuant to Order in Council 2156/97. The Committee has a mandate to provide recommendations to the Government on the design of an Independent Market Operator (IMO), as defined in the White Paper, and to propose the rules and protocols that will be needed to launch a fully competitive electricity market in Ontario in the year 2000.

The Committee was asked to provide an initial report, by the end of March, on key matters of IMO governance and jurisdiction that will need to be addressed in the new Electricity Act the Government intends to introduce in the Legislature this spring.

The Committee has worked hard, and in a spirit of cooperation, to meet this exceedingly tight deadline. As will be evident from our report, we have reached substantial consensus on a number of the key design parameters for the IMO, including its relationship with the Ontario Energy Board (OEB). We have also reached preliminary agreement on several of the broader elements of the market design.

In our second quarter, we will be working to refine the market design, to address various issues related to market power, to explore issues related to retail access, and to review options for integrating environmental considerations into the market rules. All of this work builds on the recommendations we have made in our Phase I report. We expect to be able to provide you with a full work plan in about a week.

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In our report, we propose a legislative strategy that would invoke many of the provisions of the Corporations Act (Ontario). This route is recommended because the IMO is to be a non-profit Crown corporation, is to be subject to regulatory oversight by the OEB, and is to have quasi-regulatory functions of its own.

Key aspects of the design B including the responsibilities of the IMO, the structure and composition of its Board of Directors, and the constitution of its Special Panels B would be in a special class of corporate bylaw, and could be changed by the IMO Board, provided the Government does not disapprove within a specified period. This approach achieves both a detailed legislative foundation and the flexibility needed to adapt the IMO to changing circumstances over time.

We also recommend a hybrid Board of Directors with fifteen members, ten of whom would be chosen to represent market participants and five of whom would be chosen to represent the broad industry and public interest. The five “independent” directors would have no commercial involvement in the market. Market participants would have a significant role in determining who gets appointed to the Board. The independent directors would likewise play an important role in the appointment of future independent directors. The Committee’s recommendations on the structure of the Board and the appointment process build on “best practices” in other jurisdictions.

The initial market rules and protocols would be approved by the Government, and then be filed with the OEB. Market participants would be required to meet defined technical and prudential standards, and would be bound to the market rules through licences approved by the OEB. The market rules and protocols could be changed in future by the IMO Board (or by the Technical Panel acting on authority from the Board), but all changes could be appealed to the OEB. The IMO would monitor the market for compliance with the rules, and would have defined dispute resolution procedures. Again, decisions would be subject to appeal to the OEB, except in minor cases.

The Committee adopted criteria that should be used in developing rules for the competitive market B efficiency; fairness; reliability; transparency; robustness; and enforceability. The meaning of each criterion was explored and largely agreed upon.

Using these criteria, we developed recommendations on several “high level” market design principles. The unifying theme in these recommendations is that there should be as much flexibility as possible for market participants to structure their commercial transactions as they please, provided they bear their fair share of the overall system costs. The proposed market design principles do not have to be reflected in legislation, either this year or later on. However, it will be important to develop a process over the next several months through which the MDC can discuss market design issues with the Government on a going-forward basis.

Certain key decisions will be needed by late spring to support detailed work on market rules and the initial work on computer software.

The following principles are implicit in the Committee's report:

- The legislation on IMO governance should be sufficiently detailed to provide market participants with assurance that the Government accepts the principle of moving toward a self-regulated electricity market, and that it is committed to establishing an IMO that is both independent from any coalition of market participants and substantially free from government influence and control.
- The legislation should not foreclose on specific market design options before the Market Design Committee has had an opportunity to provide further advice.
- The legislation should be broadly permissive, leaving the IMO flexibility to decide the best way to carry on the business it has been assigned, subject in all cases to appeal to the OEB (which must be given appropriate new powers and procedures).
- The legislation should provide the IMO with legal authority to support its quasi-regulatory functions in the areas of licencing, market surveillance, and the disciplining of market participants.

In short, the legislation needed to deliver a self-governing market place in electricity must emphasize good governance principles, and must empower the market participants to take responsibility for their institutions and their decisions.

Assuming that the Committee's recommendations are acceptable to the Government, the MDC Executive will be pleased to work with Ministry policy and legal staff to explain our recommendations and assist with the drafting of the Bill.

The attached report fulfils our Committee's obligation to provide initial recommendations by the end of March. The Order in Council establishing the Committee also requires the submission of quarterly reports on activities. I would like to conclude these introductory pages by thanking the Committee members and their advisors for all their hard work, and by recording the following highlights of the Committee's first two months:

- A Memorandum of Understanding between the Government and Ontario Hydro was completed, securing funding for the MDC, technical and advisory support from the Central Market Operations division of Ontario Hydro (CMO), and upfront financing for the computer hardware and software that will be required to implement the competitive market.

- The firm of Putnam, Hayes and Bartlett (PHB) has been retained as lead consultant to the Committee. PHB has substantial experience in the restructuring of electricity systems in other jurisdictions, and brings expertise in economics, engineering and law. Seven firms participated in the competition that led to the selection of PHB. A process consultant was hired by the MDC Executive to ensure that the selection process was run openly and fairly.
- The Toronto law firm Stikeman, Elliott has been appointed counsel to the MDC, following a competition, and will be providing advice on a variety of legal and legislative issues.
- The MDC held its first session on February 13th, and has met every Friday since. At its first meeting, the Committee determined that it had three “threshold” issues to deal with on an urgent basis: the structure and governance of the IMO, the relationship of the IMO to the OEB and the federal competition bureau, and the outline of the basic market design. A “blue-sky” session was held on each of these topics to scope out areas of agreement and areas for further work. Sub-committees (effectively comprising all MDC members) were established to explore each of the areas in detail. Each Subcommittee produced a report, and these reports were then reviewed and adopted by the Committee at large.
- The Subcommittees benefitted from the participation of numerous guests. Important contributions were made by the experts who were invited by Committee members, and by official observers from the CMO and the OEB. The blue sky plenary on market design involved two presentations from the federal Competition Bureau.
- A workshop on market design has been scheduled for mid spring (the date is being finalized). The workshop will bring together a number of international experts for a one day session focused on “mistakes to avoid”. This session will be open to senior Government personnel and industry regulators, as well as the MDC, and is expected to be very useful as detailed work on the market rules gets under way.
- A website has been established, with support from the CMO, to inform the public of our work in progress and to solicit public comments and input. The address is www.OMDC.org. The website contains key documents related to the MDC’s work, including issue papers that have been prepared in support of MDC and Subcommittee discussions. As we proceed, the website will play a critical role in keeping the public informed about the work of the Committee.

As this list indicates, the Committee has been extremely busy in the past two months. The group has worked well together, and laid a strong foundation for our second quarter work. I look forward to providing you with our next interim report on June 30, 1998.

Yours, on behalf of the Market Design Committee,

R.J. Daniels,
Chair

**INDEPENDENT MARKET OPERATOR:
GOVERNANCE, OPERATION, AND REGULATION**

First Interim Report of the

Market Design Committee

**To the Honourable Jim Wilson
Minister of Energy, Science and Technology**

March 31, 1998

INDEPENDENT MARKET OPERATOR: GOVERNANCE, OPERATION, AND REGULATION

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INDEPENDENT MARKET OPERATOR: GOVERNANCE, OPERATION, AND REGULATION

1. Purpose of the Report

Competition in electricity requires a marketplace where willing buyers and sellers can meet to establish a price for the exchange of their products and services, and from which to secure reliable delivery of these goods. Ontario does not currently have a marketplace for electricity but plans to introduce wholesale and retail competition in the year 2000.

Key to the success of this plan is the establishment of an Independent Market Operator (IMO) to manage the wholesale marketplace and the reliable operation of the integrated power system.

The purpose of this report is to present the findings of the Market Design Committee (MDC) on the Governance, Operation, and Regulation of the Independent Market Operator in a Competitive Electricity Industry.

To develop its understanding of the topic, the MDC drew heavily on a number of reports for information and guidance, as follows:

- “The Preliminary Findings of Technical Advisory Team #1 on the Governance and Corporate Structure of the Independent Market Operator for Ontario” (September 1997).
- “Governance and Regulation of Power Pools and System Operators: An International Comparison” by James Barker Jr, Bernard Tenenbaum, and Fiona Woolf, September 1997, in a World Bank Discussion Paper;
- “Report to Ontario Hydro for the Establishment of a Central Market Operator within a Restructured Electricity Market” by Robert Milliner of Mallesons Stephen Jaques, December, 1996;
- Several short papers were prepared during the Committee’s discussion of these issues by Putnam, Hayes & Bartlett, a firm retained by the MDC Executive to act as the lead consultant on this project, and by Steptoe and Johnson LLP, a legal firm from Washington D.C.;
- As well, several legal opinions and memoranda were prepared by Stikeman, Elliott, a legal firm from Toronto.

1.1. Governance

Governance, by definition focusses on the *process* and *structure* through which to direct and manage the affairs of a corporation to ensure its financial viability and operational soundness. Applied specifically to the IMO, it addresses the process by which decisions get made, implemented, and enforced as well as the structure that will be put in place to ensure that the decision-making process is fair and efficient.

The overall governance of the *marketplace*, on the other hand, will involve three institutions: the IMO, Government, and the OEB. While the IMO is expected to manage activities *internal* to the marketplace, Government is expected to set broad policy guidelines and, through the OEB, oversee the actions and decisions of the IMO and of the industry itself — a process *external* to the marketplace. Working together, the IMO and OEB will represent Government’s most important defences against potential conflicts of interest and will be responsible for alerting Government to any potential problems associated with anti-competitive pricing or other monopolistic practices.

1.2. Regulation

To ensure that the market achieves its competitive potential, regulatory oversight of the marketplace will be required. The White Paper specifically identifies areas in which the OEB will have an active role such as licensing market participants and regulating transmission and distribution tariffs, among others.

With respect to the IMO, the OEB is to oversee, as opposed to regulate, its activities. This is consistent with other jurisdictions that are undergoing a transformation from a monopoly to a market environment. With a well-developed set of rules governing the operation of the market and a consultative process that allows market participants to collectively advise on the rules and structure of the market, some regulatory responsibilities should be given to the manager of the market through a combination of delegated and legislative actions. The electricity marketplace in Ontario can therefore be expected to be predominantly self-regulating. Potentially, this will allow faster decisions to be achieved at lower cost without opening the door to monopoly abuse.

This report addresses the governance of those marketplace activities in which the IMO will play a significant role and the governance structure needed by the IMO to fulfill this function. It also addresses the relationship between external regulators and the IMO within a competitive marketplace.

1.3. Principles

In framing its recommendations, the MDC used the following principles to define the functions and structure of the IMO:

- financially self-sustaining enterprise accountable and transparent to stakeholders in its operations and decision making;
- independent from commercial interests in the marketplace and political influence in its day-to-day activities;
- collectively governed by a small Board which includes participants in the marketplace and members independent of that marketplace;
- fair, in that no individual or group will be allowed to take inappropriate advantage of a position;
- flexible, to respond to the evolution of the marketplace over time;
- responsible for ensuring the safe, reliable, and economical operation of the integrated power system and marketplace;
- objective in the application and enforcement of market rules; and,
- efficiently managed.

2. Functions

The Independent Market Operator will be a centralized electricity system coordinator that has responsibility for managing the operations of the electricity system to maintain the security and quality of electricity supply and to operate a wholesale electricity market for the benefit of market participants.¹

As outlined in the White Paper, the IMO will:

- Run an electricity exchange, dispatch power based on least cost bids, and arrange financial settlements between buyers and sellers;
- Forecast supply requirements, encourage investment as necessary, and advise Government if additional steps are needed to ensure adequate and reliable supplies of electricity;
- Act as an impartial manager of the market system, ensuring that competition develops quickly and without abuse of market power;
- Work with the OEB to ensure adequate transmission capacity is developed to maintain reliability and promote the growth of competition; and,
- Provide advice on how well the market is performing and alert the Government to any problems arising from the Ontario Electric Generating Company's (OEGC) dominant market position.

Consistent with the direction included in the White Paper and the advice of Putnam, Hayes & Bartlett, the MDC recommends the following functions to be performed by the IMO in conjunction, where appropriate, with OEB oversight.

(a) Functions to be performed by the IMO Board and its related subcommittees or Panels:

- Ensure that the IMO fulfills its obligations to market participants, interconnected partners, regulatory agencies, and others.
- Supervise, direct, and oversee the management of the IMO business and the affairs of the corporation in a prudent and cost-effective manner.
- Make strategic policy decisions with respect to the marketplace.
- Develop technical and prudential criteria for admission to the marketplace.
- Make and amend market rules.
- Monitor and enforce compliance with market rules and any relevant legislation.
- Ensure there is an efficient mechanism for resolving disputes with respect to the interpretation or application of market rules.
- Ensure there is an effective process in place that provides an independent review of the marketplace and which monitors and reports on inappropriate market conduct or market inefficiencies.

(b) Functions to be performed by the IMO as an operating organization:

- Operate and manage a spot market for trading electricity in Ontario.
- Carry out financial settlement for exchanges through the spot market.

¹ This definition was included in the Government's Backgrounder to the White Paper.

- Contract with transmission owners through leasing or similar contractual arrangements for use of their integrated transmission system for energy trading and transport according to market rules. Transmission owners must be provided with adequate incentives including contracts and performance-based rates to preserve asset value, improve the capability of equipment, and achieve operational efficiencies.
- Manage the secure operation of the integrated power system; determine system capabilities and operating rules and manage real time dispatch within these capabilities.
- Control the dispatch of generators, transmission, and loads to match demand for electricity in Ontario and ensure adequate operating reserves including scheduled exchanges of energy and ancillaries with electric systems within and beyond Ontario.
- Provide forecast and after-the-fact information to market participants to facilitate their operating and investment decisions.
- Forecast and assess supply, demand, and transmission conditions and advise on the adequacy of reliable supply and delivery capability.
- Monitor and enforce compliance with commercial and technical standards for the integrated power system and the spot and ancillary markets.

The specific functions of the IMO in its day-to-day operation of the marketplace are detailed in Appendix A.

3. Structure of the Board

A hybrid governance structure for the IMO that includes both market participants and members independent of all commercial aspects of the marketplace is recommended; it is emerging as best practice in other jurisdictions throughout the world as reforms are implemented. Overall, the structure reflects an attempt to merge the benefits of collective self-governance by those who participate in the market with the need to ensure the independence of the decision-making process.

3.1 Independence of Board Decisions

It has been recognized in other jurisdictions that the presence of market participants on the Board brings a wealth of knowledge and expertise to the decision-making process. These same participants, however, will have widely divergent and conflicting economic interests and will often be directly competing against each other in the market. To continue to ensure the independence of Board decisions and to reduce the potential for one class of market participant to block actions that others support, two features are recommended in the design of the Board:

- that the composition and voting rules be structured such that no single class of market participant can dominate the Board and that no two classes, voting together, can form a sufficient majority to make decisions; and,
- that all Board members, regardless of their affiliations, be legally obligated, under the proposed *Electricity Act*, to act in the best interests of the IMO and in the public interest of the electricity marketplace, but be entitled to give special consideration to the interests of the class represented.

That said, it is widely recognized that the obligation to act in the best interests of the IMO and the public interest of the electricity marketplace is virtually unenforceable. This underscores the need to have independent Directors on the Board to ensure the independence of its decisions. Unlike market participants, the independent members are assumed to be *independent*, rather than *representative*, of market participants. Given that they do not represent any constituency, it is expected that they are more likely to represent the interests of the marketplace as a whole.

While the possibility of having a solely independent Board was discussed, the difficulty in finding Directors who are independent of the industry and who have sufficient knowledge to enable them to make informed decisions precluded further consideration of the option. As well, a Board comprised solely of independent members is considered to detract from the benefits of having participants on the Board that governs the operations of *their* marketplace. These considerations are supported by experience in other jurisdictions.

3.2 Classes of Membership

We have classified market participants as shown below; it is recommended that each class be represented on the Board:

- generation providers;
- end-use customers (industrial, commercial and residential);
- distribution and transmission providers; and,

- aggregators, brokers, and marketers (collectively referred to as ABMs).

Other interested parties include native and environmental groups; it is expected that the views of these groups will be presented through Directors independent of the marketplace.

In addition to market participants and members independent of the marketplace, the other member of the Board will be the President /Chief Executive Officer of the IMO.

The MDC recommends that there be no Government official on the Board; it also recommends that no Government official attend Board meetings in any capacity.

The exclusion of Government officials from membership on the Board does not apply to representatives, staff, and/or officers of the OEGC and Ontario Energy Services Company (OESC).

3.3 Membership

It is recommended that there be a maximum of 15 voting members on the IMO Board. Given this, the following structure was developed to avoid deadlocks and avoid biasing Board decisions to reflect the interests of individual participant classes.

Membership*	Number of Representatives
Generation Providers**	2
End Use Customers (including one each from Residential, Commercial, and Industrial)	3
Transmission Providers	1
Distribution Providers	2
ABMs***	1
President/CEO of the IMO	1
Independent Members	5
<i>Maximum Number of Members:</i>	15

* No company can occupy more than one seat on the Board.

** Generation providers must operate generation assets in the province of Ontario.

*** The ABM cannot be an affiliate of either a transmission or distribution provider.

The goal of the membership structure is to create a Board that will represent the broader interests of the marketplace and not the commercial interests of a particular participant class. The structure should reduce the need for detailed oversight by a regulator. Although independent members are not in the majority, they are present in sufficient number to meet the criteria identified in section 3.1.

3.4 Term of Membership

All members other than the CEO/President will be appointed to serve terms of a fixed length.

To provide for continuity in membership, it is recommended that members serve three-year terms. For the incorporating Board, terms will be staggered and it is recommended that there be an initial drawing of lots to determine the length of term to be served by each member; terms will range from 1 to 3 years.

Members will be limited to serving two consecutive terms, although re-appointments are possible following a break from the Board.

Should a Director resign, be removed², or die before his/her term is complete, a replacement Director will be appointed to complete the existing term. It is recommended that the same process followed in the initial selection of the member be used in the selection of his/her replacement.

It is recommended that the term of the CEO/President be set at the discretion of the Board.

3.5 Organization of the Board

To assist the Board in the governance of the IMO, it is expected that a number of committees will need to be created. Examples include:

- Finance/audit committee to oversee the financial affairs of the IMO and to review and report on budget and audit matters.
- Nominations committee to coordinate the compilation of nominations for membership on the Board.
- Compliance committee to ensure the IMO complies with its obligations and that compliance processes are in place and operating effectively.

It is envisaged these or other committees may be created, as required, to deal with on-going and *ad hoc* issues. It is recommended that the Board establish the actual number of committees and their roles.

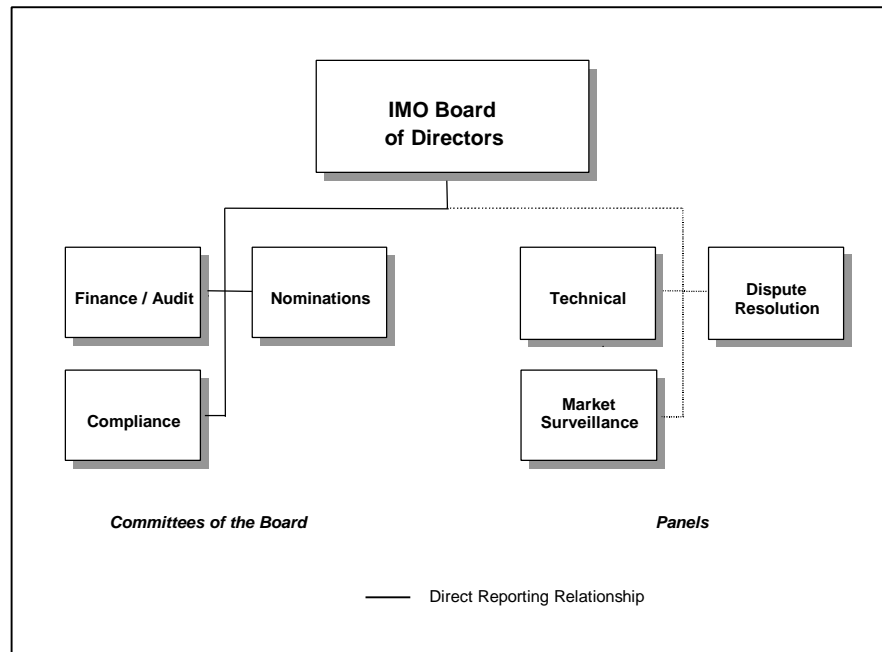
To assist the Board in the management of the competitive marketplace and to ensure that its regulatory obligations are met, a number of Panels should be created. They include:

- A **Technical Panel** to review and amend market rules on an on-going basis and to provide advice to the Board and the OEB on specific technical issues related to the operation of the marketplace.
- A **Dispute Resolution Panel** to settle disputes on the application and interpretation of existing market rules.
- A **Market Surveillance Panel** to identify and report on inappropriate market conduct and market inefficiencies, recommend remedial actions to mitigate such behaviour and inefficiencies, and assess whether the underlying structure of the marketplace is consistent with the efficient and fair operation of the competitive market.

² This includes Directors removed "for cause" and Directors who no longer work in or represent the class they were nominated to represent.

The purpose of the Panel structure is to provide flexibility on *process*; it should lead to faster and better decisions. The Panels do not necessarily include members of the Board and it is expected that they will have some autonomy over decisions and actions affecting the marketplace. They are discussed more fully in Section 6.

The following shows the proposed structure.



3.6 Legal Incorporation of the IMO and Related Issues

It is recommended that the IMO be a non-share capital corporation created pursuant to a part of the proposed *Electricity Act* (Ontario). While the Act can be entirely tailor-made without reference to any existing corporate structure, it is recommended that the IMO be subject to certain relevant provisions of the *Corporations Act* (Ontario) (OCA), particularly given the tight timetable proposed for preparing legislation.

The OCA is well suited to address the creation of a special purpose corporation with public purpose objectives; unlike the *Ontario Business Corporations Act* (OBCA), it specifically applies to not-for-profit corporations. Flexibility to respond to changes in the market will be accomplished through the IMO's rule-making powers.

The IMO will have at least two by-laws, one of which will be a Structural and Governance By-law containing some of the fundamental structural rules of the IMO. Amendments to these by-laws will be subject to non-disapproval by the Minister representing the electric power sector within a 60-day period. The IMO will also have a general by-law containing the housekeeping-type items that are typically found in the by-laws of other corporations. It is recommended that the IMO Board be responsible for making amendments to these by-laws. Public notice and comment will be used for changes to the Structure and Governance By-laws to increase the transparency of the decision-making process.

In respect of the IMO, the MDC recommends that a number of provisions be included in the proposed *Electricity Act*, they are listed in Appendix B. Also included in the Appendix is a list of the items that should be included in the Structural and Governance By-laws in respect of the IMO.

The purpose of the IMO is to manage the operations of the electricity system to maintain the security and quality of electricity supply, and operate a wholesale electricity market for the benefit of market participants. To achieve this purpose, the IMO will, among other duties, run an electricity exchange, dispatch power based on least-cost bids, and arrange financial settlements between buyers and sellers. This purpose is consistent with the definition of the IMO that was included in the background information provided with the White Paper and it is recommended that it be included in the Act.

The corporate purpose, as a practical matter, also defines the broad parameters of the Directors' duties. It is recommended that these duties allow those Directors that are not independent to pay special, but not exclusive, consideration to the interests of the class of market participant that they represent.

3.7 Not-For-Profit Entity

The IMO will be a not-for-profit entity, as outlined in the White Paper, and any profits of the corporation will be used to reduce future charges to market participants or to fund capital investments for the purpose of performing its functions; this is consistent with the way in which most electricity markets around the world are organized.

3.8 Ownership

Although the OCA provides for corporations either with or without share capital, it is recommended that the IMO be created without share capital; typically, not-for-profit corporations do not have share capital.

Since the IMO will not have any share capital, it will have no "owners" per se. Instead, it will be comprised of members who will be the Directors of the IMO.

3.9 Remuneration

All Directors of the Board will be adequately compensated for their participation. Differential compensation, relative to that paid to other Board members, will be paid to the Chair. Such remuneration expenses will be part of the administration expenses of the IMO.

3.10 Meetings of the Board

Meetings of the Board will be held at the call of the Chair. It is expected that the Chair will call at least one meeting of the Board in each calendar month and will not allow more than six weeks to elapse between meetings of the Board.

3.11 *Fiduciary Duties of Directors*

It is recommended that all Directors of the IMO be required to act honestly and in good faith with a view to the best interests of the IMO. In addition to owing a duty to the public interest of the electricity market it is also recommended that there be a mechanism to allow each Director to represent the stakeholder group which appointed him/her. It is recommended that this be accomplished through legislative provisions modelled after subsection 117(4) of the *Business Corporations Act* (Alberta) which explicitly provides for the ability of Directors to pay special, but not exclusive, consideration to the interests of the group responsible for electing or appointing them.

3.12 *Removal of a Director*

It is recommended that Directors should be removable for “cause” by a vote of at least 10 members of the Board, including a majority of the independent Directors. This would explicitly include but not be limited to a breach of fiduciary duty. The method to be followed in the replacement of the Director is to be the same as was followed in the initial selection of that Director; the remaining term will apply.

Where a Director is to be removed, fairness requires that the Director be provided with an opportunity to respond.

4. Selection of Board Members

It is recommended that criteria be established for Board members that set minimal levels of expertise and experience. For the independent Directors, it is also recommended that the eligibility criteria ensure against conflicts of interest. These criteria are to be included in the IMO's Structure and Governing By-laws.

4.1 Eligibility Criteria for Market Participant Members of the Board

Market participant members of the Board must be:

- a representative of a licensed market participant;
- an end-use customer or an individual representing a class of end-use customers.

Companies with interests in a number of different areas of the industry will be able to select only one class to represent its interests.

4.2 Eligibility Criteria for Independent Members of the Board

To be eligible for consideration as an independent member of the Board, a person must meet *both* of the following criteria:

- professional qualifications and experience relevant to the activities of the market including: corporate finance, commodity trading, corporate law, economics, environmental policy, or the energy industry. These criteria are designed to ensure that the independent Directors collectively reflect a diversity of backgrounds and public interests.
- no direct commercial affiliation with any of the market participants.

4.3 Selection of Directors from Market Participants

It is recommended that the selection of members from the different market participant classes follow the process described below.

- Licensed market participants will select one class of participant to represent them on the Board.
- Licensed market participants within each class will nominate an individual(s) to represent their class on the Board.

Where more names are proposed than there are seats available, the Minister responsible for the electric power sector will appoint nominees from that list who meet the eligibility criteria listed above.

Where an end-use customer is not a licensed participant, an organization representing that class of market participant can propose the name of an individual to represent the interests of the class

to the Minister responsible for the electric power sector. The nominees need not be members of the organizations proposing their names. Again, where more names are proposed than there are seats available, the Minister will appoint the Directors from that list.

If a market participant Board member is no longer employed by an organization within the class that he/she was nominated to represent, he/she is no longer eligible to hold a seat on the Board. His/her replacement will sit only for the duration of the term remaining for the Board member he/she is replacing. The method for selecting the replacement will be the same as was followed in the initial selection of the member being replaced.

4.4 Selection of Independent Directors

As noted above, the independent members of the Board are to be selected for both their independence and expertise. Collectively, they are to reflect a diversity of backgrounds and public interests relevant to the governance of the marketplace.

It is recommended that the Minister responsible for the electric power sector select the independent Directors from a list of candidates nominated by the Board; the list is to include at least 2 nominees per vacancy. The Board will ensure that the names include only those candidates that fit within the range of knowledge and expertise identified above. It is recommended that the nominating committee of the Board oversee this process; it is further recommended that the committee comprise only the independent Directors.

The nominating committee will develop a list of names to be submitted to the full Board for consideration and approval by simple majority vote; it is anticipated that an external search firm could be hired to assist in the compilation of this list. The list of names approved by the Board will be submitted to the Minister responsible for the electric power sector. The Minister will choose the required number of Directors from that list.

4.5 Selection of the Chair

To ensure the independence of the Board, it is recommended that the Chair be selected from among the independent members of the Board. The selection is to be made by a simple majority vote of the Board with a quorum in attendance.

4.6 Selection of the CEO/President

It is recommended that the CEO/President be selected by the Board; the selection is to be made by a simple majority vote of the Board with a quorum in attendance.

4.7 Selection of Members to the Initial Board

The MDC recommends that the process for the initial selection of market participant members to the Board should follow the process detailed above for end-use customers who are not licensed

participants. That is, organizations representing each class of market participant can propose the name of an individual to represent the interests of that class to the Minister responsible for the electric power sector. Where more names are proposed than there are seats available, the Minister will select the Directors from that list who, in his/her discretion, possess the mix of experience and skills relevant to the decisions required of the Board. The nominee need not be a member of the organization proposing his/her name.

For the initial selection of the independent members of the Board, it is recommended that the MDC provide a list of at least ten nominees to the Minister responsible for the electric power sector. Again, an external search firm could be hired to assist in the compilation of this list that should only comprise people that meet the eligibility criteria. The Minister will be asked to select Directors from that list.

5. Decision Rules

The decision-making powers of the Board shall be exercised in accordance with the following principles.

5.1 Quorum

For the transaction of business at meetings of the Board, it is recommended that 10 Directors constitute a quorum.

5.2 Voting at the Board Level

It is recommended that super-majority voting rules be adopted for changing:

- the IMO's corporate structure and functions;
- market rules in accordance with section 6.1.2³;
- fees payable by market participants to cover the IMO's costs; and,
- the operating agreement between the IMO and transmission owners.

A super-majority vote of 10 must be received for a motion to be carried. For all other motions, a simple majority with a quorum in attendance is recommended. Voting is structured in this way to reflect the importance of the corporate decisions required of the Board. Together with a Board membership structure that allows no one class to block a change sought by another, the method will not allow one class of participant to veto decisions which would lead to deadlocks in the decision-making process.

The Chair of the Board and all Directors will be entitled to vote on all issues except where there is a conflict of interest.

5.3 Voting at the Committee Level

Simple majority voting rules with a quorum (to be determined by the Board) in attendance is recommended at the committee level.

5.4 Conflict of Interest

The need for independence evokes specific conditions. The most important of which is that the IMO be independent of particular commercial interests in the marketplace. To ensure the independence of decisions made by the IMO Board, Directors of the Board will be subject to conflict of interest provisions.

³ In the document, changes to market rules include the creation of new rules and the amendment of existing rules.

Under the normal conflict of interest rules, the Directors would be obliged generally to reveal any material interest in a material contract or transaction, or proposed material contract or transaction, and would not be able to participate in a vote on such contract or transaction. This standard is proposed to be employed by the IMO except that, for the purposes of the IMO,:

- a Director will not be considered to have a material interest in a material contract or transaction unless the Director is a party thereto, or has material personal interest therein, or unless the Director is employed by or an officer, Director, or substantial security holder of a company or other entity that is a party to the contract or transaction, and,
- any contract incorporating market rules to be entered into between the IMO and market participants generally will not constitute a material contract or transaction.

As a general rule, this type of regime should not preclude Directors from representing their stakeholders' interests on the general policy issues (including those related to market rules and any contracts incorporating market rules to be entered into between the IMO and market participants generally) to be faced by the IMO Board. It will preclude Directors from voting (although it will not preclude them from participating in discussions) in respect of specific material contracts or transactions between the IMO and the specific company or other entity for which they are also Directors, officers, employees, or substantial security holders. It is recommended that the *Electricity Act* contain a conflict rule modelled after the rule discussed above and that the *Act* provide the IMO Board with the flexibility to adopt more detailed conflict of interest provisions not inconsistent with the foregoing in its by-laws from time to time.

Directors will be required to demonstrate that there are no other commercial conflicts prior to their appointment.

5.5 Code of Conduct

As the marketplace develops, adopting fundamental values such as independence, fairness, transparency, and integrity will be key to the success of the IMO. The IMO will need to execute its business according to high standards of business and personal conduct in order to gain and retain the trust and respect of market participants and other stakeholders in the electricity industry.

It is therefore recommended that the by-laws of the IMO authorize the IMO Board to adopt a code of conduct applicable to its Directors, officers, employees, Panel members, and agents.

5.6 Liabilities of Directors, Panel Members, Officers, Employees, and Agents

It is recommended that Directors of the IMO and members of the various Panels be given a high level of immunity from liabilities associated with the performance of their duties.

It is recommended that the proposed *Electricity Act* explicitly provide that the Directors, Panel members, officers, employees and agents not be liable for any act or omission in good faith in:

- the performance or intended performance of duties;
- the exercise or failure to exercise any powers under the Act; or,
- neglect or default in performance or exercise in good faith of such duties or powers.

Such a limitation should also explicitly include liability arising under provisions of other provincial statutes which impose statutory Director liability including, without limitation, those provincial statutes which provide for statutory liability of Directors and officers for environmental liabilities, except as provided in the Regulations.

It is recommended that the IMO purchase Directors and officers liability insurance to protect against any residual liabilities which may arise (including statutory liability imposed by any federal statutes, such as liability for non-payment of certain taxes, etc.).

These recommendations are proposed to attract suitable people as IMO Directors.

5.7 Liabilities of the IMO

It is recommended that traditional liability concepts apply to the IMO as a corporate entity and that there be no statutory exception to those. This will help to ensure that the IMO performs its functions in accordance with commercial standards.

6. Panels of the Board

To assist the Board in the operation of the competitive marketplace and to ensure that its regulatory obligations are met, three Panels are recommended. They include:

Technical Panel:

- review and amend market rules on an on-going basis; provide advice to the Board on specific technical issues related to the operation of the market.

Dispute Resolution Panel:

- settle disputes on the application and interpretation of market rules.

Market Surveillance Panel:

- identify and report on inappropriate market conduct and market inefficiencies, to recommend remedial actions to mitigate such behaviour and inefficiencies, and to assess whether the underlying structure of the marketplace is consistent with the efficient and fair operation of the competitive market.

The Panels are discussed below. The table in Appendix C summarizes the roles and responsibilities of the Board, the different committees of the Board, and the Panels.

It is recommended that the Structure and Governance By-laws of the IMO provide for the creation and organization of the different Panels.

Protocols remain to be developed for the dispute resolution and market surveillance processes.

Panel members will be subject to similar conflict of interest provisions as those applicable to the Board and to codes of conduct.

6.1 *Technical Panel*

It is recommended that the Technical Panel:

- review market rules for deficiencies;
- develop and implement changes to market rules, as required;
- provide advice to the Board and the OEB on specific technical issues related to market and system operations.

6.1.1 Panel Membership

The Panel should have a maximum of 11 members encompassing 9 market participants and 2 members from the IMO.

It is recommended that the 9 market participants come from the same participant classes identified for the Board and that they be in the same proportion as on the Board: 3 end users, 2 generation providers, 2 distribution providers, 1 transmission provider, and 1 ABM.

Of the two members from the IMO, one will be the CEO/President of the IMO; he/she will also chair the Panel. It is recommended that the CEO/President appoint the second member from the IMO staff.

For the selection of the 9 market participant members to sit on the Panel, a similar process is recommended as was recommended for the selection of market participant members to the Board. In this case, where more nominees are proposed than there are seats available, *the Board* (rather than the Minister responsible for the electric power sector) will select the required number of Panel members from among the list of nominees proposed. Simple majority voting rules will govern the selection of Panel members.

In the selection process, it is recommended that the Board review all potential candidates against the following criteria:

- that the candidate is employed by, or retained by a market participant, or working in the interests of a class of market participant; and,
- that the candidate has technical and commercial knowledge and expertise in the operation of the power system and the electricity market.

If a Panel member no longer meets the first criterion listed above, he/she is no longer eligible to hold a seat on the Panel. The replacement will sit only for the duration of the term remaining for the Panel member he/she is replacing. It is recommended that the same method be followed in the selection of a replacement as was followed in the initial selection of the Panel member.

It is recommended that Panel members serve three-year terms. As with the incorporating Board, it is recommended that initial terms be staggered and that there be an initial drawing of lots to determine the length of term to be served by each Panel member; terms will range from 1 to 3 years.

Panel members will be limited to serving two consecutive terms, although re-appointments are possible following a break from the Panel.

6.1.2 Decision Making

It is recommended that much of the Board's authority with respect to the technical aspects of the marketplace be delegated to the Technical Panel. The Panel will therefore have independent decision-making authority for rule changes but will be required to inform the Board of any change that is made. It is expected the Panel members will bring controversial issues to the Board for discussion and guidance and that the Board will continue to retain the authority to review and modify rule changes to reflect the interests of

the marketplace as a whole. As designed, the process is expected to increase the efficiency and speed at which change is introduced in the marketplace.

It is recommended that the Panel follow super-majority voting rules. With the delegation of decision-making power to the Panel, the intent is to ensure that decisions will only be made where there is substantial consensus on issues. Thus, a motion must receive 8 votes to pass. If a motion receives 6 or 7 votes it can either go back to the Panel for further discussion or it can be referred to the Board for review and decision.

All proposed changes to market rules that are adopted by the Technical Panel will be published and filed with the OEB.

The IMO Board shall have the right to stay the implementation of any proposed rule change and to send it back to the Technical Panel for re-consideration.

The OEB will have authority to review changes to market rules upon appeal, as set forth below.

It is recommended that authority to make and amend market rules be given to the IMO in legislation.

6.1.3 Implementation of a Rule Change

Once a proposed rule change has been filed with the OEB there should be a minimum stay of implementation: the period should be the greater of 21 days and the number of days set by the Technical Panel (to allow for the development of requisite software, etc.).

The IMO can implement changes to market rules on an emergency basis, as discussed below.

6.1.4 Appeal Process

It is recommended that any person with an interest adversely affected by a new market rule be able to file an appeal to the OEB within a 21-day period following the filing of the rule change with the OEB. If the rule is not appealed, it will automatically go into effect after 21 days⁴.

If a proposed rule change is appealed, the OEB would either allow it to go into effect while it considers the appeal, or stay the implementation of the rule pending its review. The OEB will be required to complete its review of an appealed rule within 60 days of the appeal being filed.

6.1.5 Grounds for an Appeal

⁴ This assumes that the technical infrastructure is able to support the rule change within the 21-day period.

When a proposed change to market rules is appealed, the rule change may be rejected by the OEB only on any one of the following three grounds:

- The rule is inconsistent with the purposes and objectives of the legislation or violates a specific provision thereof.
- The rule unduly discriminates against or in favour of a market participant or class of market participants.
- The rule is otherwise unreasonable.

If the OEB rejects a rule change, it is to provide a written opinion setting forth the reasons for its rejection and will remand the rule change back to the IMO for reconsideration in accordance with its written opinion; the opinion may contain a direction to the IMO regarding modifications and implementation.

6.1.6 Exceptions

It is recommended that the above procedures be modified for two categories of market rule amendments:

- new market rules that the IMO operating staff consider to be emergency rule changes that must be placed into effect immediately;
- changes in operating procedures adopted in accordance with criteria and standards of the North American Electric Reliability Council (or its successor) or any local standards-setting agency that may be established.

The IMO staff may implement a change in either of these two categories immediately upon providing notice of the change, in writing, to the members of the Technical Panel and to the public. The Panel will have seven days to consider whether to direct a stay in the implementation of a rule. If the Panel decides to affirm the rule change, it will remain in effect. If stayed, it will cease to be in effect.

The change may be appealed to the OEB, as described above.

6.1.7 Approval of Initial Rules

It is recommended that Government approve the initial market rules proposed by the MDC and that they not be subject to the appeal process described above.

6.2 Dispute Resolution Panel

The Dispute Resolution Panel will be responsible for settling disputes on the application or interpretation of market rules.

For resolving such disputes, an internal dispute resolution process is recommended in place of traditional litigation and regulation; it is not recommended for the resolution of disputes over rule changes. It is expected that a non-adversarial approach to dispute resolution will make it easier

for parties to the dispute to do business with each other in the future. The process will be included in the market rules.

Common to the structures followed in many jurisdictions, the dispute resolution process will be mandatory for certain categories of disputes. As discovered in other jurisdictions, such a system can be expected to work well if market rules are well-defined and the underlying responsibilities of each participant with respect to market rules are clearly set forth, for example, in contracts or license conditions.

6.2.1 Categories of Disputes

The MDC contemplates three categories of disputes involving the interpretation and application of the IMO's market rules:

- (a) cases where the staff of the IMO finds that one or more market participants have violated a market rule;
- (b) cases where one or more market participants believe that the IMO staff has violated or misapplied a rule;
- (c) disputes between or among market participants over each other's compliance with market rules.

6.2.2 Dispute Resolution Process

It is recommended that a dispute resolution process employing a number of techniques be followed, including:

- Mandatory fact finding / mediation where the disputing parties get together to try to resolve their differences. As a minimum, the parties will be required to articulate issues and agree to facts.
- Binding arbitration, as required. The purpose is to reach a settlement among the disputing parties and, if not possible, to issue specific and enforceable determinations. Other than in the circumstances listed below, the decision of the arbitrator will be final and only procedural irregularities will be appealable to a court of law.

The Dispute Resolution Panel is to include at least three people, any one of whom could be called upon to mediate or arbitrate a dispute at any time. (The same member will not mediate and arbitrate the same case.) Panel members will be independent of the IMO and will have no commercial affiliation with any of the market participants. They will be required to have experience in the arbitration of disputes as well as detailed knowledge of the technical aspects of the electricity market.

It is expected that the IMO will contract with Panel members and that simple majority voting rules will be followed by the Board in the selection of the members.

IMO staff will be available to assist in the fact-finding stage of the Dispute Resolution Process for all three categories of dispute listed above.

6.2.3 Resolution of Disputes

The following describes the specific process to be followed in the resolution of the different disputes listed above.

With respect to category (a), the IMO staff will first attempt to obtain the market participant's voluntary compliance with the market rule and the payment of penalties or refunds where appropriate, through informal discussions with the offending participant. If the participant and IMO staff are unable to resolve the matter informally, IMO staff will bring the matter before the Dispute Resolution Panel for resolution.

It is recommended that the decisions of the Dispute Resolution Panel on issues of substance be final; they can only be appealed where either of the following is the case:

- the violation requires the offending participant to pay a penalty or refund which exceeds a threshold amount; or
- the participant's accreditation with the IMO is to be suspended or revoked.

In either of these cases, the market participant may appeal the decision of the Dispute Resolution Panel to the OEB. The OEB may reverse or modify the decision of the Panel if it finds that the Panel's decision was unreasonable.

If a participant's accreditation is suspended or revoked and that decision is appealed, the suspension/revocation is to take effect unless the OEB overrules the Panel's decision or orders a stay in the implementation of the decision pending the outcome of the appeal.

With respect to category (b), the participant and the IMO staff should first attempt to resolve the dispute informally. If the two parties are unable to resolve the dispute informally, or if it involves a claim that the IMO owes the participant money, the participant must pursue the matter before the Dispute Resolution Panel. Again, the decision of the Panel can be appealed to the OEB, as noted in category (a).

In cases involving either category (a) or (b), other directly affected market participants may be provided with intervenor status in the discretion of the Panel member hearing the dispute.

With respect to the third category (c), where disputes involve two market participants, judicial civil redress is available. Alternatively, providing both participants consent, the dispute could be brought before the Dispute Resolution Panel. In that event, it is recommended that the decision of the arbitrator be binding.

6.2.4 Penalties

It is expected that standard penalties associated with market rule violations will be included in the market rules. Where such penalties are not identified, it is recommended that the Dispute Resolution Panel members have authority to set penalties. In setting these penalties, it is recommended that they be set to serve two purposes:

- to reflect the actual monetary cost of the non-compliance; and,
- to provide incentives for desired behaviour.

The monetary penalties would be in addition to any restrictions imposed by the Panel on the behaviour of market participants to ensure compliance with market rules.

6.3 Market Surveillance Panel

To ensure that the market is functioning competitively, it will be necessary to periodically review the operation and structure of the market.

It is recommended the Panel be selected and that it operate in accordance with the following rules.

6.3.1 Appointment of the Panel

The MDC recommends that Panel members be chosen by simple majority vote of the independent members of the IMO Board. The Panel is to consist of individuals that have no commercial affiliation with any of the market participants, but who have a reputation for expertise in the operation of competitive electricity markets. The Market Surveillance Panel should have the resources to hire expert advice, as required, and will be able to rely on the assistance of IMO staff.

It is expected that the independent members of the Board on behalf of the IMO will contract with Panel members.

6.3.2 Responsibilities

The Market Surveillance Panel will be responsible for periodic reviews and reports:

- identifying inappropriate market conduct and market inefficiencies;
- recommending remedial actions to mitigate such behaviour and inefficiencies;
- assessing whether the underlying structure of the marketplace is consistent with the efficient and fair operation of the competitive market.

The Panel will also be responsible for investigating complaints by the IMO staff or market participants about allegedly inappropriate market conduct.

To the extent that the Market Surveillance Panel recommends changes in the market rules, it is expected that the IMO Board will refer such recommendations to the Technical Panel, to be considered pursuant to the regular procedures for adopting and implementing changes to market rules. If the Market Surveillance Panel raises concerns pertaining to a market participant's conduct, it is recommended that they will be referred to the IMO. Such concerns may also be referred to the OEB or to the Minister responsible for the electric power sector together with recommended responses to structural problems in the market. It is recommended that the federal Competition Bureau be advised of concerns relating to potential violations of the *Competition Act* (such as collusive or predatory behaviour).

6.3.3 Investigations and Reports

The Panel will make its findings through written reports to the independent members of the IMO, the OEB, the Minister responsible for the electric power sector and, where appropriate, the federal Competition Bureau. All reports will also be made publicly available; however, the Panel will edit confidential information from the public versions of its reports before releasing them. It is recommended that such reports be prepared at least once each year and that they be prepared more often if directed by the IMO Board or the OEB.

In order to conduct its investigations, it is recommended that the Market Surveillance Panel have access to all of the information available to the IMO in the course of performing its functions and that it enter into arrangements with the IMO to protect the confidentiality of commercially sensitive information. In the event that the Panel believes it needs information that is not available to the IMO, the Panel may request the OEB to direct market participants to provide such information to it, subject to appropriate measures to protect against the public disclosure of confidential information.

If the Panel intends to include findings to the effect that one or more market participants have engaged in improper conduct, it will discuss its findings with the affected participants before including them in its report; it will also give the affected participants an opportunity to respond in writing to the allegations. All such written responses will be included in the Panel's published reports (subject to the appropriate editing of confidential information).

6.3.4 Staff Involvement

It is recommended that a Market Assessment Unit be established at the IMO staff level to provide information to the Market Surveillance Panel and to assist the Panel, as required.

7. Reporting Requirements

To enhance public accountability and confidence, the operation of the IMO and the new market should be transparent. Extensive information will be made available in day-to-day operations and will be detailed in the market rules. In addition, other information will be provided less frequently.

It is recommended that the Act require an annual report of the IMO be given to the Minister responsible for the electric power sector, to be tabled in the legislature. It is intended that such report would include, among other things:

- business strategy, budget, and proposed capital expenditures for the IMO over a 3 to 5 year planning horizon
- benchmarking and best practice activities undertaken by the IMO in the previous year and those planned over the next 3 to 5 year period;
- an assessment of IMO's performance as measured against a set of performance measures that have been approved by the Board;
- a summary of principal developments in the preceding year.

A published statement of priorities could also be considered.

The following information related to market surveillance, dispute resolution, and rule changes is intended to be reported by the IMO at least annually:

- an assessment of the extent to which the operation of the market has met market objectives;
- a summary of, and reasons for, any changes to the market rules;
- a summary of appeals to changes in market rules;
- a summary of material breaches of the market rules and the actions taken in response, including particulars of any sanctions imposed;
- a summary of any disputes and their resolution;
- a summary of breaches in the code of conduct by IMO employees.

It is intended that the following long-term projections would be reported annually:

- projections of aggregate demand and energy requirements;
- generating capabilities of existing generating units and generating units for which formal commitments have been made for construction or installation;
- planned plant retirements;
- statements of network capabilities and constraints;
- operational and economic information about the market to assist planning by both market participants and potential market participants.

8. Participation in the Market

Among other activities identified in the White Paper, the OEB is to be responsible for regulating transmission and distribution tariffs. The Paper also gives authority to the OEB to ensure the licensing of all agents, brokers and marketers (collectively referred to as ABMs in this document) and generators participating in the market.

The MDC recommends that the OEB be responsible for issuing licenses to all wholesale market participants and to all sellers who sell electricity directly to end-use consumers in accordance with the following procedures and requirements.

8.1 Wholesale Licensing and Accreditation

The MDC recommends that the licensing process for participants in the wholesale market be accomplished in two stages. First, the IMO will develop accreditation requirements for different categories of applicants for a wholesale license. These accreditation requirements are intended to ensure that all wholesale licensees meet technical and prudential criteria necessary to protect the integrity of, and create public confidence in, the operation of the wholesale market; they will form part of the market rules.

If the IMO staff determines that an applicant for a wholesale license meets the accreditation requirements, it will certify to the OEB that the applicant is eligible for a wholesale license. If the IMO staff determines that an applicant does not meet the accreditation requirements, the applicant may appeal the decision to the OEB.

When the accreditation requirements are met, the OEB will then be responsible for issuing a wholesale license. This license will bind the applicant to abide by the IMO's market rules and any other requirements that may be established, by statute or OEB order, for that category of licensee. The legislation should make the license requirements enforceable in court, and/or by the OEB or IMO in accordance with IMO rules.

Wholesale licenses would be established for the following different categories of wholesale market participants:

- generators connected with the Ontario system;
- transmission service providers;
- distribution service providers;
- wholesale ABMs (including generators selling into the Ontario market from neighboring systems);
- wholesale buyers; and,
- the Independent Market Operator.

The accreditation and licensing requirements associated with these categories would be different, reflecting the different roles these entities play in the wholesale market.

The legislation should specify other categories of requirements that the OEB may add to a wholesale license, such as provisions to protect against abuse of market power, and the criteria that the OEB should apply in determining whether additional requirements can be included in a license. To the extent that a wholesale license is issued to a market participant that provides regulated monopoly services (*i.e.* transmission and distribution services), the license can set forth

the obligation of the licensee to provide such services in accordance with the rules of the OEB (or such requirements can be established by orders of the OEB, issued separately from the license). The OEB's licensing requirements should be published for comment and formally adopted. The MDC intends to develop a list of recommended, potential OEB wholesale license conditions (other than those appropriate for the accreditation process) during the next phase of its deliberations.

8.2 Retail Licensing

The OEB should have responsibility for issuing licenses to all sellers who sell power directly to end-use consumers in Ontario, other than those selling solely to affiliated entities or to entities licensed by the OEB to participate in the wholesale market. This retail license would be separate from, and in addition to, any wholesale license that such retailer may need to participate in the wholesale market. The primary function of the retail license would be consumer protection, and would include, among other things, the provision of relevant information to consumers.

The MDC recommends that the categories of requirements for retail licenses be established by legislation and that the OEB have authority to implement the legislative requirements by order or delegation. The OEB should be directed to consult with the IMO regarding any technical retail license requirements that may be necessary to preserve system reliability, and to accomplish metering and billing functions. The MDC intends to develop a list of recommended retail license conditions in the next phase of its deliberations. The retail licensing rules for the natural gas and electric industries should be developed based on a consistent approach, where possible.

8.3 Contracts between the IMO and Market Participants

If necessary to ensure compliance with market rules, it is recommended that the IMO enter into a short, standard-form contract with each participant in the wholesale market. The purpose of the contract will be to give contractual force to whatever market rules are in place at any given time. Contracts will allow the use of standard legal remedies to deal with issues of non-compliance in addition to remedies established by legislation or market rules.

The IMO will only enter into contracts with those participants who meet the accreditation criteria detailed in the market rules and, where required, have a valid license from the OEB.

8.4 Transmission Operating Agreement and Tariffs

Transmission services will be offered under a tariff that identifies the different services to be offered, the terms and conditions under which those service will be provided, and the rate levels to be charged.

In a competitive environment, this tariff should accomplish two objectives:

- the IMO's objective of assuring the provision of all services required of a competitive electricity market under a rate structure that is consistent with the market rules; and,
- the transmission owners' objective of being fairly compensated for the assets and services provided.

To achieve these two objectives, it is recommended that the IMO enter into a contractual arrangement, termed an operating agreement, with transmission owners to define the different types of transmission service that must be provided to support the market and to obligate transmission owners to make their facilities available for such services. In return, the IMO will administer the tariff, under which transmission customers will be charged rates designed to compensate transmission owners for the services they provide. It is recommended that the tariff rates include incentives for transmission owners to preserve asset value, improve the capability of equipment, and achieve operational efficiencies.

Subject to oversight by the MDC, Central Market Operations and the transmission owners will develop the initial terms and conditions of the operating agreement and the tariff rate structure (other than rate levels), including the terms and conditions under which transmission services will be offered. These documents will be reviewed and approved by the MDC and submitted with the initial market rules for approval by the Government.

If, at some later date, either the IMO or transmission owners wish to change any of the operating agreement or tariff provisions that were approved with the initial market rules, they will attempt to reach agreement on such changes. If they are unable to do so, or if they do agree but another market participant objects to the change, the matter may be appealed to the OEB in accordance with the same rules that apply to changes in the market rules. As with changes to market rules, changes to the operating agreement or tariff structure must be filed with the OEB at least 21 days prior to the effective date of the new agreement; the changes will be subject to being stayed by the OEB pending appeal.

Notwithstanding the above, the MDC believes that the transmission owners should have primary responsibility for developing and proposing the revenue requirements and the rate levels necessary to recover their cost of service pursuant to the rate structure established with the initial market rules, or pursuant to subsequent changes to such rate structure adopted under the above procedures.

Initial rate levels will be subject to review and approval by the OEB, which will take into account any transition measures approved by the Government. All later changes to rate levels will be subject to review and approval by the OEB.

8.5 Transmission Planning

It is recommended that, in conjunction with transmission owners and market participants, the IMO co-ordinate a process for transmission planning within Ontario. Transmission owners, the IMO, and market participants may propose transmission enhancements or expansions. In all cases, proposals will be subject to review and approval by the OEB.

9. Cost Recovery and Funding of the IMO

During the transition to independence, it is expected that Ontario Hydro will provide sufficient funding to support the establishment of the IMO and the development of the marketplace. This *incremental* funding is to be considered a loan, to be repaid once competition is implemented.

During the transition to competition, it is also expected that the Government will transfer the debt associated with the IMO's assets to the IMO.

While the ultimate capital structure of the IMO has yet to be decided, it is likely that it will be 100 percent debt financed; this debt may be guaranteed by the Government of Ontario. Once competition is implemented, the cost to service this debt and the cost to service the debt associated with the incremental cost to establish the IMO/market will be included in the IMO's rate base together with on-going costs for recovery from market participants through its tariff.

It is recommended that the IMO have legislative authority to borrow to meet capital and operating requirements.

As with the transmission tariff, the IMO's rate structure and terms and conditions of service must be consistent with the MDC's design of the future market. It is therefore recommended that the MDC develop the initial tariff for the IMO.

As a not-for-profit organization, the IMO's revenue requirement and rate levels will be established to recover its costs on an annual basis. Once the IMO is established, it is recommended that its revenue requirement and rate levels be established by the IMO Board and that they be filed with the OEB. This information will be subject to review and modification by the OEB in the event of an appeal by a market participant in accordance with the rules for appeals to changes in market rules (section 6.1.4).

10. OEB/IMO Relationship

The new competitive electricity supply industry being developed for Ontario will consist of three main sectors:

- a retail market which is to be subjected to regulation by a strengthened OEB in order to provide better protection to Ontario's electricity consumers and to promote the development of competitive retail services;
- the monopoly transmission and distribution wires businesses that are to be regulated by the OEB using performance-based regulation;
- a competitive wholesale market that is to be managed by the IMO, the Board of which will be comprised of a balanced mix of independent members and representatives of market participants. As detailed in the White Paper, the IMO is to be subject to oversight by the OEB.

The following table is a summary of the ongoing roles of the IMO and OEB in the regulation of the wholesale market for electricity.

Responsibilities	Role of the IMO	Role of the OEB
Fees to recover the IMO's costs	<ul style="list-style-type: none"> • develop fees for the recovery of costs on an annual basis 	<ul style="list-style-type: none"> • hear appeals • remand written decisions to the IMO • issue directions to the IMO
Dispute Resolution	<ul style="list-style-type: none"> • monitor compliance with market rules and any relevant legislation • ensure there is an efficient mechanism for resolving disputes on the interpretation and application of the rules between market participants and the IMO 	<ul style="list-style-type: none"> • hear appeals on major disputes • remand written decisions to the IMO and parties to the dispute • issue directions to the IMO and parties to the dispute
Amendment of Market Rules	<ul style="list-style-type: none"> • continually review market rules for deficiencies • develop and implement changes to market rules • file amendments with the OEB 	<ul style="list-style-type: none"> • hear appeals • remand written decisions to the IMO • issue directions to the IMO
Market Surveillance	<p>An independent Market Surveillance Panel will:</p> <ul style="list-style-type: none"> • monitor and report on inappropriate market conduct and market inefficiencies • recommend remedial actions to mitigate such behaviour • assess whether the underlying structure of the marketplace is consistent with the efficient and fair operation of the competitive market. 	<ul style="list-style-type: none"> • review reports and take appropriate action • issue directions to the IMO
Admissions to the Wholesale Market	<ul style="list-style-type: none"> • establish prudential and technical criteria to participate in the market • assess applications against those criteria • issue accreditations 	<ul style="list-style-type: none"> • hear appeals on accreditations • remand written decisions to the IMO • issue directions to the IMO • issue licenses

Responsibilities	Role of the IMO	Role of the OEB
Transmission Operating Agreement	<ul style="list-style-type: none"> • negotiate with transmission owners • file negotiated agreement with the OEB 	<ul style="list-style-type: none"> • appeal, if parties are unable to do so • hear appeals • remand written decisions to the IMO and transmission owners • issue directions to the IMO and transmission owners
Transmission wires businesses: rate structures	<ul style="list-style-type: none"> • negotiate terms and conditions of service and rate structures that are consistent with the design of the market 	<ul style="list-style-type: none"> • settle, if parties are unable to do so • hear appeals • remand written decisions to the IMO and transmission owners • issue directions to the IMO and transmission owners
Transmission wires businesses: revenue requirements and rate levels		<ul style="list-style-type: none"> • review and approve rate levels
Distribution wires business		<ul style="list-style-type: none"> • regulate distribution tariffs
Transmission Planning	<ul style="list-style-type: none"> • co-ordinate a process for transmission planning in Ontario in conjunction with transmission owners and market participants 	<ul style="list-style-type: none"> • review and approve transmission planning proposals
Retail Licensing		<ul style="list-style-type: none"> • issue licenses

Appendix A

Functions Of The Independent Market Operator

The day-to-day functions of the IMO include, but are not limited to, the following:

Operate a Spot Market (Electricity Exchange)

- receive and evaluate contract schedule nominations and spot market bids and offers
- communicate the approved schedules and a forecast of expected spot prices to market participants on an agreed to basis

Settle Spot and Ancillary Market Transactions

- collect, validate, correct and store metered information, submitted bids and offers etc.
- reconcile performance (actual vs approved schedule) by market participants;
- produce billing statement based on reconciled performance (for spot and ancillary transactions);
- bill and manage fund transfers for spot market and ancillary transactions (net of self-provision and provision by third parties);

Provide Transmission Use

- establish contract obligations with transmission asset owners for the specific capabilities of transmission assets; (e.g., the characteristics of individual lines and transformers, defined maintenance scheduling processes, unplanned outage rates etc.)
- direct the operation of transmission assets subject to transmission owner override for personal and property safety reasons
- determine transmission rights and administer a system for their allocation and trade

Manage Reliable Operation (Security and Supply/Demand Balancing)

- according to the rules of the marketplace, determine the system operating capabilities and constraints (e.g. operating security limits);
- assess and integrate self-procured ancillary products with the system need and procure (using market forces as far as possible), and deploy ancillary products such as operating reserve, spinning reserve, reactive power, automatic generation control, and black start, according to market rules, and system security and reliability considerations;
- integrate resource schedules based on market rules (parameters include: nominated resource schedules, residual spot market, forecast demand, and expected transmission constraints);
- set, confirm and verify schedules with other Control Areas;
- communicate the schedule and a forecast of expected prices to market participants on an agreed upon basis;
- dispatch resources offered as flexible generation or load (incl. transmission) in real time to match supply and demand within security constraints (while complying with all standards of NERC and NPCC);
- as required, declare system emergency conditions and direct all system resources in the response to emergency conditions;

Provide Information

- collect information on production and consumption at the bulk supply level;
- inform market participants as to market and system operations, rules etc.
- forecast conditions on the integrated system;
- operate systems to share information among interconnected control areas
- provide information on transmission availability (e.g operating security limit based transmission capability);
- manage operational and market data (incl. OASIS); publish actual spot prices, spot volumes and system data related to market transactions; issue/publish forecasts (incl OASIS)

Assess Supply and Delivery Adequacy¹

- co-ordinate outage plans on transmission lines with generating units within an agreed process.
- conduct system studies and provide forecasts of constraints, demand and supply;
- assess the adequacy of generation and transmission system expansion plans (having regard to the role of market participants and market signals);

Establish, Monitor and Enforce Standards

- monitor and enforce technical criteria for generators that connect to the transmission network (incl. metering requirements);
- assess market participant applications for compliance with technical and prudential requirements;
- assess market participants' conformance to market rules;
- speak for the Ontario control area regarding the reliability of the integrated system.

¹ The responsibilities of the IMO may require redefinition pending clarification of the ultimate responsibilities between the IMO and OEB on the planning process for the interconnected transmission network.

Appendix B

Legal Structure Of The Independent Market Operator

I. A part of the proposed *Electricity Act* will include the following:

- Establishment of the IMO: a corporation without share capital under the name: The Independent Market Operator in English (and a French form)¹
- Purpose of the IMO: to manage the operation of the electricity system to maintain the security and quality of electricity supply; and, to operate a wholesale electricity market for the benefit of market participants. To achieve this purpose, the IMO will, among other duties, run an electricity exchange, dispatch power based on least cost bids, and arrange financial settlements between buyers and sellers.
- Responsibility of the IMO: The IMO is responsible for administration of Act and to perform any duties assigned to it under the Act
- Composition of the IMO: The IMO is "composed of" (i.e. its members are) its Directors²
- Powers of the IMO: The IMO has the capacity and rights, powers and privileges of a natural person for the purpose of carrying out its objects (with or without passage of a specific by-law), including without limitation the ability to borrow and give security and to employ staff. The IMO is to be able to continue to act despite Board or Panel vacancies (subject to quorum requirements)
- Application of various provisions of Corporations Act: subject to appropriate modifications, the following sections of the *Corporations Act* will apply to the IMO:
 - sections 59(1) and 59(2) - borrowing
 - section 60 and 61 - security
 - section 96 - role of auditor
 - section 122 - no liabilities of members for IMO obligations
 - section 273 - pre-incorporation trusts
 - section 275 - real-estate related powers
 - sections 286(4) and 286(5) - age and non-bankruptcy of Directors
 - section 292 - acts of Directors valid despite defect in appointment
 - section 298(4) - evidentiary value of Directors' signatures
 - section 299 - minute books
 - section 300 and 301 - documentary records
 - section 302 - accounting records
 - section 312 - continuance under *Corporations Act* (Ontario)
- Non-application of other statutes: Except as expressly provided the following statutes will not apply to the IMO: *Corporations Act*, *Corporations Information Act*, *Regulations Act*, *Public Service Act*, *Public Service Pension Act*, and the provisions of all provincial statutes which provide for

¹ It would not appear necessary to permit corporate restructurings such as the introduction of share capital, amalgamations and the like. Rather, events of this nature would be implemented statutorily.

² Similar to the Ontario Securities Commission and the *University Foundations Act*, 1992.

statutory liability of Directors and officers, except to the extent provided in the Regulations (the Cabinet will have Regulation-making power for this purpose)

- Role of the Board of Directors:
 - to supervise, direct and oversee the management of the financial and other affairs of the IMO
 - to appoint officers
 - to make or amend rules (see rule-making power below)
- Duties of Directors:
 - general duty to promote the purpose and to act in the best interests of the IMO and the public interest of the electricity market
 - Directors representing a class of market participants may give special, but not exclusive, consideration to the interests of those whom they represent
- Board of Directors composition: Board of Directors to be composed of 10 to 20 individuals, with the exact number within such minimum and maximum to be specified in the "Structure and Governance By-laws" of the IMO
- Panels:
 - the IMO is authorized to establish one or more Panels to be comprised of both Directors and non-Directors in its Structure and Governance By-laws, which will also include delegation by the Board of Directors of full or shared authority in certain areas to such Panels
 - provide that governance structure of the Panels will be set out in the Structure and Governance By-laws
- By-law making power: Board of Directors will have power to make or amend by-laws in respect of, among other things, the following matters:
 - (i) Structure and Governance By-laws (see below)
 - amendments to this by-law by the Board will be subject to Ministerial non-disapproval within 60 days
 - (ii) General By-law

The general by-law will address, among other things, the following matters, and amendments may be made by the Board of Directors of the IMO subject only to publication requirements:

 - codes of conduct for Board and Panel members, Board committee members, officers, employees, etc., including adopting conflict of interest requirements in addition to, but not inconsistent with, those set out in the Act
 - administration, management and conduct of the affairs of the IMO
 - corporate seal
 - execution of instruments, including powers of attorney
 - notices

- appointment, remuneration, functions, duties and removal of the officers and employees of the IMO
 - delegating its administrative and management powers to Board committees, officers or employees (subject to limitations, but expressly including the power to accredit market participants)
 - calling (including electronically) and holding of meetings of the Board of Directors, Panels and Board committees, and procedures at such meetings, and providing for validity of written resolutions, including notice requirements, meeting procedures, etc.
 - setting fiscal year
 - remuneration and benefits of Directors, Panel members, officers, etc.
 - creation, role and process of Board committees (e.g. nominations committee, finance/audit committee and compliance committee)
- Rule-making power:
 - The Minister responsible for the electric power sector to have the right to approve initial market rules
 - The Board of Directors (which will be authorized to delegate certain of these powers to the Technical Panel in the Structure and Governance By-laws) to have power to make and amend rules applicable to market participants
 - market participants will be required to comply with the rules
 - the rules can include, without limitation:
 - participant accreditation protocol governing the application process, information requirements, technical and prudential criteria, evaluation and appeal processes to become an approved market participant;
 - operating protocols describing how the market and the IMO will work and governing preparation, submission, receipt, and validation of demand and supply bids or nominations (schedules) for energy and ancillary services; scheduling energy resources and the resources required for all ancillary services; dispatching the electricity system in real time under both normal and emergency conditions;
 - metering protocols governing metering equipment standards, processes for data transfer, and procedures for unavailable or disrupted data;
 - communications protocols governing the normal channels of communication between the IMO and market participants, communications procedures and the means to be used when normal channels are not available;
 - outage coordination protocol governing the processes and procedures for coordinating equipment outages as far as possible in advance so as to maintain the secure operation of the system over time;
 - settlements protocol governing the reconciliation of physical quantities traded and resulting financial transactions together with procedures for billing, invoicing, and payment;
 - emergency recovery protocol governing contingency plans for market and system operations in the event of an emergency;
 - dispute resolution protocol governing the process used to gather and assess facts, mediate or arbitrate settlements, assign penalties, or otherwise resolve disputes between parties regarding the application or interpretation of market rules;

- market surveillance protocol governing the process of data collection, investigation and analysis of participants' behavior in the market, and the reporting of the findings;
 - rule amendment protocol governing the processes for introducing, amending, implementing, or appealing market rules;
 - information protocol governing the provision of information by market participants to the IMO and its Panels, and the provision and management of information by the IMO;
 - reliability standards protocols governing the planning, design, operating, and reporting requirements that market participants and the IMO must comply with to ensure the reliability of the power systems;
 - transmission protocols and related agreements governing transmission access, transmission usage rights, transmission capacity availability determination, and transmission operations;
 - ancillary services protocols and related agreements governing access to and payment for ancillary services;
 - congestion and transmission losses protocol governing the determination, settling, and billing for the costs of transmission congestion and losses;
 - bi-lateral transaction protocol governing the processes for submitting, receiving, validating, scheduling, dispatching, and settling bi-lateral transactions;
 - interchange arrangement protocols governing the interchange and other trading arrangements with other interconnected electric systems.
- all rules to be filed with OEB and published
- Enforcement powers: The IMO to have ability to enforce rules and contracts to which the IMO is party in any manner set out in rules or contracts, through imposition of monetary penalties or compliance orders, or through requesting OEB to revoke, suspend or impose terms and conditions on a licence
 - Director, employee, etc. liability: Directors, members, Board committee members, Panel members, officers, employees and agents are not liable for any act or omission in good faith in performance or intended performance of duties, exercise or intended exercise of any powers under the Act, or neglect or default in performance or exercise in good faith of such duties or powers. This limitation extends to liability arising under provisions of any other provincial statute which imposes statutory Director and officer liability including, without limitation, those provincial statutes which provide for statutory liability of Directors and officers for environmental liabilities, except as otherwise provided in the Regulations and for general solvency rules
 - Crown agency status: The IMO is not a Crown agent
 - Conflict of interest provisions: Provisions modelled on section 132 of the *Business Corporations Act* (Ontario), with appropriate modifications to permit voting on market rules or general contracts and to apply to Panel members
 - Indemnification and insurance provisions: Provisions modelled on section 136 of the *Business Corporations Act* (Ontario), with appropriate modifications, including extensions to Panel members
 - Transfer of employees and assets from CMO to IMO: Not yet discussed.

- Appointment of auditor: The IMO Board of Directors is to appoint an auditor annually
- Information to Minister/OEB: The IMO is to provide the Minister and the OEB with information and reports with respect to its affairs upon request, and in addition shall prepare annual audited financial statements, an annual report and a business plan for the upcoming year, to be tabled in the Legislature
- Minister's ability to loan to the IMO: The Minister, on behalf of the Government of Ontario, to have the ability (subject to Cabinet approval) to loan funds to or purchase securities of the IMO using money from the Consolidated Revenue Fund or otherwise
- Direction power: the Minister responsible for the electric power sector to be authorized to refer issues to the IMO for consideration and report
- Appeal rights: Specify applicable appeal rights on various matters (e.g. tariffs, rule changes, disputes, etc.) to the OEB, plus privative clause (subject to enabling market participants claiming compensation from each other for IMO rule violations, or otherwise as required by law, to have court access), and specify stay powers

II. The provisions in the Structure and Governance By-laws (changes to which would require Board approval and Ministerial non-disapproval within 60 days) would include the following:

1. Functions of the IMO: The functions of the IMO will be to manage the electricity market in Ontario including, but not limited to:
 - Ensure that the IMO fulfills its obligations to market participants, interconnected partners, regulatory agencies, and others.
 - Supervise, direct, and oversee the management of the IMO business and the affairs of the corporation in a prudent and cost-effective manner.
 - Make strategic policy decisions with respect to the marketplace.
 - Develop technical and prudential criteria for admission to the marketplace.
 - Make and amend market rules.
 - Monitor and enforce compliance with market rules and any relevant legislation.
 - Ensure there is an efficient mechanism for resolving disputes with respect to the interpretation or application of market rules.
 - Ensure there is an effective process in place that provides an independent review of the marketplace and which monitors and reports on inappropriate market conduct and market inefficiencies.
 - Operate and manage a spot market for trading electricity in Ontario.
 - Carry out financial settlement for exchanges through the spot market.
 - Contract with transmission owners through leasing or similar contractual arrangements for use of their integrated transmission system for energy trading and transport according to market rules. Transmission owners must be provided with adequate incentives including contracts and performance-based rates to preserve asset value, improve the capability of equipment, and achieve operational efficiencies.
 - Manage the secure operation of the integrated power system; determine system capabilities and operating rules and manage real time dispatch within these capabilities.
 - Control the dispatch of generators, transmission, and loads to match demand for electricity in Ontario and ensure adequate operating reserves including scheduled exchanges of energy and ancillaries with electric systems within and beyond Ontario.
 - Provide forecast and after-the-fact information to market participants to facilitate their operating and investment decisions.
 - Forecast and assess supply, demand, and transmission conditions and advise on the adequacy of reliable supply and delivery capability.
 - Monitor and enforce compliance with commercial and technical standards for the integrated power system and the spot and ancillary markets.

2. Board of Directors composition and operation
 - fix the actual number of Directors (between 10 and 20)
 - eligibility for and limitations on Board representation, including term limits and eligibility for re-appointment
 - role of nominations committee, if established
 - classes of market participants and rules regarding independent and class Board of Directors representation
 - CEO/President of the IMO to be appointed by the Board of Directors from time to time

- CEO/President of the IMO to be a voting ex officio member of the Board of Directors
- selection of Directors
- term of Board of Directors membership (i.e. 3 years, subject to termination on (a) death or mental incapacity, (b) resignation, (c) ceasing to work for or represent the organization they were nominated to represent, and (d) removal), and staggering of terms
- reasons for and manner of removal of Directors
 - for cause, e.g. breach of fiduciary duty, breach of an applicable code of conduct, serious criminal, fraud-based civil or administrative offence, or chronic non-attendance, upon determination of 10 Directors, including a majority of independents
- manner of replacement and filling of vacancies (same as initial appointment) and that the term of the replacement Director is to be the same as the Director being replaced
- selection of Chair by majority vote from among independent Directors
- quorum (10 Directors)
- making or amending rules, setting tariffs, fees or charges, and making or amending by-laws (including both Structure and Governance By-laws and other by-laws) shall require advance notice and a vote of 10 Directors (other decisions of the Board of Directors shall require a simple majority)
- provide that amendments to Structure and Governance By-laws are subject to public notice and comment process and Ministerial non-disapproval within 60 days
- rule changes generally to have delayed effectiveness of at least 21 days, subject to emergencies

3. Panel role, composition and operation

(a) Technical Panel

- actual number of Technical Panel members (subject to any maximum and minimum limits in the Act)
- eligibility for and limitations on Technical Panel representation, including any term limits and eligibility for re-appointment
- role of nominations committee, if established
- Technical Panel representation by class of market participants
- Chair of the Technical Panel will be the CEO/President of the IMO
- any other representation on the Technical Panel from the Board of Directors of the IMO will be determined by CEO/President of the IMO
- process for nominated end user representatives to the Technical Panel
- selection of Technical Panel members from nominees
- term of membership on Technical Panel (i.e. 3 years, subject to termination on (a) death, bankruptcy or mental incapacity, (b) resignation, (c) ceasing to work for or represent the organization they were nominated to represent, (d) ceasing to be on IMO Board, if applicable, and (e) removal), and staggering of terms
- reasons for and manner of removal of Technical Panel members
 - for cause, e.g. breach of fiduciary duty, breach of an applicable code of conduct, serious criminal, fraud-based civil or administrative offence, or chronic non-attendance, upon determination of 10 Directors, including a majority of independents
- manner of replacement and filling of vacancies (i.e. by Board of Director majority vote from another name on previous list, and by CEO/President in case of IMO Board representative on Technical Panel) and for same term
- quorum (at least 8 members)

- 8 votes required for all decisions
- Board of Directors delegation of powers to Technical Panel
- all Technical Panel decisions are to be reported to the Board of Directors, and are subject to Board of Directors review (decisions may be referred back for reconsideration to the Technical Panel by the Board), but are binding from adoption or later declared effective date (generally 21 days or more except in cases of emergency), unless stayed by Board of Directors

(b) Dispute Resolution Panel

- Board to determine actual number and make-up (including chair) of Dispute Resolution Panel from time to time by majority vote (subject to any limits in Act)
- eligibility for and limitations on Dispute Resolution Panel representation
- broadened conflict of interest provisions in voting for, and being, a member of a Dispute Resolution Panel
- termination of membership (i.e. subject to termination on (a) death, serious criminal, fraud-based civil or administrative offence, bankruptcy, or mental incapacity, or (b) resignation), in which case a new Dispute Resolution Panel would have to be created
- Board of Director delegation of powers to Dispute Resolution Panel

(c) Market Surveillance Panel

- membership to be determined in writing from time to time (and no less than once every three years) by a majority of all of the independent Directors, who can replace the Market Surveillance Panel as they see fit from time to time
- maximum term three years, but eligible for re-appointment
- advisory role only
- power to hire outside experts to assist as required
- all Market Surveillance Panel findings are to be reported to the independent Directors, on a confidential basis, with a copy to the OEB
- must report at least annually to independent Directors, on a confidential basis, with a copy to the OEB and, where appropriate, to the Competition Bureau and other relevant Governmental authorities
- responsible for investigation and reporting on complaints, with reports to be made to the independent Directors, on a confidential basis, with a copy to the OEB
- edited summary of all reports to be published
- procedures to protect third parties to be named in reports or summaries
- Market Surveillance Panel to have full access to IMO data, and may request OEB to order market participants to provide further information, in each case subject to appropriate confidentiality arrangements
- IMO staff to assist Market Surveillance Panel upon request
- IMO funding to be made available

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Appendix C: Composition and Key Responsibilities of the IMO Board, its Committees, and Panels

	Governance	Composition	Key Responsibilities
	IMO Board of Directors	<p>Maximum of 15 members to include:</p> <ul style="list-style-type: none"> 3 End Use Customers (1 each from Residential, Commercial, Industrial) 1 ABM 2 Generation Providers 1 Transmission Provider 2 Distribution Providers 1 President/CEO 5 Independents <p>No company can occupy more than 1 seat. The ABM cannot be affiliated with either a transmission or distribution provider. Generation providers must operate generation assets in Ontario.</p>	<ul style="list-style-type: none"> ensure that the IMO fulfills its legislative and fiduciary obligations supervise, direct, and oversee the management of the IMO business in a prudent and cost-effective manner; make strategic policy decisions with respect to the marketplace; develop technical and prudential criteria for admission to the marketplace; make and amend market rules; monitor and enforce compliance with market rules and any relevant legislation; ensure there is an efficient mechanism for resolving disputes with respect to the interpretation or application of market rules. ensure there is an effective process in place that provides an independent review of the marketplace and which monitors and reports on inappropriate market conduct and market inefficiencies.
Committees Of the Board	Finance/Audit Committee	<ul style="list-style-type: none"> to be decided by the Board 	<ul style="list-style-type: none"> to oversee the financial affairs of the IMO; to review and report on budget and audit matters
	Nominations Committee	<ul style="list-style-type: none"> to be decided by the Board 	<ul style="list-style-type: none"> to coordinate the compilation of nominations for membership on the Board
	Compliance Committee	<ul style="list-style-type: none"> to be decided by the Board 	<ul style="list-style-type: none"> to ensure the IMO complies with its obligations as a business entity; to ensure that compliance processes are in place and operating effectively
Independent Panels	Technical Panel	<p>Maximum of 11 members to include:</p> <ul style="list-style-type: none"> 9 members from the market participant classes in the same proportion as those included on the board 2 members from the IMO; chaired by the CEO/President 	<ul style="list-style-type: none"> to review and amend market rules on an on-going basis to develop and implement changes to market rules, as required to provide advice to the Board and the OEB on specific technical issues related to market and system operations
	Dispute Resolution Panel	<ul style="list-style-type: none"> a panel of at least three members independent of the IMO and with no commercial affiliation with any market participant appointed by the Board any one member can be called upon to resolve a dispute members will have experience in the arbitration of disputes as well as a detailed knowledge of the technical aspects of the electricity industry 	<ul style="list-style-type: none"> to settle disputes on the application and interpretation of market rules
	Market Surveillance Panel	<ul style="list-style-type: none"> panel of members will be independent of IMO and with no commercial affiliation with any market participant appointed by the independent members of the Board the panel will include members with a reputation for expertise in the operation of competitive electricity markets 	<ul style="list-style-type: none"> to identify and report on inappropriate market conduct and market inefficiencies to recommend remedial actions to mitigate such behaviour and inefficiencies assess whether the underlying structure of the marketplace is consistent with the efficient and fair operation of the competitive market

PRINCIPLES OF MARKET DESIGN

First Interim Report of the

Market Design Committee

**To the Honourable Jim Wilson
Minister of Energy, Science and Technology**

March 31, 1998

PRINCIPLES OF MARKET DESIGN

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PRINCIPLES OF MARKET DESIGN

1. Introduction

This report on market design summarizes the findings and recommendations of the Market Design Committee (MDC) on the principles that should be used to design a competitive electricity market for Ontario.¹ The report includes broad design principles as well as a list of recommended functions and responsibilities of the Independent Market Operator. Also included is a discussion of each of the design issues considered by the MDC. Each section describes more detailed issues that the MDC will consider in the next phases.

The MDC recommends that legislation setting out the framework for the Ontario electricity market be consistent with the design principles and IMO roles discussed in this report. Although legislation should not include the details of market design described here, it should be drafted broadly enough to allow implementation of the various market features and design principles recommended in this report.

Similarly, the MDC recommends that the legislation be flexible enough to permit modifications and adjustments and to permit evolution in the market and the market institutions over time. It is virtually certain that the initial market and institutional designs will need to be modified in the future as experience with competitive electricity markets accumulates in Ontario and elsewhere.

1.1 Basic Design Principles

The Government's White Paper has been the touchstone for the MDC's efforts to develop design recommendations for the Ontario electricity market. The White Paper envisions a structure in which market participants will be able, on the one hand, to buy and sell from the electricity exchange (or spot market) operated by the Independent Market Operator (IMO) or, on the other hand, arrange bilateral contracts directly with each other. With respect to the electricity exchange (or spot market), the White Paper envisages that the IMO will determine a least-cost dispatch of generation (and loads) based on bids and offers from market participants. The MDC accepted these elements not only because the White Paper specifies them, but also because there is substantial consensus that these features provide an appropriate framework to allow a competitive electricity market to evolve in Ontario.

The MDC also understands and accepts the social objectives implicit in the White Paper's direction that transmission in Ontario should "continue to be priced at a uniform rate for all customer classes." However, there is substantial consensus that this directive should be interpreted broadly, so that the presumed ultimate objective – equitable access to electricity for consumers anywhere in Ontario – can be accomplished without creating costly inefficiencies in the

¹ The MDC held four meetings in March to consider issues of market design. The MDC began its consideration of market design issues with a review of the design elements already specified in the Government White Paper. To further inform the MDC's considerations, the lead consultant prepared an Issue Paper describing 10 key design issues and discussing alternative approaches used in other jurisdictions. The consultant also prepared several discussion papers on selected topics and circulated these papers to MDC members in advance of each meeting. Written responses to questions from members and their advisors were also prepared and circulated. The lead consultant, Central Market Operations (CMO) and other persons invited by the MDC members also made presentations on selected issues. Following these presentations, MDC members discussed the merits of alternative design features and approaches. Using this process, the MDC was able to reach substantial consensus on a list of market design principles. These design principles and reasons for recommending them are set forth and explained in this Report.

market. Many features in the design and implementation of a competitive electricity market can have different effects on consumers in different regions. In particular, transmission constraints can lead to regional differences in the market price for energy, as explained in Part II. The MDC's objective is to recommend a coherent package of market design features that both promotes efficient pricing and is consistent with the Government's social equity objectives when the effects of all parts of the package, not just transmission rates, are taken into account. This total package will include transmission pricing, energy pricing and transmission rights. The MDC is persuaded that this is the most logical and effective way to accomplish the important social objectives implicit in the White Paper while allowing an efficient market to emerge in Ontario.

1.2 Achieving the Design Objectives

The MDC recommends that the Ontario electricity market be designed to promote fair and open competition in electric generation and supply while ensuring customer choice. The goal should be to achieve an efficient, transparent and robust market with competitive electricity prices for Ontario citizens. The MDC believes these objectives can be achieved by:

- Promoting competition in the generation and supply of electric power within Ontario, and efficient trade in electricity with neighboring jurisdictions
- Permitting expeditious recovery of costs for existing assets rendered uneconomic by competition
- Providing consumers with maximum choice, including access to competitive wholesale spot prices and to contracts with alternative energy suppliers at mutually agreed prices and terms determined by the buyers and sellers
- Designing market rules and mechanisms that facilitate entry by new competitors, including those that promote renewable and environmentally preferred energy sources
- Structuring market mechanisms, including pricing rules, that provide appropriate incentives for consumption, generation and new investment, while recognizing the need for equitable treatment of all market participants
- Developing measures to monitor, discourage and mitigate the abuse of market power and other anti-competitive behavior
- Ensuring that market rules and mechanisms are compatible with Ontario environmental policies
- Ensuring open access to the distribution system as well as the bulk transmission grid to implement retail competition.

As envisioned by the White Paper and endorsed by the MDC, the IMO will play a key role in helping Ontario achieve these objectives. The IMO will ensure reliable electric system operations, provide market coordination and administer the market rules. Under these rules, the IMO will also provide market participants with open access to transmission, the spot market and other services essential for market trading. These functions in turn imply a set of design principles and features necessary to support a competitive electricity market. The following section provides a discussion of each of the IMO's essential functions and the associated design principles and features recommended by the MDC.

2. Design Principles for a Competitive Electricity Market

The Independent Market Operator will need to perform or coordinate numerous functions in support of a competitive electricity market. The functions described in this section are consistent with the White Paper and with the MDC's recommendations set forth in the Governance and Regulatory parts of this Report, particularly those dealing with the relationship between the IMO and the Ontario Energy Board. This section discusses these functions under the following categories:

- Respective Roles of the IMO and Grid Owners in Transmission Operations
- The IMO's Role in Performing the Dispatch and Coordinating the Market
- The Framework for Bilateral Contracting in the IMO-Coordinated Market
- The IMO's Role in Pricing and Managing Congestion and Administering Transmission Rights
- The IMO's Role in Coordinating Transmission Planning
- The IMO's Role in Maintaining Adequate Generation Supplies
- The IMO's Role in Facilitating Retail Settlements

2.1 *Respective Roles of the IMO and Grid Owners in Transmission Operations*

1. *The IMO should function as the transmission system operator, determining system capabilities, operating rules and the operation of the integrated system to ensure both reliable, secure operations of the Ontario transmission system and proper coordination with neighboring transmission systems.*
2. *The IMO should contract with grid owners for the use of their facilities for the purpose of electricity trading, under a tariff and agreements that provide incentives for grid owners to achieve operational efficiencies.*
3. *The IMO should provide all market participants with open, non-discriminatory access to transmission, including access to ancillary services essential to trade electricity in Ontario.*
4. *The IMO should operate a process for coordinating grid and generator maintenance outages.*

The White Paper proposes that a division of Ontario Hydro be separately incorporated and remain the owner of Ontario's major grid assets. Other grid owners now exist and new ones may emerge. However, the White Paper indicates that a new entity, the IMO, will operate the dispatch of generation. The MDC considered two contrasting structural approaches. In one approach, the IMO would perform the dispatch function but would leave to each grid owner the responsibility for defining the transmission capability of its grid and for marketing that capability to market participants. In the second approach, recommended by the consultant and supported by a strong majority of the MDC members, the IMO would perform these transmission functions as an integral part of the dispatch of generation, using the grid under contract with its owners. A substantial consensus of the MDC agreed that assigning the dispatch function to an IMO logically implies that operational control of the Ontario transmission system should shift to the IMO.

A key consideration for the MDC is the close linkage between the transmission functions and the function of dispatching generation, a function assigned in the White Paper to the IMO that allows it to coordinate an energy exchange/spot market. The dispatch largely determines transmission usage. It is therefore unclear how these functions could be separated as a practical matter. If, for example, the grid owner were allowed independently to sell rights to use the transmission grid,

such rights could constrain the ability of the IMO to coordinate an efficient and reliable dispatch and spot market.

In addition, some members expressed concerns over the potential for self dealing if a grid owner were allowed to perform any market-related transmission functions while also having a retail marketing function. The suggestion that self-dealing problems could be avoided by codes of conduct or other such mechanisms such as “ring fencing” did not receive significant support from members.

This integrated approach has several implications, as discussed below.

2.1.1 Form of the IMO/Grid Owner Relationship

The MDC recommends that grid owners essentially contract with the IMO for use of the grid assets by market participants. The basic level of revenue a grid owner can collect will be determined by the OEB, but the rate structure and incentives for efficient grid operations and investment will be defined by a contract between the IMO and grid owner. Under this contract, a grid owner will make specific assets, or their functional equivalent, available for the IMO to use within specified limits. The IMO will then allow market participants to use the grid for electricity trading on a non-discriminatory basis.

The contract between the IMO and grid owners will specify limits on the IMO’s use of the grid assets during operations to ensure safety and protection of the grid assets. However, as an integral part of its dispatch and spot market functions, the IMO will determine the overall transmission capacity of the grid, as well as the transfer capability across particular interfaces or between particular points. Grid owners will not make these determinations in some process independent of the IMO’s dispatch process. This approach is necessary for several reasons: (1) transmission capacity is inherently determined by the dispatch, (2) grid owners should not benefit from transmission constraints that can increase the market price of transmission capacity, and (3) the principal grid owner will also be a competitor in retailing and perhaps generation.

2.1.2 Incentives for efficient grid operations

The grid systems will remain regulated monopolies. The MDC recognizes that grid owners are entitled to a fair return on their investments and supports performance-based incentives that allow grid owners to profit from improvements in the efficiency and availability of the transmission grid. The MDC recommends that such incentives be included in any agreement or contract that allows the IMO to administer the open access provisions of the transmission tariff.

2.1.3 Coordinating grid and generation maintenance outages

Owners of generation and of the grid have an obligation to perform necessary maintenance to ensure continued reliable operations and to protect the value of their facilities. This will require that plants and lines be taken out of service for maintenance from time to time.

However, an outage of any significant generator or segment of the grid can have a substantial effect on trading and prices and could represent an abuse of market power. For these reasons, the equivalent of the IMO in other markets typically operates a process for coordinating maintenance outages. The MDC recommends that the IMO operate such a process in Ontario.

Maintenance scheduling should be primarily the responsibility of grid and generation owners, but the IMO should provide information, coordinate the scheduling process, encourage rescheduling when conditions threaten system security and ultimately prevail in the event conditions create system emergencies. The coordination process will be specified in the agreement or contract between the grid owners and the IMO. More detailed procedures for how this coordination will occur, including the roles of various market participants in maintenance scheduling decisions, will be considered by the MDC during the second or third phases.

2.2 The IMO's role in Performing the Dispatch and Coordinating the Market

5. *The IMO should provide dispatch and coordinate ancillary services to maintain system balance and security. Subject to transmission constraints, the dispatch should be least cost, given participants' bids, offers and bilateral schedules.*

This principle incorporates and amplifies the dispatch functions recommended by the White Paper. The IMO will accept bids and schedules from market participants and arrange the dispatch in merit order, subject to grid constraints and must-run schedules,² such that the generators offering energy at the lowest prices are dispatched first and successively more expensive generators are dispatched as needed to meet any customer loads not met by scheduled bilateral contracts. The dispatch will be "security-constrained," meaning that the IMO will adjust the dispatch as necessary to relieve congestion and maintain system balance and other security requirements, using principles of least cost to the extent practicable.

6. *The IMO should coordinate one or more open spot markets, in which market participants can buy and sell spot energy and transmission. The spot market rules should: (1) allow competing generators (and dispatchable loads) to submit bids to participate in the IMO's dispatch and balancing service, (2) allow market participants to rely on the IMO's dispatch and balancing service to support their trading and (3) include settlements for spot market transactions at market-clearing prices.*

These recommendations capture the White Paper's recommendation that the IMO coordinate an exchange for energy trading and adds the principle that participation in this exchange --- the IMO's spot market --- should be voluntary for generators and should be open to price-sensitive loads with dispatchable demand. In addition, the MDC's recommendation recognizes that the principle of open transmission access requires open access to the IMO's balancing service and other ancillary services that support transmission. This recognition will lead to rules ensuring that market participants can use the IMO's spot market to buy and sell spot energy and related transmission to support their bilateral trades, as well as to engage in purely spot trading. In particular, market participants engaged in bilateral trades will not be required to provide their own energy balancing or ancillary services, although they will be permitted to do so within the framework of the IMO's

² Issues affecting the treatment and designation of must-run units will be addressed in later phases.

rules. The recommendation allows participants to rely on the IMO's balancing service to balance their commercial trades to the extent they require, provided they settle at the IMO's spot prices for any imbalances and deviations from their bilateral schedules.

The MDC expressed strong support for the view that participants should not be penalized for relying on the IMO's balancing/spot market to backstop their bilateral trades. Although there was some support for penalties large enough to encourage self-balancing or reliance on balancing provided by other market participants, the majority of members supported the view that such penalties should be avoided because they may increase transaction costs and discourage market entry for smaller, less diversified traders.

7. *The IMO should determine market-clearing prices for spot energy and (if bought and sold in the spot market) transmission, based on market participants' bids and principles of marginal cost, and use these prices for settlements.*

This recommendation flows from the IMO's spot market function. Purchases and sales of energy and (if traded in an IMO spot market) transmission through the IMO's spot markets should be settled at market-clearing prices, as determined from the bids submitted by market participants.³ This is an essential principle for the functioning of a spot market. The MDC considered but rejected an alternative approach, in which generators are paid their bid prices rather than market-clearing prices, as both impracticable and incompatible with market pricing concepts. Market-clearing prices are used in virtually all competitive electricity markets in other regions.

8. *The IMO should facilitate the development of forward markets to enhance efficiency and liquidity.*

The MDC recognizes that efficient forward markets with contracts ranging from years to hours ahead can provide liquidity and useful risk hedging in support of a competitive electricity market. Nobody proposes that the IMO be directly involved in long-term forward markets, but a key issue for the MDC in the next phase is whether the IMO should itself coordinate one or more very short-run – i.e., day ahead and/or hour ahead – forward markets in conjunction with its real-time dispatch/spot market functions. Most regions do not have an IMO-coordinated forward market; more recently, however, some jurisdictions in the United States have included a day-ahead, and sometimes an hour-ahead, forward market coordinated by an IMO.

At this point, the MDC has not resolved whether the IMO should explicitly provide a day-ahead and/or an hour-ahead forward market(s) or should operate only a real-time spot market, leaving the development of forward markets to others if market participants find them useful. The MDC will consider the merits of these options in the second phase.

9. *The IMO should coordinate the provision of ancillary services necessary to maintain grid security and reliability and allow market participants to offer and acquire such services through the IMO at fair and efficient prices.*

Ancillary services include moment-to-moment regulation, operating reserves, voltage support, and other services relating to grid reliability. The IMO must coordinate the provision of these ancillary services in order to ensure reliable operations and support market trading. Although vertically

³ Any prices for "spot transmission" refer to short run usage related to explicit or implicit trading of transmission rights through the spot market when the grid is congested; they do not refer to the transmission access fees or tariffs that would be used to recover the revenue requirements for the transmission grid.

integrated utilities historically provided these services for themselves, some market participants may now wish to provide and be compensated for such services. In addition, some bilateral traders may want the ability to “self-supply” certain services. Self-supply implies that parties to a bilateral transaction who provide precisely the right amount of each service would be neither paid nor charged for ancillary services by the IMO.

In concept, the IMO could assess the need for ancillary services and then allocate the responsibility to provide them to market participants in some relationship to their transactions. In practice, however, most ancillary services are shared system services and cannot be readily attributed to a specific transaction or activity. A system that allocates a specific requirement for each transaction must therefore include some arbitrary allocations and could be difficult to administer.

Many commentators argue that it should be possible to create competitive markets for the provision, acquisition and pricing of many ancillary services; indeed, in the United States, FERC Order 888 directs that transmission customers be permitted to self-procure certain ancillary services. However, to date, there is little experience with such markets, and it is likely that a range of models for the operation of competitive ancillary service markets will be adopted over time in different jurisdictions. The MDC believes that the IMO must play a central role in coordinating ancillary services, yet recognizes that a key issue in the design of any model of ancillary services is the extent to which market mechanisms can be used to acquire and compensate for ancillary services.

In the next phase of its work, the MDC intends to examine approaches under which the IMO would use market approaches and pricing to acquire ancillary services. For example, providers of ancillary services could be compensated at market-clearing prices for the given service, while loads could be charged a load-ratio share of the costs. The MDC will also consider the terms under which participants should be permitted to self-supply ancillary services.

10. *The IMO should provide forecasts and after-the-fact information to market participants to facilitate their operating and investment decisions.*

Market operators in other jurisdictions typically post information on Internet web sites concerning spot prices, actual and expected loads, grid outages and other system conditions to assist market participants in arranging their transactions. The MDC recommends that the IMO's operations be as transparent as possible and that it be required to provide market participants with as much information as possible, consistent with protection of proprietary commercial information (such as competitors' bid information). More detailed discussions of the types of information that should be made available (versus the types that should be held confidential) will occur in later phases of the MDC's work.

2.3. The Role of Bilateral Contracting in the IMO-Coordinated Market

11. *Market participants should be allowed to engage in different forms of bilateral contracting under comparable pricing and other terms. All customers, even small ones, should have a variety of price options, including the option of paying the wholesale spot price and then deciding whether or not to enter into financial contracts. The IMO should provide scheduling services on a non-discriminatory basis to market participants wishing to implement physical bilateral trades.*

The MDC considered both “financial contracts” and “physical contracts” as means to implement customer choice. Financial contracts allow market participants to buy and sell physical energy at the IMO’s spot price and use relatively simple financial contracts to hedge the volatility and uncertainty in the spot prices. Such contracts can be agreed by the parties without reference to the IMO, at prices agreed by and known only to the contracting parties. The seller/supplier then bids its generation into the IMO’s dispatch/spot market and is paid the spot price for any sales, while the buyer purchases its requirements from the spot market at the spot price. Under their financial contract, the seller and buyer then settle with each other for the difference between the spot price and their contracted price. If the spot price is higher than the contract price, the seller pays the buyer the difference; if the spot price is lower, the buyer pays the seller the difference. The net effect is that the seller sells and the buyer buys the contracted amount of energy at the contract price without ever telling the IMO about their contract, while each of them can automatically use the IMO’s spot market to buy or sell any energy they need to meet their contract obligations and other commercial needs.

Financial contracts can be used by any retail consumer who has the option of buying physical energy at the IMO’s spot price. Thus, the MDC recommends that all consumers, even small ones, have access to this option. This will assure that even small consumers have a realistic choice between buying at the spot price or entering into any of a wide range of financial contracts, with no need to deal directly with the IMO.

The MDC recommends that the Ontario market allow physical contracts in addition to financial contracts. Physical contracts would be scheduled by the IMO outside the spot market, which each schedule treated as a fixed injection at one location and a fixed withdrawal at another location. The IMO must know about and keep track of the physical flows under such a contract, but the contracting parties would settle payments directly between themselves. Market participants using physical contracts would buy or sell any differences between contract amounts injected and withdrawn at the same spot energy prices, would pay the same spot congestion charges (if any), and would have access to the same transmission rights, as those buying and selling in the spot market with or without financial contracts.

Some MDC members believe that physical bilaterals can provide additional flexibility for pursuing market efficiency and risk hedging; other members have concerns over the additional complexity this option may pose for the IMO, consumers and market participants. However, consultant papers note that these issues have been overcome in other markets. Based on these assurances, there is a substantial consensus on the MDC that physical bilaterals be permitted, provided that market rules ensure comparable treatment, system pricing and cost sharing between spot and bilateral transactions.⁴

To facilitate free movement between spot and bilateral trading, and to assure the flexibility needed for reliable and efficient operations, the MDC recommends that the IMO’s rules encourage participants who schedule bilateral transactions to submit incremental and decremental bids for the IMO to use in the event the spot price reaches certain levels. Generators with bilateral contracts could schedule their injections with the IMO (presumably to match the expected

⁴ When scheduling a physical bilateral transaction, the IMO must accommodate a defined injection at a given location by a generator, and then work around this fixed injection to determine a least-cost dispatch while resolving any congestion or ancillary service requirements. A large quantity of such fixed injections can complicate the IMO’s operations. The solution to this problem is to encourage bilateral transactions to submit incremental and decremental bids, similar to the bids submitted by spot market players, that give the IMO additional flexibility. Where participants provide this flexibility to the IMO – which would usually be the case in a competitive market – the IMO’s operations are not unduly challenged by bilateral transactions. Indeed, if physical bilateral transactions provide incremental/decremental bids, all contract imbalances are settled at the spot energy price, and bilateral transactions pay any spot congestion charges, the two forms of bilateral contracts become essentially equivalent.

consumption by their contracted loads) and also submit bids for any part of their scheduled generation indicating prices at which the generator would increase or curtail its own generation and sell or purchase energy in the IMO's spot market. Analogous bids could be submitted by loads indicating prices at which they would be willing to increase or curtail consumption by buying from or selling back to the spot market. The IMO would use these voluntary bids for dispatch purposes, including for congestion management.

2.4 The IMO's Role in Pricing and Managing Congestion and Administering Transmission Rights

12. *The IMO's pricing rules should (1) provide appropriate incentives to generators, loads and potential grid investors and (2) provide non-discriminatory congestion pricing treatment as between scheduled bilateral transactions and spot transactions. If the MDC recommends an explicit transmission congestion pricing approach, the market rules should be designed to assure that prices reflect the economic value of constrained transmission. The IMO should also administer or coordinate a market for those transmission rights that may be needed, within the framework of market rules that adhere to the above principles.*

The MDC recognizes that significant constraints, if they should arise on the Ontario transmission system, would have important implications for the design and operation of the electricity market. As explained more fully below and in Appendix A, transmission constraints can prevent lower-cost energy from one region from reaching consumers located in other regions, requiring that higher-cost generation be used to meet demands in the latter regions. The resulting differences in the marginal costs of meeting loads in different locations imply that market prices for energy could also vary by location, depending on how the pricing rules deal with the effects of constraints and the IMO's efforts to resolve those constraints.

The MDC has had preliminary discussions of two basic options for managing congestion. Under *uniform pricing*, the costs of adjusting the dispatch to relieve constraints would be borne by all customers, while a uniform price would be charged for energy. Under a *locational pricing* approach, prices paid to generators and charged to loads would vary by location, reflecting the locational differences in marginal costs that occur whenever constraints arise. The locational prices could be determined for each individual "node" on the system – *nodal pricing* – or could be the same within "zones" consisting of several or many nodes while differing between zones – *zonal pricing*.⁵

The choices between uniform and locational pricing, and between the nodal and zonal variants of locational pricing, depend largely on the degree to which the grid will experience constraints that lead to commercially significant locational differences in marginal costs. Preliminary information provided by the CMO indicates that transmission constraints have been and continue to be a factor in operating the system. However, the MDC cannot determine from this preliminary information how extensive or frequent grid constraints might be under future competitive market conditions or how different the marginal costs and implicit market prices might be in each area of the grid.

MDC members generally agree that if Ontario is likely to be subject to levels of congestion that imply commercially significant locational differences in marginal energy costs, then some form of

⁵ For information purposes, Appendix A prepared by the MDC's consultants presents a more detailed discussion of transmission constraints, alternative approaches for dealing with them, and some implications of each approach. The MDC has not yet considered these issues in detail and does not yet have a final view on them.

locational pricing should be considered, for the operational and economic efficiency reasons discussed in the Appendix. The MDC has therefore asked the lead consultant, the CMO and grid owners to develop a more definitive picture of grid constraints, including their frequency and duration, as well as an assessment of the magnitude of any resulting locational differences in marginal energy costs. The MDC will use this information during the next phases to develop its recommendations on whether some form of locational pricing should be adopted.

The MDC recognizes that there is a tradeoff between the economic efficiency of locational pricing and the increased complexity of a system that might require the calculation and use of numerous energy prices. But there may also be tradeoffs between the apparent simplicity of uniform pricing and the complexity of rules that would be necessary to mitigate the incentive effects of a uniform price on a constrained grid. The MDC intends to examine such tradeoffs in the next phase of its work.

If the MDC determines that some form of locational pricing is appropriate, it will also consider how to reconcile a locational pricing system with the social policy objective expressed in the White Paper, namely that transmission should “continue to be priced at a uniform rate for all customer classes.” The MDC understands that this latter policy is motivated primarily by a desire to ensure that the varying costs of providing transmission to different parts of Ontario and to different MEUs do not result in very different electricity prices in different regions. The MDC views the grid as a common resource to be used for the benefit of all Ontarians. At the same time, the MDC believes that the Government’s policy on transmission rates can and should accommodate rules that price energy efficiently.

The MDC will therefore examine approaches that reconcile any real or perceived conflicts between these two important policy goals. Among other options, the MDC will consider (1) the use of transmission rights to hedge market participants against the effects of congestion, (2) various averaging approaches applied to customer loads,⁶ (3) tradeoffs between energy pricing and recovery of transmission or distribution costs, and (4) zonal approaches that contain elements of both locational and uniform pricing.

In any event, market participants will need some form of transmission rights to support electricity trading. The IMO will need to administer a system of transmission rights consistent with the market rules and principles of open access, and will provide fair opportunities for all market participants to acquire such rights on the same terms.

Two broad types of rights – physical and financial – are under consideration by the MDC (in addition to the “always firm” rights implicit in a system of locationally uniform prices and IMO-managed congestion). Typically, physical transmission rights are viewed as rights to use the grid, and can have a direct effect on how the dispatch will occur; market participants who wish to use the grid must either obtain such a right before a transaction or pay for its value in some settlement process after the fact. In contrast, financial transmission rights are not required as a condition for using the grid and do not affect dispatch, but do provide financial hedges against charges that may be assessed for congestion. If Ontario adopts some form of locational pricing, including a congestion charge based on differences in locational prices, financial rights could be used to hedge market participants against the risks of incurring congestion charges by crediting the rights

⁶ Ideally, loads should also pay locational prices to avoid diluting the incentive properties of any averaging approach. Large customers with price-sensitive dispatchable loads may be particularly interested in seeing true market-clearing prices. However, most demand is relatively less responsive to price, at least in the short run, so any loss in efficiency due to averaging their prices may be less of a problem. Imposing locational pricing without some form of averaging would raise potential social equity issues. The MDC has tentatively agreed, however, that if a locational pricing rule is adopted, generators and large loads should face the correct locational prices to achieve the full incentive value of locational pricing.

holder with any congestion-caused differences in locational prices.

The MDC will examine physical and financial forms of transmission rights in the second phase. Related issues to be considered include: (1) What role, if any, will transmission rights play in the physical dispatch? (2) Should there be an initial allocation of rights to current grid users, and if so, what principles should guide this allocation? (3) How will grid owners and others with existing rights and transmission contracts be affected by the new rights system, and can existing rights be converted to new rights? (4) How can other market participants obtain new transmission rights, and should the IMO auction such rights? (5) What mechanisms will there be to allow trading of such rights? The MDC will report its findings and recommendations on these issues in the second phase.

2.5 The IMO's Role in Coordinating Transmission Planning

13. *The IMO should coordinate, in conjunction with transmission owners, market participants and the Ontario Energy Board, a process for transmission planning within Ontario, and as part of this process should conduct studies and provide information on transmission upgrades and other options to enhance trading, open access and efficient competition.*

The market structure will include a competitive market for generation and retail supply, but the transmission system will be operated as a regulated monopoly. This implies a general absence of market-based price signals to encourage appropriate investments in new transmission links and upgrades.⁷ Some form of planning process will therefore be required to ensure that appropriate investments are made on a timely basis to support economic trading, expand the market and mitigate market power.

In several jurisdictions, the IMO coordinates a transmission planning process that includes both transmission owners and market participants. The White Paper gives the IMO a role, together with the Ontario Energy Board, in such a process. As the transmission system operator, generation dispatcher and market operator, the IMO will have a unique and valuable perspective on the need for, and operational implications of, various upgrade options. Information possessed by the IMO will be needed to evaluate alternative proposals, and studies by the IMO and others will be needed to determine whether proposed upgrades actually achieve the commercial or operational goals desired by the proponents.

While the IMO is in a unique position to assess grid conditions and provide information on grid characteristics, it is not the only entity able to conduct planning studies and propose additions or enhancements to the grid. Particularly if an explicit form of congestion pricing is used, other market participants may wish to assess, plan and implement transmission system improvements. The structure of grid owners' performance incentives, included in the tariff approved by OEB, is also critical to assuring that the grid is adequately sustained and efficiently expanded.

The MDC proposes to examine these issues further and develop a recommended framework for this coordinated planning process during the second phase. Issues to be considered include the rights and responsibilities of grid owners, the ability of market participants to initiate studies of

⁷ However, locational pricing approaches that assess explicit congestion charges can provide efficient price signals to market participants, if not the grid owners, regarding the relative merits of transmission upgrades to relieve the constraints versus continuing to pay the charges or other options. Hence, explicit treatment of congestion in the IMO's pricing rules can assist the coordinated planning process outlined above. However, the problem of "free riders" may still require regulatory intervention to ensure the proper allocation of costs.

various upgrades to relieve congestion, the methods for evaluating costs of alternative proposals, and mechanisms to allocate costs for upgrades that benefit specific market participants.

2.6 The IMO's Role in Maintaining Adequate Generation Supplies

14. *The IMO should, to the extent practicable, use market mechanisms to encourage the adequacy of generation supplies. The IMO will also operate the system in compliance with applicable regional reliability standards.*

The problem of generation supply adequacy is how best to ensure that sufficient generating resources will be available in both the short run and long run to meet the expected energy demands of electricity consumers. Historically, this problem has been solved by regulated utilities functioning under a statutory or regulatory obligation to serve. The introduction of competition in the generation and supply of electric power, along with the move to customer choice, will substantially replace the traditional framework and dramatically change the meaning of the "obligation to serve."

In the proposed market framework, that portion of the obligation to serve that required the vertically integrated utility to plan for and acquire sufficient generation resources to meet expected customer demand with a predefined level of reliability will be transferred from the utility to the market. Local distribution companies will still have the obligation to connect customers to the grid, allowing access to this market; they may also function as "suppliers of last resort." Customers will then acquire energy either through reliance on the IMO's spot market, functioning through its bid-based dispatch, or through bilateral contracts with generation suppliers or intermediate agents, brokers and marketers.

In effect, the IMO's dispatch will assure that "the supplier of last resort" can always obtain power at the spot price, even if its owned or contracted generation is not running or if transmission constraints prevent delivery from a specific plant. From moment to moment, the IMO as dispatcher and system operator will continue to ensure through its dispatch that energy is delivered to meet load, just as Ontario Hydro's system operators do today. The final delivery of energy to the consumer will not be interrupted, even if contracting suppliers fail to inject energy as expected. If contracted suppliers fail, the IMO will dispatch other plants to ensure that all customer loads are met, although it may charge the failed supplier for any deficiencies at the spot price – which will be very high if the generator's failure imposes high costs on the system.⁸ Under the new market framework, the lights will stay on as usual, but the financial arrangements and associated obligations will change.

The MDC has identified three basic approaches to ensuring adequate generation supplies in the long run. One approach is to rely on the market to respond to prices in forward markets and the IMO's spot market. If generating capacity actually does become short, generators will raise their bids and customers with flexible loads will offer to reduce consumption at high spot prices; the spot price will increase to clear the market. In anticipation of these higher spot prices, forward market prices will increase first, telling investors that the market will need additional energy in the future. This will encourage investors to build new generating capacity, either under long-term contracts to sell the energy or in anticipation of higher spot and short-term contract prices in the future. The market would thereby provide longer-term reserves, allowing the IMO to focus on managing short-term operations within the market-determined amount of capacity. Some such "market" approach to ensuring adequate generating supplies is used in several of the markets examined by the MDC.

⁸ Contractual and other means would be available to mitigate the effects on intermittent resources.

A second approach is to allow the IMO (or regulator, as in the UK) to specify a “capacity price adder” to the hourly energy price, with a high adder during periods of short supplies and a low or zero adder during periods of surplus. Anticipation of a higher hourly energy-plus-adder price when capacity is projected to be short would increase prices in forward markets and stimulate new investment, just as with a market-determined energy-only price. This approach is used in the UK.

A third approach is to define in advance an acceptable level of generation reserves consistent with a predefined reliability criterion and somehow to assure that the target level of reserves is achieved. This approach is used in most regulated utility systems throughout the world, with the utility responsible for acquiring the required reserves. Some emerging market-based systems are using a similar approach, in which the equivalent of the Ontario IMO (or a regulator) determines the reliability reserve targets and then allocates reserve responsibilities to each load-serving entity or each generator. This should create a capacity market in which those market participants with excess capacity would offer to sell capacity to those with a deficit. The problem with this approach is that the IMO must determine the “effective capacity” of each type of generator, appropriately accounting for the differences among locations and among thermal plants, hydro plants, and wind turbines, and in a retail competition regime must continually track and reallocate capacity requirements as the amount of each retailer’s load responsibility changes.

Markets in other jurisdictions have found the problem of ensuring capacity adequacy, particularly of peaking capacity, to be one of the more difficult problems to solve. The MDC will examine these basic approaches and their variants in the second phase. Among the issues to be considered are: (1) How much investor and customer responsiveness to forward and real-time spot prices would be necessary to consider relying on the “market” approach? (2) How would the IMO/regulator determine the “capacity adder” under the second approach, and what effect would the IMO/regulator’s role in setting this adder have on investor’s confidence in the resulting price signals? (3) What complications arise for the IMO in defining “capacity” and in tracking and allocating reserve capacity obligations under retail choice if the third approach is used?

2.7 Retail Competition

15. *The IMO should develop systems and facilitate settlement arrangements that ensure that retail competition can be introduced reliably and effectively.*

The introduction of retail competition on the time scale stated in the White Paper will be a formidable task. If the necessary systems and settlement arrangements are not adequate, a period of uncertainty, confusion and high costs could result. Other jurisdictions have taken substantially longer to achieve the full retail competition objective stated in the White Paper.

The most serious problems to be overcome in implementing retail competition relate to metering and settlements. In the wholesale market, generators must be compensated for the energy they sell, while load-serving entities must pay for any energy they purchase through the IMO’s spot market, with prices typically determined for each hour or half-hour. Additional charges and payments for ancillary services and perhaps congestion must also be priced and accounted for. Because generator injections and customer withdrawals from the high-voltage grid are typically remotely metered at identified tie points on an hourly or half-hourly basis, the wholesale market can relatively easily determine who owes how much to whom for each hour. And because there are only a few hundred wholesale market participants, settlement payments are relatively easy to manage. At the retail level, however, most customers do not have hourly meters, and the computer systems necessary to track millions of hourly transactions are not in place in Ontario.

In order to meet the schedule for retail competition set forth in the White Paper, settlement and billing systems must be designed to accommodate the absence of timely and hourly metering data at the retail level.⁹ Actual customer energy usage will not be known until meters are read, which can be up to a month or more after actual deliveries. Even when the meters are read, each consumer's energy use for each hour will have to be assumed from statistical profiles. Thus, settlements for retail transactions will necessarily involve a process of reconciliation between the estimates of customer usage assumed in the wholesale settlement process, actual periodic (e.g., monthly) usage determined from meter reads, and the allocation of periodic amounts among the hours in the period.

The MDC has not yet begun to address the difficult metering and settlement issues involved in full retail access, including the best approach to profiling, communications and settlements to assure fair and efficient retail access to all Ontario consumers. Nor has the MDC had the opportunity to address other issues raised by retail competition, such as the need for retailer licensing, prudential requirements and consumer protection measures. Even with uniform transmission rates, locational differences in energy prices or distribution charges can result in different delivered retail prices in different parts of Ontario, raising the possibility that programs similar to rural rate assistance will be required. All of these issues will have to be considered in detail by the MDC in the next phase of its work.

⁹ A system of retail access based on physical bilateral contracts would also require tracking of flows under thousands or millions of individual contracts. In practice, the only practical approach to retail access is to ignore contracts in system operations and use financial settlements to accomplish the commercial objectives.

Appendix A

The Effects of Transmission Constraints on System Operations and Market Pricing

Congestion management and pricing by the IMO will be an important factor in determining whether the potential benefits of a competitive market structure can be fully realized. To understand this issue, it is necessary to consider how grid operators deal with constraints and to recognize the effect that transmission constraints can have on system operations, as well as costs and market prices.

Information provided by the CMO indicates that transmission within (and into and out of) Ontario is sometimes insufficient to move all of the lowest-cost energy to areas where the customer loads are located. Constrained transmission can arise from the physical limits of the transmission facilities, from losses, from outages of key generation facilities, and from the operational requirements and security constraints that must be imposed to ensure continued operations in the event of an outage. Constraints may also arise from flows arising in neighboring grids. When the grid is constrained, the CMO must adjust the dispatch of generation to maintain a system-wide balance of supply and demand while respecting all transmission constraints. Importantly, these adjustments may require the CMO to schedule lower-cost generators in some areas less, while scheduling higher-cost generators in other areas to produce more.

If the grid were never constrained (and there were no losses), the value of energy would, in theory, be the same at all locations on the grid, and prices in a competitive market would be the same at every location. However, constraints and losses do occur on the Ontario grid, and the necessary dispatch adjustments to deal with constraints can cause the marginal costs of serving customer loads to differ between locations. If spot market prices are then defined by these locationally different marginal costs, as they are in several electricity markets, then energy prices will also differ by location whenever the grid is constrained. In short, constraints will create different, though interacting, market areas, so that each market area will have its own market-clearing price.

The MDC has briefly considered two basic alternative approaches for dealing with the differences in marginal costs caused by constraints. The first approach, called "uniform pricing," is used in the UK and was used for a year by the Pennsylvania-New Jersey-Maryland (PJM) Interconnection. The second approach is called "locational pricing." Locational pricing can be implemented either by determining a price at each individual "node" of the system – *nodal pricing* – or by using a common price for several or many nodes within a "zone" but different prices between zones – *zonal pricing*. The nodal variant of locational pricing is used in New Zealand, Norway-Sweden, various Latin American markets, and in PJM (beginning April of 1998) and has been proposed for the New York market. Zonal pricing is used in Australia and California.

Uniform Pricing

Under the uniform pricing approach, the IMO would determine energy prices ignoring transmission constraints (and losses) and the locational differences in marginal costs resulting from its constrained dispatch adjustments. A region-wide uniform price would be determined, based typically on the bid price of the marginal unit that would have been used to satisfy demand if there were no binding constraints affecting the region. This hypothetical clearing price would be paid to all generators participating in the dispatch and charged to all loads served by the dispatch.

In addition to the uniform energy price, the IMO would make additional payments to those high-cost generators that the IMO had to constrain on, to compensate for any of their costs that exceed the unconstrained uniform price. Arguably, additional payments should also be made to any low-cost

generators that are constrained off, to compensate for their lost opportunity.¹ These additional payments would then be recovered from all customers throughout the market or other defined region through an “uplift” charge. Thus, a key feature of uniform pricing is that all customers see a uniform spot energy price plus a congestion-management cost or uplift that averages the costs of congestion across many or all customers.

Locational Pricing

Under the locational pricing approach, the IMO would determine the prices at each location based on the marginal costs of serving loads at each location. Although prices would be the same at every location if there were no constraints or losses, prices would differ by location when the grid was constrained or losses were significant. Generators participating in the IMO’s spot market would be paid the locational price for the location at which they inject their energy. Loads could be charged their locational prices or averages of such prices over a defined region.² If, for reasons of social equity, it were considered important to average prices for small customers across the region, this could probably be done without seriously compromising the benefits of locational pricing for the electricity system as a whole.

To ensure comparable treatment between spot trades and bilateral trades with locational pricing, bilateral transactions scheduled with the IMO would be charged for congestion based on the difference between the locational price at the point of delivery (load) and the locational price at the point of receipt (generation source). Participants could then acquire transmission rights that hedged these charges by crediting the rights holder with the locational price differences. Thus, a key feature of locational pricing is that congestion costs are charged to those whose activities contribute to the congestion, while those whose activities do not contribute to congestion do not pay for it; indeed, activities that help relieve congestion are automatically paid for doing so.

Nodal versus Zonal Locational Pricing

Locational prices could be determined and applied at each individual node of the system, as implied in the above paragraph, or could be defined for zones consisting of several or many nodes that “usually” have “approximately the same” nodal prices. With zonal pricing, system modeling would first predict locational prices under a range of expected market conditions and then identify discrete “zones” within which locational price differences are relatively infrequent or small. A different set of zones could be defined for different system conditions, e.g., one set of zones for peak demand periods with excess hydro power in the west, other sets for peak winter periods when the nuclear plants are and are not operating, etc. Once these zones were defined, they would be fixed for some specified period (e.g., six months). During that period, prices inside each zone would be defined using the uniform pricing approach, while prices between zones would be allowed to differ.

As with nodal pricing, transactions between zones with different prices could be assessed a congestion charge based on the zonal price differences. Market participants could acquire a transmission right that either excused the participants from paying the charge or credited the rights holder with the difference in the zonal prices. Periodically, locational prices throughout the region would be reexamined to determine whether the zones should be redefined, more zones created or some zones combined.

Implications of the Alternatives

¹ Constrained-off payments are made in the UK uniform pricing system but were not made in PJM.

² For example, loads in a defined region could be charged the weighted average of the locational prices that apply to the locations within the averaged region. The region could correspond to the service area of each distribution company, or it could be aggregated further up to the entire Province, if necessary for social equity reasons.

The principal difficulty with uniform pricing is that it provides inefficient and sometimes perverse incentives for generation, consumption and investment decisions if there are significant constraints. The main point of creating a market is to encourage market participants to respond to market prices. But a uniform price that does not reflect actual market values can create incentives for market participants to deviate from the IMO's dispatch instructions and/or to schedule transactions that exacerbate congestion when the IMO is trying to relieve it. This effect has occurred in the PJM pool, where low-cost constrained-off generators have contracted bilaterally to sell their output at a price below the uniform market price but above the constrained-off generators incremental costs; this forces the system operator to constrain-off even more generation, increasing the incentives for more bilateral contracts. In effect, market participants are arbitraging the difference between the too-high uniform market price and the true market value of generation in the constrained region.

One way to try to solve the problem inherent in prices that deviate from true market value is to make constrained-off payments equal to the difference between the uniform price and each generator's bid price, in effect compensating the generator for being constrained off, just as constrained-on generators are paid their bid price rather than the lower uniform market price in order to compensate them for helping to relieve constraints. But the combination of a uniform market price and IMO constraint payments that are different in different locations creates a dual-price system that inherently encourages inefficient arbitrage and gaming. Generators upstream of a constraint will lower their bid prices to increase their constrained-off payments, while generators downstream of a constraint will increase their bid prices to increase their constrained-on payments. This will distort the merit order and increase constraint payments, increasing real costs and the size of the "uplift" that all system users must pay to cover constraint costs.

Locational pricing reduces the difficulties of constrained-on/off payments by providing price signals that more accurately reflect the true costs of transmission constraints. But locational prices raise issues of complexity (there can be many more prices to deal with), price uncertainty (congestion charges are defined ex post from the dispatch) and equity among locations, as discussed in the main text. Zonal pricing attempts to deal with the perceived complexity of full nodal pricing by reducing the number of zones and prices; but fewer zones that fail to recognize actual price differences within a given zone still have the problems of uniform pricing within each zone, plus the complexities involved in defining and redefining zones and implementing transmission rights when zonal definitions can change. In short, there are various tradeoffs that must be examined in deciding how to manage and/or price congestion.