

EB-2006-0170

**Minimum Filing Requirements
for Transmission and Distribution Rate Applications
and Leave to Construct Projects**

**Comments of the Independent Electricity System Operator
on Ontario Energy Board Staff Proposal**

Submitted August 18, 2006

1. Reference: Chapter 4; 4.1 Introduction, paragraph 6, page 19

“Most of the projects proposed by non-rate regulated applicants are designed to connect sites or plants to the electric power system. The financial risk of constructing new transmission facilities lies with the owners and shareholders of the company. These companies do not need to justify their expenditures on transmission facilities.”

IESO Comments

The paragraph should be revised to clarify that it is for new line and transformation transmission facilities for which the non-rate regulated applicant assumes the financial risks. And in certain exceptional circumstances, a non-regulated applicant may also be required to assume some or all of the costs for mitigating or eliminating any materially adverse impacts on the IESO-controlled grid or competitive market caused by its connection proposal.

2. Reference: Chapter 4; 4.1.1 Legislation and 4.1.2 Regulatory Framework, Page 20

IESO Comments

These sections identify various parts of the Act and amending regulations which may apply in the review and approval of transmission applications under section 92. There are a number of other potentially relevant parts of the Act that should also be highlighted here as well (e.g., section 57, 81, etc.). A list of the potentially applicable sections of the Act—which forms the overall legislative and regulatory framework—for reviewing and approving section 92 applications was published in the original draft transmission filing guidelines.¹

¹ See. Filing Guidelines for Electricity Transmission Facilities Applications – A Guide to for Leave to Construct Projects, December 2002.

3. **Reference: Chapter 4; 4.3.10, Connection Projects Impacts on Transmission System**

“Certain connection projects may require network reinforcement in order to proceed. A description of the requirements is provided in Appendix 4-A to this Chapter. “

IESO Comments

It is unclear what additional requirements are contemplated here, over and beyond what will be provided in the normal course of producing the SIA. The IESO assesses the reliability impacts of new or modified connection proposals on the IESO-controlled grid. In addition, the IESO also identifies potentially material adverse impacts on the IESO-controlled grid and markets (i.e., material increase in congestion and system losses) attributed to each connection proposals.

This section should be revised or a new section added in the filing guidelines prescribing the minimum requirements to enable an effective assessment and review of the market efficiency impacts of new or modified connection proposals (i.e., pursuant to the public interest test and requirements of section 81 of the Act). In our earlier comments on the transmission filing guidelines review, the IESO proposed a number of determinants that it believes could be adopted to assess and value reliability benefits and market efficiency impacts attributed to new or modified transmission proposals.² In particular, the IESO noted that market efficiency impacts could be established in accordance with the following minimum determinants:

- a. **Impact on Market Prices**—the projected incremental net impact on market price over the assessment horizon from the availability of additional resources, including impacts of lower cost resources and import allowance.
- b. **Congestion Impact**—the amount of incremental reduction in Congestion Management Settlement Credits payable by the market that is directly attributed to the connection proposal. This can be evaluated by assessing the historical performance of the congested interface(s) and adopting certain assumptions about how grid changes are likely to materially impact prevailing flows.
- c. **Impact on Transmission Losses**—the incremental line loss reduction on the transmission system that is attributed to the connection proposal. This can be estimated by calculating the net present value of the incremental losses that are attributed to the connection proposal.

² See. Attachment A, Filing Requirements for Transmission Infrastructure Investment, Comments of the Independent Electricity System Operator, December 6, 2005.

The IESO also noted that it would undertake to amend its CAA process, as necessary, to enable it to carry out and administer any additional assessment (i.e., market efficiency impacts) or requirements prescribed by the filing guidelines. In particular, the scope of the assessment of market efficiency impacts will need to be established by the IESO and agreed upon by the Board, including, among other things, the methodology and parameters for estimating future benefits (e.g., forecast of future energy prices) that may accrue from transmission investments and the timeframe over which these benefits will generally be assessed. This is an essential requirement for the IESO undertaking this work. We fully expect that the market efficiency impact assessment process will need to be refined over time as we gain more experience.

In addition, the IESO's current capability and tools for performing market efficiency impact studies are somewhat limited and will need to be enhanced over time. As such, in the short-term it may be necessary to supplement IESO resource to adequately fulfill this expanded role.

4. Reference: Chapter 5; Evidence in Support of Need, Para., page 30

"The Applicant's evidence in support of the need for the project must be comprehensive, and, where appropriate, could be supported by evidence of the IESO and/or the Ontario Power Authority..."

IESO Comments

The IESO believes that the filing guidelines should prescribe, to the extent possible, the minimum information or data that is required of connection applicants to enable the Board to conduct its regulatory tests in establishing, among other things, the need for the project, and to enable a reasonable assessment and analysis of costs and benefits, as applicable. In addition, the IESO submits that any proposed role or support that is required of the IESO and OPA should be clearly defined and prescribed in the filing guidelines as discussed in our December 6, 2005 proposal.³ This will enable the Board to carry out the regulatory tests required by the enabling legislation and regulations, while providing clear guidance to the IESO and OPA about their respective role and obligations.

5. Reference: Appendix 4-A; Transmission System Impact and Network Reinforcement

³ See, Filing Requirements for Transmission Infrastructure Investment, Comments of the Independent Electricity System Operator, December 6, 2005.

“The applicant must supply information on the nature and magnitude of any impact of the proposed connection facility on the transmission system. Normally the IESO addresses and provide high level assessment of such impacts in the System Impact Assessment report performed by the IESO as set out in the IESO’s Connection Assessment and Approval process.

This information will not be determinative of the decision on leave to construct in these cases as the cost responsibility of line connection investments are addressed fully in the Transmission System Code (TSC) and the applicant is responsible for demonstrating compliance with the TSC.”

IESO Comments

The Act and regulations made under Act, establishes the minimum regulatory standard and tests that Board must consider in its review and approval of transmission proposals. It is unclear under what authority the Board is enabled to exclude from consideration, reliability and market efficiency impacts in respect of its review and approval of new or modified transmission proposals under section 92. Our interpretation of the required regulatory tests for applications under section 92 leads us to believe that the reliability and market impacts of new or modified connections are required by statute, and as such are part and parcel to the Board’s review and approval of transmission applications.

In addition, we believe the policies and provisions relating to cost responsibilities that are enshrined in the TSC cannot be substituted for the requirement for Board review and approval of new or modified transmission proposals under section 92. So long as the transmission proposal meets the minimum threshold (i.e., 2 km or greater in length), leave of the Board to construct the proposed facility is required, irrespective of how the costs may be allocated. The Board must determine whether each project is in the public interest in accordance with the minimum requirements established by the Act and regulations.

“However, the Board may wish to determine whether a transmitter(s) needs to apply for a leave to construct to make the required network upgrades triggered by the proposed connection project. If a leave to construct is necessary, the Board may wish to invite the transmitter(s) to make the needed applications at the same time, or immediately following, the application of the connecting customer.”

Is it more efficient to have a joint review and approval process where a line connection proposal that is 2 km or greater triggers the need for specific network reinforcements, and for which Board approval is also required? This is an important matter that requires the Board’s guidance because it will impact the efficiency and timing of transmission facilities review and approval and their connection to the grid.

The IESO submits that the Board should establish a clear policy (e.g., amend the TSC or transmitter license) and prescribe the necessary filing guidelines to ensure that network reinforcements that are required to reliably incorporate a line connection proposal can be reviewed and approved in parallel or concurrently with the associated line connection proposal under section 92 applications. In our view, it is desirable and may be more efficient for the connection proponent and impacted transmitter(s) to submit a joint proposal to the Board. Upon successful review and approval, leave to construct may be granted to the parties setting out the appropriate terms and conditions, including any direction regarding the allocation of costs in exceptional circumstances. The Board could draw from past precedents where this model was used effectively.⁴ This will avoid the need for separate proceedings before the Board to review and approve new or modified network reinforcements that are required to incorporate a line connection proposal or to determine any associated cost that a line connection proponent may be expected to bear in exceptional circumstances.

⁴ **See.** De Beers Canada Inc., Five Nations Energy Inc., Hydro One Networks Leave to Construct Application (EB-2004-0545)

Attachment A

**Filing Requirements for Transmission Infrastructure Investment
Comments of the Independent Electricity System Operator**

December 6, 2005

Summary

The Ontario Energy Board (the “Board”) has increased the rigor and scope of the requirements for reviewing and approving electricity transmission facility expansion proposals. In particular, the Board requires more quantitative information about the anticipated reliability and market economic benefits of transmission investment proposals.

On August 26, 2005, the Board issued a notice of intent to establish a Technical Advisory Team (TAT) consisting of industry experts to develop filing requirements for the review and approval of transmission expansion proposals, and investment proposals that may be the subject of a Board rate proceeding. The filing guidelines will set out the minimum information and data to enable the Board to carry out its review and approval of transmission investment proposals, and clarify the obligations and responsibilities of applicable parties involved in the associated processes.

The TAT has identified a number of issues (e.g., determinants for valuing reliability and market benefits, and role and responsibilities of the Independent Electricity System Operator and Ontario Power Authority in this regard) that needs to be addressed before the TAT can complete its work in drafting the filing guidelines. A number of these issues were framed in the form of specific questions—the basis of which members were asked to prepare proposed solutions and comments. In this paper we set out the IESO comments and proposed solutions for addressing these issues. It is worthwhile noting that our response and comments are based on our view of reliability and market impacts from a system perspective. The IESO’s review of new or modified connections is generally limited to system or area wide reliability and adverse market impacts,

as opposed to impacts on specific customers. Review of the latter impacts is usually carried out by the impacted transmitter and/or distributor. As such, these entities may be in better positioned to address these issues as they relate to customer specific impacts.

Background and Current Situation

- The transmission regulation framework and investment drivers adopted by Ontario were partly formulated by the Market Design Committee, and subsequently have been evolving by way of enactment of various legislation and amending regulations, Board codes, decisions, rules of practice and procedure, and IESO market rules.
- Ontario's market design put in place market mechanisms and contemplated reliance on market drivers and signals (i.e., shadow prices, congestion management payments and load, generation and transmission adequacy forecasts) to facilitate investments in transmission reinforcement and expansion.⁵ These mechanisms have proven to be inadequate in stimulating timely investments in transmission facilities.
- Traditionally, the responsibility for transmission planning rested with the Board, transmitters and the IESO. Most recently the Ontario Power Authority (the "OPA") was created to, among other things, develop plans to guide medium- and long-term capital investment decisions to ensure adequate supply of generation resources. In addition, the plan will facilitate transmission infrastructure development in recognition of the acute lack of market response, coordination and incentives to promote investments in transmission reinforcement and expansion. Appendix A provides an overview of the current transmission planning framework in Ontario.

IESO Proposed Solutions and Comments

Upon reviewing of the questions raised by Board staff at the last meeting of the TAT we observed that they generally fall into three themes: (1) determinants for valuing reliability and market impact benefits; (2) filing requirements, reliability and market impact tests for customer connection (i.e., load and generation) and transmitter investment proposals; and (3) proposed roles and responsibilities of the IESO and OPA. Our response and comments are aligned along these three themes.

(1) Proposed Determinants for Valuing Reliability and Market Benefits

It has been established that economic valuation of reliability benefits is a difficult exercise. This challenge is due to the numerous factors that must be weighed and uncertainty about future events that will impact the ongoing permanence and magnitude of the benefits under consideration. We believe there are a number of determinants that could be adopted to demonstrate the implicit reliability and economic benefits of transmission investment proposals. The level of benefits that will accrue from transmission investment proposals will be a function of the assumptions and factors that are considered in such analysis. In our view, it is essential that the filing guidelines also take into consideration the key assumptions and minimum factors that must be considered in the economic evaluation of reliability and market impacts benefits. Connection applicants should be encouraged to adopt, as applicable, these minimum determinants in quantifying the implicit economic benefits of their transmission investment proposals. In addition, connection applicants should also be encouraged to identify and quantify where possible, other reliability and market impact benefits associated with their connection proposals.

In the following section we identify a number of key determinants that could be adopted for economic valuation of reliability and market impacts benefits.

⁵ These drivers were seen as short term in nature pending the anticipated adoption of some form

Determinant for valuing reliability benefits:

- a. **Unsupplied Energy**—the projected amount of load supply interruptions, expressed in dollars—using an average value for the loss of load across all customers—from the target in-service date to some future period (e.g., the projected minimum timeframe for the next planned upgrade or reinforcement). This can be evaluated using a probabilistic tool to estimate the amount of unsupplied energy, expressed in system minutes or energy, among various alternatives.
- b. **Maintenance Flexibility**—savings in maintenance flexibility that can be realized over a defined period of time. This can be estimated by summing the savings attributed to labor cost, emergency supply options or avoided operating reserve commitment cost.⁶
- c. **Deferred Capital Investment**—the capital cost savings that is realized by deferring proposed reliability investments to some future period (e.g., the projected minimum timeframe for the next planned upgrade or reinforcement required to meet a specific level of supply or reliability standard).⁷

Determinant for valuing market impacts benefits:

- d. **Impact on Market Prices**—the projected incremental net impact on market price over the assessment horizon from the availability of additional resources, including impacts of lower cost resources and import allowance.
- e. **Congestion Impact**—the amount of incremental reduction in Congestion Management Settlement Credits (CMSC) payable by the market that is directly attributed to the connection proposal. This can be evaluated by assessing the historical performance of the congested interface(s) and adopting certain assumptions about how grid changes are likely to materially impact prevailing flows.

of locational pricing.

⁶ The John to Esplanade transmission expansion proposal is an example of where maintenance flexibility determinant could have been applied to assess the reliability benefits of the investment. The IESO's SIA confirmed that the link would not only permit load transfer from Leaside to the Manby Sector with greater security (i.e., via two circuits rather than a single circuit with the prior arrangement), but it will also allow an increase in the amount of load that could be transferred. (System Impact Assessment Report, CAA ID No. 2002-057, July 12, 2004).

⁷ The John to Esplanade Link also provides an example of where Deferred Capital Expenditure determinant could have been applied to assess the reliability benefits of the investment. In this case the IESO concluded that, with the increased capability to transfer load from the Leaside Sector to Manby Sector in response to a contingency involving one of the critical 115kV circuits in the Leaside Sector, it would be possible to defer the reinforcement of the Leaside Sector until immediately prior to the summer-2010. Essentially, the development of the John to-Esplanade Link would extend the need for reinforcing the Leaside Sector by an additional 2 years. (System Impact Assessment Report, CAA ID No. 2002-057, July 12, 2004).

- f. **Impact on Transmission Losses**—the incremental line loss reduction on the transmission system that is attributed to the connection proposal. This can be estimated by calculating the net present value of the incremental losses that are attributed to the connection proposal.

Other determinants for valuing reliability and market impact benefits.

As discussed earlier in this paper, connection applicants should also be encouraged to identify and quantify, where applicable, other benefits that will accrue from their transmission investment proposals. In such cases, the Board should give due consideration to these benefits providing that the assessment and supporting evidence is reasonable.

(2) Filing Requirements and Reliability and Market Impact Tests for Customer Connection and Transmitter Proposals

Table 1 of the Board Staff draft paper sets out three types of transmission investment proposals and the associated information requirements related to price, reliability and quality, and alternative considerations.⁸ Board Staff have requested that members provide comments on the appropriateness of the informational requirements for the three types of transmission investment proposals.

As a general observation, we submit that it may be impractical for the Board to apply a different review standard for each of the three types of transmission investment proposals that may be the subject of the Board's leave to construct review and approval. Section 92 obligates the Board to consider the public interest of the proposed transmission investment.⁹ In this regard, leave to construct and the Board's consequential consideration of the public interest is required; not because of a particular type of project, but because a transmission line of a particular length is involved (i.e., the project include construction of an

⁸ **See.** Draft Electricity Transmission Investments: Issues Relating to Cost – Benefit Analysis, Nov. 18, 2005, pg. 6-7.

⁹ Public interest is defined as the interests of consumers with respect to the pricing, availability, reliability and quality of electricity service.

associated transmission line of more than 2 kilometres in length). In our view, the standard for reviewing and approving all three types of projects should be the same. That is, we would expect that the Board will continue to consider the public interest with respect to the impact on price, availability, reliability and quality of electricity service attributed to the proposed transmission investment. In addition, section 81 sets out additional tests that the Board must consider whenever the transmission connection applicant is a generator.

We do not agree that information pertaining to the cost of new or modified system reinforcements associated with load and generator customers' line connection proposal should be considered for "information purposes only, and not used to judge the [respective] application."¹⁰ A line connection proposal could very well trigger the need for new or modified transmission facilities to reliably incorporate and mitigate any adverse material impacts resulting from the connection proposal.¹¹ We believe the assessment and approval of the proposed connection facilities are not independent of any downstream system reinforcements that may be required to incorporate the connection proposal. Also, it may be necessary to consider alternative connection configurations and/or system reinforcements to facilitate efficient and cost-effective expansion of the IESO-controlled grid. As such, we submit that this information should be a requirement in a leave to construct review and approval to enable the Board to assess the net impact of the connection proposal on the IESO-controlled grid and IESO-administered markets, and not simply submitted for information purposes.

As discussed earlier, the Board's determination of whether the project is in the public interest will not turn on any particular characterization of the project. The public interest test must be satisfied regardless of how the project is characterize; so as long as it involves, at a minimum, construction of a transmission line more

¹⁰ It may be misleading to characterize this type of investment simply as "line connection" because; for the most part, it will include other facilities which form the basis of an "interconnection" also requiring the Board's approval, in accordance with the requirements of Section 92 of the *Ontario Energy Board Act, 1998*.

than 2 kilometres in length and subject to the Board's review and approval under section 92 of the Act.

3. Proposed Role and Responsibilities of the IESO and OPA

In Appendix A we summarize the IESO's and OPA's current role and responsibilities in the current transmission planning process. Ultimately, any incremental role and responsibilities assumed by the IESO and OPA will need to be sanctioned by the Board and our respective management. The IESO is committed to assisting connection applicants and the Board in identifying and evaluating reliability and market benefits of transmission investment proposals, and also projects that may be the subject of the Board's rate review.

Reliability and Market Impact Evaluation

- The IESO proposes to build on the reliability and market impact information already provided in the IESO's Connection Assessment and Approval process, in particular the System Impact Assessment (SIA). The SIA is currently a requirement in transmission investment filing requirements.
- The IESO proposes to expand the scope of the SIA to identify and value the applicable reliability and market benefits¹² that are attributed to customer (i.e., load or generator) connection, or transmitters' new or modified transmission investment proposals pursuant to the Board approved filing requirements. This incremental work will need to be weighed against the IESO's resource and capabilities.
- Where appropriate, the IESO will work with the connection applicant and the OPA to assess alternative connection arrangements and measures to mitigate reliability and markets.
- Where appropriate, the IESO will assist the OPA in assessing alternatives to

¹¹ **See.** De Beers Canada Inc., Five Nations Energy Inc., Hydro One Networks Leave to Construct Application (EB-2004-0545)

¹² In some cases other benefits will also accrue to transmission customers but may be outside the scope of the IESO review

transmission investment proposals in the course of developing the OPA's Integrated Power System Plan and Regional Reliability Plans.

- The IESO is able to facilitate any incremental responsibilities with respect to assessment and valuation of reliability and market impacts benefits by way of its existing Connection Assessment and Approval Process.

Leave to Construct Proceedings

- The IESO's role in the Board's leave to construct proceeding is to provide independent advice and assistance to the Board and other interested parties regarding the need for transmission expansion or reinforcement facilities identified by the IESO, and to clarify the reliability and physical market impacts of new or modified connection proposals that is the subject of the SIA undertaken by the IESO. The IESO will continue to act in this role, as well as participate by, *inter alia*, submitting written evidence, answering interrogatories and appearing at any oral hearing held by the Board in respect of a proceeding that is the subject of its SIA.
- It will be necessary for the Board to clarify the specific role and responsibilities of the IESO and the OPA with respect to leave to construct proceedings, and under what authority they are required to appear and participate in a proceeding in order to continue to recognize and preserve the independent status of both entities. The IESO request that the Board amend its Rules of Practice and Procedure to create a participatory category suitable for the IESO and OPA participation in this regard.

Conclusions

The IESO believes that there are a number of determinants that could be adopted to demonstrate the implicit reliability and market economic benefits that are attribute to load, generator and transmitter's transmission investment proposals. We also believe that the Board should continue to apply a common standard for reviewing the public interest test with respect to transmission

investment proposals that are the subject of the Board's leave to construct proceeding. The IESO is committed to assisting connection applicants and the Board in identifying and evaluating reliability and market benefits of transmission investment proposals, and also projects that may be the subject to the Board's rate review.

Submitted December 6, 2005
Independent Electricity System Operator

APPENDIX A

Current Ontario Transmission Planning Framework

The current regulatory framework for transmission planning, development and administration is enshrined in legislation and various amending regulations.

Role of the Ontario Energy Board

The Board is the agency charged with overall responsibility for regulation of transmission planning, development and administration in Ontario, whereas other agencies, including the IESO, OPA and Licensed Transmitters carry out various supporting functions in this regard.¹³ The Board administers its authority and responsibilities through various regulatory instruments including license, codes, standards, rules of practice and procedure, and its decision and order. In particular, the Board's role in the assessment of transmission expansion investments is to ensure compliance with the requirements of the *Ontario Energy Board Act, 1998*, in particular, sections 81, 82, 92 and 96 of the Act. In this regard, the Board's mandate is to ensure that electricity transmission investments are prudent and in the public interest before any approval is granted.

Role of Licensed Transmitters

Licensed Transmitters are authorized and obligated to carry out certain minimum activities with respect to the planning, development and maintenance of their transmission system pursuant to terms and conditions of their license, applicable codes, rules of practice procedure and decision and orders of the Board and the

¹³ Among other things, the Ontario Energy Board Act, 1998, obligates the Board to carry out its responsibility under this or any other Act to:

- i. Provide generators, retailers and consumers with non-discriminatory access to the transmission and distribution system;
- ii. Protect the interests of consumers with respect to prices and the reliability and quality of electricity service;
- iii. Promote economic efficiency in the generation, transmission and distribution of electricity; and
- iv. Facilitate the maintenance of a financially viable electricity industry.

Market Rules. For example, transmitters are obligated by the TSC to carry out a Customer Impact Assessment (CIA) to assess the reliability impacts of proposed new or modified connections on their transmission customers whenever the IESO's SIA is required or the transmitter has determined that the connection will have an impact on existing customers.¹⁴ In addition, transmitters may be assigned additional obligations or responsibilities with respect to transmission investments by way of a directive of the Minister of Energy.¹⁵

Role of the Ontario Power Authority

The OPA is responsible for projecting medium- and long-term electricity needs, and developing plans for how these needs will be met. OPA's plans will also guide capital investment decisions and form a basis for transmission infrastructure investments to facilitate reliable delivery of electric energy to consumers.

Role of the Independent Electricity System Operator

The IESO is responsible for projecting short-term demand, and generating and transmission adequacy forecasts. The IESO is also obligated to identify deficiencies in the integrated transmission system and request that the transmitter submit proposals to address these deficiencies for the IESO's review, and the Board's subsequent review and approval.¹⁶ The IESO's Connection Assessment and Approval, in particular the System Impact Assessment (SIA)

¹⁴ The Customer Impact Assessment (CIA) report is a requirement in the Board's leave to construct review and approval process. It provides the Board with assurance, among other things, that local reliability impact issues are or will be addressed. By addressing customer concerns prior to the proceeding this eliminates potential issues that might otherwise become a point of contention during the proceeding. The CIA also ensures that delivery point and local area reliability standards and guidelines are maintained in accordance with the TSC and Market Rules..

¹⁵ Section 12.3 of Hydro One's License requires that it carry out its best effort to expand the inter-tie capacity with neighbouring jurisdictions by approximately 2000 MW by May 1, 2005.

¹⁶ Under the current rules the request for proposals is limited to the affected transmitter. Some market participants have taken issue with this approach because, in their view, it limits the prospect for competitive solutions and the ability of other transmitters to capitalize on transmission expansion opportunities. The development and construction of the Parkway Transmission Facilities and the Downtown Toronto Cable are two such examples.

and Notification of Approval, are essential requirements for the Board's review and approval of electricity transmission facility expansion proposals.

Currently, the SIA is designed to assess the reliability impacts of new or modified connection proposals on the IESO-controlled grid. In addition, the SIA also identifies potentially adverse impacts on the IESO-administered markets with respect to congestion and losses that are attributed to connection proposals. The framework for conducting and administering the SIA is established by the Market Rules.

The IESO's role in the Board's leave to construct proceeding is to provide independent advice and assistance to the Board and other interested parties regarding the need for transmission expansion or reinforcement facilities identified by the IESO, and to clarify the reliability and physical market impacts of new or modified connection proposals which are the subject of the SIA undertaken by the IESO. For the most part, this role is limited to the provision of technical information and support through written submissions, as well as expert witnesses at oral proceedings.