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BY COURIER

January 25, 2013

Ms. Kirsten Walli, Secretary
Ontario Energy Board
Suite 2700, 2300 Yonge Street
P.O. Box 2319
Toronto, ON M4P 1E4

Dear Ms. Walli:

EB-2012-0246 – Board Staff Discussion Paper on Issues Related to the Connection of Micro-Embedded Generation Facilities

Please find attached the Hydro One Networks Inc. ("Hydro One") comments on the Board Staff discussion paper on issues related to the connection of micro-embedded generation facilities.

Sincerely,

ORIGINAL SIGNED BY SUSAN FRANK

Susan Frank
(attach)

HYDRO ONE COMMENTS ON ISSUES RELATED TO THE CONNECTION OF MICRO-EMBEDDED GENERATION FACILITIES

INTRODUCTION

Hydro One welcomes the Ontario Energy Board's (the "Board") review of issues distributors face when connecting micro-embedded generation and agrees with the Board's assessment that in light of the changes to the microFIT program it is prudent to review the charges, technical requirements and rules in the Distribution System Code (the "Code") related to the connection of micro-embedded generation facilities.

Hydro One's proposals are based on its experience gained with micro-embedded generation to date and are also shaped by the outcome of its previous exemption (EB-2011-0118) and extension (EB-2012-0343) applications, related to the timelines in sections 6.2.6 and 6.2.7 of the Code.

Furthermore, Hydro One recognizes that not all distributors have encountered the issues that stem from a high-volume of applications, but which have faced Hydro One to date. In preparing our submission, Hydro One consulted a number of other distributors through the Electricity Distributors Association and the Coalition of Large Distributors, ranging from those with twenty micro-embedded generators to those with a few hundred. Based on these consultations, we have attempted to put forward proposals that would work for all distributors, and in an environment of fluctuating application volumes.

OFFER TO CONNECT PROCESS

1.1 Of the options listed above, which one, if any, represents the best way for distributors to manage the offer to connect process? Are there other options? Please explain your answer.

Hydro One agrees that some measure should be put in place to discourage speculative applications. However, a non-refundable application fee would unnecessarily punish those proponents that may be capacity-constrained. In Hydro One's experience, that represents approximately 30% of all applications (program to date). On the other hand, if a refundable deposit were to be charged, and refunded to all those projects that are capacity constrained, distributors would incur a large administrative burden in accepting, processing and refunding cheques.

Therefore, Hydro One is recommending a variation from the options put forward by Board Staff – that a deposit be charged only to those customers that require a site assessment.

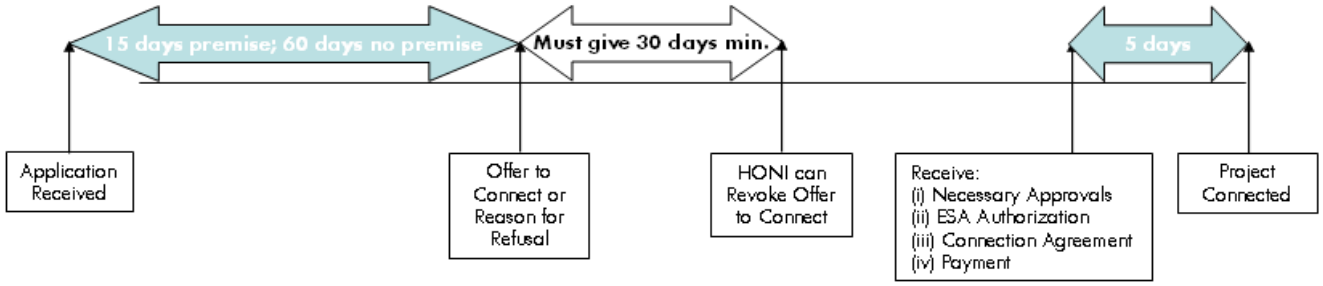
After the initial application is made (and deemed complete), a distributor would provide either: a refusal, an offer to connect for a basic connection, or an offer to connect for a non-basic connection, the latter of which would be contingent on the customer paying a deposit where a site assessment is required. The proponent would have fourteen calendar days (which respects the overall 90 day deadline put in place by the OPA) to provide the deposit and, upon payment, the distributor would perform the site assessment and prepare the estimate to accompany the offer to connect. At that stage the proponent could choose whether to proceed with the connection or not. Where the customer proceeds to connect, the deposit would be credited back to the customer after connection. Customers who do not connect would forfeit their deposit.

Hydro One further recommends that each distributor be able to set this deposit amount and that it should be based on the time and materials required to perform a site assessment. Hydro One currently estimates this to be $300. By setting the requirements for the deposit in this way, and using it to recover actual costs, the Board can ensure that other customers are not paying for work required by speculative applications or other applications that do not proceed to connect.

1.2 Are there any other issues (e.g., distributor resources allocated to processing applications) associated with the offer to connect process that needs to be addressed? If yes, please describe them.

As it stands, the process that is in the Distribution System Code (the "Code") is depicted in Figure 1.

Figure 1: Micro-Embedded Generation Process Per the Code



The process, as developed, did not anticipate or allow for certain technical aspects associated with connection of micro-embedded generation. These considerations are now known to include both: (i) the cumulative impact that the connection of small facilities can have on the distribution system (especially in rural areas) and (ii) the nature, duration and timing of the work necessary to assess and connect these facilities. This information became available only once Hydro One and others gained experience in dealing with micro-embedded distributed generation.

In Hydro One's exemption application related to the timelines for micro-embedded generation facilities, Hydro One has provided details regarding issues experienced with the offer-to-connect process. Specific to this topic in the Board's Discussion Paper, Hydro One has found that the amount of time needed by a distributor to provide an offer to connect or refusal is not dependent on whether a facility is directly-connected to the distribution system or not. Rather, it is the distributor's determination of the need for a site assessment that should determine if more time is needed to provide an offer to connect.

The Board determined for the purpose of the exemption that there are in fact three groups of micro-embedded generation:

i. Indirect Connections, where a site assessment is not required (Group A).
ii. Indirect Connections, where a site assessment is required (Group B)
iii. Direct Connections (site assessments are always required) (Group C).

Hydro One will provide comments on the timelines in section 6.2.6 and 6.2.7 of the Code in the next section of these comments specifically related to that topic.

APPROPRIATENESS OF TIMELINES IN THE DSC (SECTIONS 6.2.6 AND 6.2.7) FOR MICRO-EMBEDDED GENERATION FACILITIES

2.1 What non-regulatory factors (e.g., the amount of resources distributors have allocated to processing applications) are preventing distributors from developing and executing a process to meet the DSC requirements?

Within Hydro One's application for an extension to the six-month exemption, Hydro One asserted that,

> *"There is, in fact, a conflict between the Code's stringent requirements for processing applications and physically connecting micro-embedded generation, and the distributor's need to manage all its work programs (including other Code requirements and power restoration) in an efficient and economic manner."*

In that submission, Hydro One cited the frequent changes to the OPA's microFIT program, the fluctuating volume of applications and the Board's requirement for 100% compliance as barriers to efficient and economic service related to micro-embedded generation application processing and connections. Refer to Hydro One's application for an extension for further information.

2.2 Are the current timelines in the DSC (sections 6.2.6 and 6.2.7) appropriate for the connection of micro-embedded generation facilities?

In the filed exemption application, and in subsequent monthly reports, Hydro One has demonstrated that the requirements of the Code in this regard are very difficult to meet 100% of the time. The tables below provide the compliance percentages achieved by Hydro One for each category of connection. Additionally, these statistics relate to a period of lower application volume, due to the microFIT program being placed on hold by the OPA for the Two Year Review. Recently the OPA re-launched the microFIT program. The revised program is in the form of annual procurements. The nature of annual procurements will result in a large volume of applications to distributors once a year. This represents a challenge to distributors to plan appropriate staffing levels and schedules.

Table 1: Application Processing

Type of Connection	Code Requirement	Performance	
Group A	Within 15 days	**2012 Average:**	**100%**
		Jan: 100%	Jul: 100%
		Feb: 100%	Aug: 100%
		Mar: 100%	Sep: 100%
		Apr: 100%	Oct: 100%
		May: 100%	Nov: 100%
		Jun: 100%	Dec: 100%
Group B	Within 15 days (the Code)	**2012 Average:**	**91.2%**
		Jan: 71.0%	Jul: 95.5%
		Feb: 79.0%	Aug: 93.2%
		Mar: 89.4%	Sep: 95.8%

		Apr: 89.0% May:95.4% Jun: 96.2%	Oct: 95.4% Nov: 94.8% Dec: 100%
Group B	Within 30 days (the Exemption)	**2012 Average:**	**97.8%**
		Jan: 88.1% Feb: 91.4% Mar: 96.9% Apr: 100% May: 99.1% Jun: 98.7%	Jul: 100% Aug: 100% Sep: 100% Oct: 100% Nov: 98.9% Dec: 100%
Group C	Within 60 days	**2012 Average:**	**97.6%**
		Jan: 83.5% Feb: 90.7% Mar: 100% Apr: 98.6% May: 100% Jun: 100%	Jul: 100% Aug: 98.1% Sep: 100% Oct: 100% Nov: 100% Dec: 100%

Table 2: Physical Connections

Type of Connection	**Exemption Requirement**	**Performance**	
All connections	Connected within 5 days subject to conditions of original exemption	**2012 Average:**	**96.9%**
		Jan: 87.1% Feb: 89.5% Mar: 97.4% Apr: 97.7% May: 98.8% Jun: 99.1%	Jul: 97.8% Aug: 98.7% Sep: 99.0% Oct: 98.9% Nov: 100% Dec: 98.4%

2.3 Of the three options listed above, which is preferred by stakeholders? Please explain the reasons for the preferred option.

Of the three options, Hydro One would prefer the third option, "meeting DSC timelines 90% of the time and more time to make an offer to connect." Hydro One seeks more time only for those customers where Hydro One determines that a site assessment is required. This is in line with the terms that the Board granted Hydro One in its exemption and its subsequent extension.

When it comes to physical connections, by setting the same annual compliance threshold (i.e. 90% annually) for both micro-embedded generators and load customers, the Board would provide for the fair treatment of all customers, so that the connections of one customer type (micro-embedded generators, today) do not take precedence over another (load customers). This consistent set of targets also enables

the distributor to efficiently and effectively schedule and bundle work in its service territory. It further provides distributors with a clear indication on the prioritization of work so that, for example, power restorations, load connections, and other demand work (e.g. cable locates) are not unduly compromised to meet more stringent requirements for micro-embedded generation connections.

2.4 What changes, if any, could be made to the timelines to better enable distributors to process the volume of applications being received for the connection of micro-embedded generation facilities?

Hydro One recommends that the Code be changed along the lines of the terms granted to Hydro One in its exemption application. In presiding over Hydro One's exemption request and subsequent extension request, the Board and other parties have been informed about the relevant issues and tested them, and the resultant terms are therefore the product of appropriate consideration. Hydro One does not believe that there has been any material change in circumstances to render these terms obsolete.

Thus, Hydro One suggests that the timelines for *providing an offer to connect or refusal* should be 15 days for indirect connections where no site assessment is required, 30 days for indirect connections where the distributor has determined that a site assessment is required and 60 days for direct connections. Hydro One maintains that it would be appropriate for the Board to set all three timelines to be met at least ninety percent of the time on a yearly basis.

Hydro One further suggests that the timelines for *physical connections* be made equivalent to those in section 7.2 of the Code. This includes the ability to negotiate a later date and the 90% annual compliance threshold.

2.5 Is there a reason the timelines should be different for micro-embedded generation facilities and other customers? If so, explain why.

With respect to physical connections Hydro One believes that the Code should not impose any requirement(s) that would place generator connections as a higher priority than power restorations, load connections or other demand work. From a customer perspective, to do so sends the wrong message. For work planning and scheduling in the field, requiring the same connection compliance for both micro-embedded generation and load customers allows distributors greater flexibility in planning, scheduling and completing work in the field. If work is appropriately bundled, it reduces travel time which directly translates in to lower labour and transportation costs – which in turn reflects in lower connection charges and/or rates.

STANDARD FORM OF CONNECTION AGREEMENT IN THE DSC (APPENDIX E)

3.1 What modifications, if any, need to be made to the standard form micro-embedded generation facility connection agreement in Appendix E of the DSC? Please describe the modifications and provide the rationale and supporting documentation for why these modifications are necessary.

Hydro One proposes the following items be addressed in any revision to the standard form of the connection agreement for micro-embedded generation facilities (the "Connection Agreement") as found in Appendix E of the DSC.

1. Section 2.3 of the Connection Agreement presently reads:

   > *You agree that during a power outage on the LDC system your generation facility will shut down, unless you have installed special transfer and isolating capabilities on your generation facility. You agree to the automatic disconnection of your generation facility from the LDC's distribution system, as per the generator protective relay settings set out in this Agreement, in the event of a power outage on the LDC's distribution system or any abnormal operation of the LDC's distribution system.*

   This automatic disconnection clause does not presently speak to normal operation occurrences where output voltage is greater than the trip settings of the inverter. Therefore, for safety and reliability purposes, Hydro One recommends that this condition be amended by terminating clause 2.3 after "as per the generator protective relay settings set out in this Agreement."

2. A term or condition should be added to the Connection Agreement that gives a Distributor the right to disconnect a generation facility (including through the meter) when a Distributor predicts that there will be an issue on a feeder that may harm the distribution system or other distribution connected customers, and to then reconnect the generator (including through the meter) when, in the distributor's assessment, the issue has been resolved.

3. Should the Board agree that a remote generation dispatch ability condition be implemented, Hydro One recommends a provision be inserted in the Connection Agreement that states that, "if your generation facility is or becomes subject to generation dispatch by the distributor (including as an agent of the transmitter or the IESO) you will not be entitled to compensation from the distributor for the lost opportunity to generate, including, but not limited to loss of profits or revenues and business interruption losses, except where explicitly provided in a separate agreement by you and the distributor."

4. Hydro One suggests the addition of a subsequent clause after 2.5 that would address notification. This condition would include a provision for the Distributor to provide notice of disconnection if the generation facility is generating over the nameplate rated capacity of the generation facility, as provided to the Distributor in the connection process; i.e. the distributor may disconnect the generation facility after 30 days of the infraction if not addressed at the generator's own expense. The rationale for this recommendation is to ensure that the distributor is provided with accurate operating information from the generator, and in fairness to other generation proponents, to ensure that capacity is available for other connections.

5. The Board may wish to consider if there is cause to address third party liability claims. If third party liability claims are deemed to be an issue, Hydro One suggest that in order to protect distributors from such third party claims, a provision (or provisions) indemnifying distributors from all claims associated with the connection of the micro-embedded generation facility should be included in the standard form of agreement and/or in the Code itself.

3.2 Given that the connection agreement in Appendix E of the DSC for small and mid-sized embedded generation facilities include requirements for insurance, should insurance provisions be included in the micro-embedded generation facility connection agreement? Please explain.

Hydro One is not recommending a requirement for micro-embedded generation to obtain mandatory insurance at this time.

EXPERIENCE WITH THE MONTHLY SERVICE CHARGE (ESTABLISHED IN EB-2009-0326)

4.1 Given that distributors have the ability to request a distributor-specific microFIT charge as part of their cost of service applications, does the underlying methodology currently used to set the province-wide fixed monthly charge need to be changed? If so, please explain the rationale for any proposed changes.

Except as discussed under item 4.6, Hydro One is not proposing any changes to the methodology currently used to set the province-wide fixed monthly charge at this time. However, as distributors have their specific charges set as part of their cost of service applications, Hydro One encourages the Board to take those individual rates, and their composition, under consideration when updating the province-wide fixed rate and methodology.

4.2 Is a new specific rate class for non-microFIT micro-embedded generation facilities warranted? Should non-microFIT micro-embedded generation facilities be added to the rate class for microFIT micro-embedded generation facilities?

The process for connecting and administering micro-embedded generation facilities does not differ between non-microFIT and microFIT facilities at Hydro One. Therefore, we would recommend that no new rate class be created and that non-microFIT micro-embedded generation facilities be added to the rate class for microFIT micro-embedded generation facilities.

4.3 How much electricity are micro-embedded generation facilities that are part of the OPA's microFIT program consuming and what are the related costs?

A typical micro-embedded generator consumes 5 kWh per month. Hydro One has over 10,000 micro-embedded generators. Therefore, the unbilled consumption is estimated to be greater than 600,000 kWh per year. Currently, this load consumption is paid for by other distribution customers as distribution losses.

4.4 Is there a reason micro-embedded generation facilities that are part of the OPA's microFIT program should not be charged for their own consumption and, instead, the related costs should be recovered from a distributor's load customers? If so, please explain why.

Hydro One is not supportive of load customers paying for consumption by microFIT contract holders.

4.5 Do similar consumption-related issues exist for non-microFIT micro-embedded generation facilities?

For a distributor, the presence of an OPA contract does not affect consumption issues. Thus, we would recommend the same treatment for all micro-embedded generation facilities.

4.6 How should the charges for the consumption of electricity be recovered from micro-embedded generation facilities (i.e., the same as a regular customer, through the province wide-fixed monthly service charge for microFIT micro-embedded generation facilities, through some other manner)?

Application of a consumption charge in a manner similar to that of a regular customer for such a low volume would be administratively inefficient for distributors. As such, we would recommend that if the Board proceeded with consumption charges that it is done through the province wide-fixed monthly service charge. Our suggestion is to determine the average forecast electricity consumption of all micro-embedded generators, and include the energy consumption costs as part of the methodology for determining the monthly fixed charge for micro-embedded generation. The impact on the monthly service charge would be minor and should not impact the economics of currently-connected micro-embedded generators.

The additional benefit to such approach is that the estimated consumption by micro-embedded generation could be removed from the amount of losses reported by distributors.

VARIABILITY OF CONNECTION CHARGES

5.1 Is the impact of the variability of connection charges across distributors sufficiently material, from the perspective of the micro-embedded generation customers and the distributor, such that the Board should consider establishing a more prescriptive approach to the methodology for determining connection charges and manner of recovery of connection costs for micro-embedded generation facilities?

Hydro One's approach to connection charges is to recover the full cost of connection from the proponent and to avoid other customers subsidizing the connection. This approach is compliant with the Distribution System Code sections 3.1.5 and 3.1.6.

Our opinion is that, the monthly charges related to a micro-embedded generation facility are not intended to recover the connection costs. In any case, the consumption is too low (5 kWh per month) to recover the initial capital connection cost on a discounted future cash flow basis. Therefore, if Hydro

One did not recover all connection cost upfront, then other customers would be subsidizing the connection of micro-embedded generation proponents.

5.2 Should the Board prescribe a methodology for delineating basic versus variable connection costs for micro-embedded generation facilities? If so, what work is associated with the connection of a micro-embedded generation facility? What should a basic connection include?

In order to process and connect a large volume of applications, Hydro One has already implemented such a split between micro-embedded generation connections. The basic connection cost applies to those applications that do not require a site assessment. The cost of a basic connection comprises of application processing, a meter and other materials, travel and installation labour time, and general administration (e.g. scheduling).

5.3 If the Board were to take a more prescriptive approach to connection costs for micro-embedded generation facilities, should the Board:

a) set a standard amount for a basic connection for a distributor to use;

b) use an approach similar to that which is set out in section 3.1.4 of the DSC (i.e., identify a minimum basic connection for a micro-embedded generation facility); or

c) adopt a formulaic approach similar to the approach used in the establishment of Specific Service Charges (i.e., the methodology is the same for all distributors but the costs and the resulting charge are different for each distributor)?

Hydro One proposes a modified version of option "a". The proposal is to mirror the approach taken with the province-wide fixed monthly charge. The Board would set a provincial-wide standard, but allow for distributors to apply for a specific charge for basic micro-embedded generation connections in their cost of service application.

5.4 What other approaches, if any, should the Board consider in relation to the charging and recovery of costs related to the connection of micro-embedded generation facilities?

See previous answer 5.3.

COST RESPONSIBILITY IN RELATION TO UPSTREAM INFRASTRUCTURE UPGRADES TO A TRANSMITTER OR HOST-DISTRIBUTOR

6.1 Should cost responsibility in relation to upstream infrastructure upgrades to a transmitter or host distributor be codified?

Hydro One finds it prudent to reduce ambiguity with this issue and as such recommends codifying cost responsibility for upstream upgrades.

For greater clarity, Hydro One recommends that the term "upstream costs", which the Board had previously defined in its Notice to Amend a Code (October 21st, 2009) be defined in the Code, to refer to costs of upgrades to the systems of host distributors and costs of upgrades to the transmission system. This definition will eliminate confusion of this term with its alternate meaning, where distributors sometimes classify as "upstream costs" certain upgrades (e.g. expansions and/or enhancements) to their *own* distribution systems, upstream of the customer's point of connection.

6.2 Under the current microFIT rules, have there been any cases of a specific micro-embedded generation facility (or aggregation of micro-embedded generation facilities) triggering the need for an upstream upgrade? If so, how were they resolved?

There have been cases where a micro-embedded generation facility could have triggered the need for an upstream upgrade; however, completing the upstream upgrade would have rendered the project uneconomic. For instance, over 1000 applications have been refused an offer to connect due to constraints pertaining to short circuit or thermal capacity issues. Presently, Hydro One corresponds with these proponents and provides the reasons for refusing them an offer to connect.

6.3 Should micro-embedded generation facilities be treated differently than larger generation facilities connected to the distribution system with respect to upstream upgrades?

Considering that the principles of cost causality should apply universally and hence be no different between the two sizes of generation facilities, Hydro One recommends analogous treatment for both types of generation facilities with respect to cost responsibility for upstream upgrades.

6.4 How should the upstream cost impact of micro-embedded generation facilities be addressed (i.e., "trigger" pays, "beneficiary" pays, a fixed cost to every micro-embedded generation facility, rates, or socialize costs)?

Consistent with the Board's October 21st, 2009 Notice of Amendment to the Distribution System Code where the Board stated that *"cost responsibility… for upstream costs… would be passed through to and borne by the generator"* Hydro One recommends that upstream costs should be recovered from micro-embedded generators consistent with the trigger-pay principle.

In Hydro One's opinion, micro-embedded generation was intended to, and should fit into, the existing distribution system at minimal costs. As such, commercially driven generation projects should bear the cost of any additional required upstream infrastructure investment.

To recover these upstream costs from micro-embedded generators, Hydro One has considered three alternatives:

a. a capital contribution from the generator that triggers the upgrade, or
b. through the monthly service charge for micro-embedded generators (to be adjusted periodically to recover such costs), or
c. possibly through a monthly charge to all generators.

Hydro One noted that there would be several implementation barriers to recovering costs through a monthly service charge. Firstly, if a new monthly service charge would be shared amongst all micro-

embedded generators, currently-connected projects would experience a significant rise in their monthly rate and therefore the economic conditions of already connected generators would be negatively impacted. Should previously connected applicants be grandfathered to avoid economic changes on their initial investments, then there would be two (or more) co-existing monthly service rates for micro-embedded generators which could lead to applicant confusion and would be costly and complex for distributors to administer. Finally, it is Hydro One's view that recovery of costs through a monthly service charge would not necessarily provide adequate regulatory scrutiny of the prudency of upstream investments.

Therefore, Hydro One is not in favour of options b) or c) above, and instead recommends the recovery of upstream upgrade costs via a capital contribution mechanism, with the capital contribution to be paid by the triggering micro-embedded generator and without subsequent rebate from an unforecasted connecting customer who may also benefit from these upgrades. Processing any rebates for micro-embedded generation would create a significant administrative burden for any distributor due to the very large volume of micro-embedded generator connections. In addition, there is a further complexity in that many feeders and stations serve more than one distributor and therefore the rebates would have to be administered by multiple utilities for generators on the same feeder and/or at the same station. Consequently, it is Hydro One's view that a rebate mechanism would be overly complex and administratively costly to implement.

Hydro One recognizes that upstream costs are likely too high for most micro-embedded generation proponents to bear, and that such generators would therefore not proceed to connection.

To manage potentially high volumes of connection applications while properly informing generator proponents, distributors should provide an option for a generator to request an estimate of such upgrade costs, such estimates to be paid for by the applicant. The Code should explicitly state that for micro-embedded generators, the distributor is not obliged to provide a free estimate for upstream investments.

6.5 How should the review of upstream cost responsibility for micro-embedded generation facilities be best addressed (i.e., wait until the RRFE process is concluded, a separate initiative for all embedded generation, or done as part of this consultation)?

Hydro One agrees that the issue of cost responsibility for upstream upgrades is broader than the scope of this proceeding, but requests that, initially, the Board focus on the issues as they pertain strictly to micro-embedded generation facilities in an effort to provide that industry with a level of certainty on upstream upgrades. As such, Hydro One suggests that the Board should provide a clear direction on cost responsibility for upstream upgrades as part of this consultation.