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December 2, 2016

VIA E-MAIL

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

Dear Ms. Walli:

**Re: EB-2016-01652 – Ontario Power Generation Inc.
2017 Payments Application – Board Staff Sponsored Evidence
Interrogatories of Vulnerable Energy Consumers Coalition (VECC)**

Please find enclosed the interrogatories of VECC in the above-noted proceeding. Please note included are referenced material with regard to interrogatories to the Brattle Group:

- **Written Evidence of Bente Villadsen** for AltaGas Utilities et. Al. 2016 Generic Cost of Capital AUC ID 20622.
- **Authorized Return on Equity for Canadian and U.S. Gas and Electric Utilities**, Concentric Energy, Vol IV, May 27, 2016.

Yours truly,

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REQUESTOR NAME	VECC
TO:	Board Staff:Brattle Group/PEG/Shiff Hardin
DATE:	December 2, 2016
CASE NO:	EB-2016-0152
APPLICATION NAME	2017 Payments Amounts

M1:Darlington Refurbishment Project Report, Shiff Hardin, 2016

M1-4.3-VECC-1 Industry standards

- a) What is the basis for the definition of the general industry standards (Data Development; Information Flow; Analysis; Decision) stipulated by the author? Specifically what academic or industry publication is relied upon that support these definitions as being industry standards?

M1-4.3-VECC-2 Heavy Water Facility

- a) At page 15 of the evidence it states that *“The OPG evidence does not contain enough information to determine whether OPG followed the prudent management decision-making framework described above regarding the cost increase to the Heavy Water Facility.”* What information is missing in order to make such a determination?

M1-4.3-VECC-3 Earned Value

- a) At pages 21-24 there is a discussion of the use of “earned value”. Is the author suggesting that OPG currently does, or does not employ Earned Value Management in its execution of the DRP?
- b) At page 23 the author states: *“[D]uring the Execution Phase, it is critical that the key metrics are provided regularly to OPG’s leadership including schedule progress by the contractors in meeting key milestones, quality and safety statistics, and changes in scope and budget to provide OPG’s DRP program and project management with the information necessary to make timely, reasonable, and prudent decisions”*. What are the key metrics referred to in this statement?

M1-4.3-VECC-4 Schedule Development

- a) At pages 24-25 the author makes states *“it may be a challenge during the Execution Phase to monitor, update and track the Unit 2 schedule while simultaneously developing the subsequent units’ detailed schedules”*. In the author’s view has OPG left sufficient time between unit refurbishments to capture and implement lessons learned from Unit 2?

M1-4.3-VECC-5 Project Management Staff Capability

- a) The author makes a number of comments with respect to the number and capability of project managers and executive oversight for megaprojects. It is noted that there is no evidence regarding the training, experience, and qualification of the people directly involved in developing the DRP schedule (page 24). What evidence does the author believe should be provided in order to make an assessment as to capability of OPG in this regard?
- b) How has the author determined if OPG’s planned staffing (page 26) are, in the first instance, sufficient, insufficient or too large, to meet the project’s requirements?

M1-4.3-VECC-6 Contract Recovery Plan & Mediation

- a) At pages 42-43 the author outlines contract risk due to lack of a contractually-required recovery plan and the lack of mediated dispute resolution. In the author’s view does the lack of these contract features increase the risk to the project? If so what steps could now be taken to mitigate that risk?
- b) At pages 64 the following statement is made:

For a utility owner to be confident in the ultimate regulatory recovery of construction costs, the prudence standard requires the owner’s active involvement in the project, ongoing documentation of the decision-making process for any issues with cost or schedule impacts, and constant work with the contractors to resolve commercial disputes involving cost and schedule at the project level as they arise over the life cycle of the project/program. **As necessary, disputes must be elevated in a timely manner to executive management for negotiation and resolution. If the owner waits until the end of the project to “enforce its contractual rights” in order to resolve a dispute, by that time the damage has already been done. It is critical for the**

owner to be proactive and resolve disputes as they arise to maintain the contractors' continued cooperation and commitment to the project/program. (emphasis added)

- a) In light of the author's stated concerns as to whether OPG has sufficient dispute resolution and early recovery plan as part of its contracting what regulatory reporting or instructions are recommended to reduce the risk of cost overruns due to these deficiencies.
- b) The author also states: "*many utility regulatory commissions require the utility to provide transparent and frequent reporting on the project status and the staff's active participation and ongoing review in the project.*" What reporting does the author recommend OPG provide to the OEB with respect to the DRP?

M2: PEG IRM Design for Ontario Power Generation: Mark Lowry and David Hovde

M2-11.1-VECC-1 Data Structural Changes

The authors take issue with LEI as to the most suitable sample period for their study. OPG has suggested 2002-2014, whereas PEG considers a longer period a better choice. OPG's argument for exclusion of earlier years is, in part, that there were structural changes in the North American electricity market in the late 1990s/early 2000's which would make inclusion of earlier data less meaningful.

- a) Are there methodologies available to test for structural breaks in time-series data?
- b) If so, has PEG tested its sample data for such structural breaks?
- c) If the event that structural change was indicated in the data sets are there quantitative methods to adjust for this?

M2-11.1-VECC-2 Data Discrepancies

At page 31 of the PEG study there is a discussion of discrepancies as between the data used by PEG and that used by LEI. The authors note that using the PEG version of generation volumes increased the trend in MWh by 0.05%

- a) Was the 0.05% the result of keeping all other factors the same as in the LEI model?
- b) Is the noted 0.05% the only difference found in using the PEG rather than LEI data?

M2-11.1-VECC-3 Capacity Refurbishment Variance Account

At pages 61-65 (section 6.2.3) the authors discuss the impact and wisdom of continuation of the Capacity Refurbishment Variance Account.(CRVA) At page 64 there is a discussions of three options that could be employed “[I]f eligible capex (to the CRVA) is of a kind routinely incurred by utilities in the productivity sample, consideration should be paid to how other IRM provisions can be adjusted to better ensure that customer receive the benefit of industry productivity growth in the longer run.”

- a) In the authors' view what would be the preferred solution – elimination of the CRVA or an adjustment in the plan to address issues arising from use of the account? Please explain.

M2-11.1-VECC-4 Efficiency Carryover Mechanism

Beginning at page 63 there is a discussion of the benefits of including an Efficiency Carryover Mechanism (ECM).

- a) Can the authors provide a reference to any North American utilities who have included such a mechanism in their rate plans?
- b) If yes, please provide a short description of how the ECM operates for that utility.

M3 Common Equity Ratio for OPG's Regulated Generation: Bente Villadsen of the Brattle Group Inc. , 2016

M3 - 3.1-VECC-1 Credit Metrics

- a) Please find attached Dr. Villadsen's evidence offered on behalf of Altagas Utilities Inc. et al. in the AUC's Generic Cost of Capital Proceeding No. 20622. On page 65 of that evidence Dr. Villadsen indicated:

In the 2013 GCOC Decision, the Commission confirmed its prior method of using credit metrics to assess the capital structure of Utilities. The Commission also affirmed that it intended for the credit metrics to be such that the utilities could achieve an A rating. The Commission looked to three credit metrics and used a minimum benchmark for each. The Commission's metrics and minimum benchmarks are summarized below:

- Earnings before Interest and Taxes (EBIT) Coverage of at least 2.0 times.*
- Funds from Operations (FFO) to Debt of 11.1% to 14.3%.*
- Funds from Operations (FFO) Interest Coverage of at least 3.0 times.*

Please confirm that the AUC uses the minimum of the benchmarks, since in practice Canadian utilities get higher credit ratings than similar US utilities with the same financial ratios due to their greater regulatory protection. If Dr. Villadsen cannot agree please indicate why the AUC has adopted this policy and provide the Moody's document referred to in footnote 96.

- b) Can Dr. Villadsen confirm the following excerpt from the AUC decision was issued in the Proceeding 20622 (page 133):

"As a result of this analysis, the Commission has determined, subject to company specific adjustments, that a deemed equity ratio of 37 per cent for both distribution and transmission utilities, including those which pay tax and those which currently do not pay tax, satisfies the fair return standard required when combined with an 8.3 per cent allowed ROE for 2016, and an 8.5 per cent allowed ROE for 2017, and will enable the affected utilities to maintain a credit rating in the A category."

- c) Can Dr. Villadsen confirm the following regulated common equity ratios for Alberta utilities.

Table 26. Commission-approved deemed equity ratios

	2016-2017 approved	Last approved	Change in approved common equity ratio
	(%)		
Electricity and natural gas transmission			
AltaLink	37	36	+1
ATCO Electric Transmission*	37	36	+1
ATCO Pipelines	37	37	0
ENMAX Transmission*	37	36	+1
EPCOR Transmission	37	36	+1
Lethbridge	37	36	+1
Red Deer	37	36	+1
TransAlta	37	36	+1
Electric and gas distribution			
AltaGas	41	42	-1
ATCO Electric Distribution	37	38	-1
ATCO Gas	37	38	-1
ENMAX Distribution*	37	40	-3
EPCOR Distribution	37	40	-3
FortisAlberta	37	40	-3
* approved on a placeholder basis			

- d) Can Dr. Villadsen confirm that for 2016 Ontario utilities operating on a formula ROE are allowed an ROE of 9.19% (OEB letter October 15, 2015) which exceeds that allowed by the AUC by 0.89% which all else constant means better credit metrics than assumed by the AUC.
- e) Can Dr. Villadsen confirm that the AUC “average risk” common equity ratio was 3% lower than that recommended by her?
- f) Can Dr. Villadsen indicate any Canadian regulator that has allowed a common equity ratio that was recommended by her and provide the Decision.

M3 – 3.1-VECC-2 Reliance on comparables

- a) Is Dr. Villadsen aware that in the 2012 Union Gas (EB-2011-0210, page 49) Decision the Board criticized Union Gas evidence since it was based on “comparables” and stated
“Union’s second argument focuses on the first part of the comparable investment standard – that the return on invested capital must be comparable. However, Union’s argument fails to address the second part of the comparable investment standard, that being the issue of “enterprises of like risk”. Union would have the Board increase (and potentially reduce) its deemed common equity ratio in lock-step with the decisions of

other regulators, without an analysis of whether the utilities to which it is compared are enterprises of like risk.”

- b) Can Dr. Villadsen confirm that that her 48% common equity ratio is “largely” derived from an average and median of a sample of firms that she regards as comparable to OPG as indicated in her Figure 6?
- c) Can Dr. Villadsen confirm that all of the firms in her Figure 6 that resulted in the average common equity ratio of 48% are US regulated utilities and not one is Canadian?
- d) In Dr. Villadsen’s AUC evidence (page 63) she provided the following graphic. Please confirm the following:
 - a. The average US natural gas utility has an allowed ROE of 9.60% on 49.94% common equity versus 9.31% on 40.23% in Canada,
 - b. The average US electric has 9.59% ROE on 48.78% common equity versus 8.80% ROE on 40.27% in Canada
 - c. The average US utility (all) has a 9.59% ROE on 49.24% common versus 9.09% on 40.25%

Figure 21: Allowed ROEs and Capital Structures in Canada and the U.S.

Service	2014		2015	
	Allowed ROE (%)	Common Equity Ratio (%)	Allowed ROE (%)	Common Equity Ratio (%)
U.S.				
Natural Gas	9.78	51.06	9.60	49.94
Electric	9.75	50.21	9.59	48.78
Electric T&D	9.50	49.26	9.23	47.18
All	9.77	50.60	9.59	49.24
All - Settled	9.65	49.50	9.86	49.70
All - Fully Litigated	10.02	51.27	9.56	48.89
Canada				
Natural Gas	9.32	40.40	9.31	40.23
Electric	8.81	40.40	8.80	40.27
All	9.12	40.40	9.09	40.25
All (excluding Alberta)	9.41	40.64	9.41	40.46
Sources:				
For U.S. data: SNL Financial				
For Canadian data: Concentric Energy Advisors Authorized Return on Equity for Canadian and U.S. Gas and Electric Utilities, Volume III.				

- g) Please confirm that in the previous graphic and ignoring the higher allowed ROEs in the US the average common equity is 9.71% higher for a natural gas utility; 8.51% higher for an electric utility and 8.99% higher for “all” utilities.

- h) Please confirm that in practice US utilities have consistently higher allowed ROEs and common equity ratios than do “comparable” Canadian utilities and to obtain Canadian regulated common equity ratios at a first blush we need to reduce ratios from a sample of US utilities by at least 8.0%. If not please explain in detail why not?
- i) Please explain why in her judgement Canadian utilities can on average finance with investment grade bond ratings when they have both lower allowed ROEs and common equity ratios.
- j) Please indicate any instances Dr. Villadsen is aware of that indicate that there are financial access problems for a Canadian utility; in particular is she aware of either Union Gas or EGDI both operating on 36% common equity ratios having any problems accessing markets.

M3.1-VECC-3 Regulated generation

- a) Dr. Villadsen places significant weight (page 4, final paragraph) on the fact that OPG’s generation is almost 100% regulated and for this reason uses a refined comparable sample of US utilities as compared to Mr. Coyne’s sample which includes non-regulated generation. Can she confirm that her recommendation of a 48% common equity ratio, which is 2% less than Mr. Coyne’s, largely comes from the use of this different sample. If not, please provide all the areas of disagreement and what they are worth in terms of OPG’s common equity ratio.
- b) In Mr. Coyne’s 2013 evidence on behalf of Quebec Hydro (both Transmission and Distribution), Mr. Coyne stated on page 9 of the summary

“the only important difference is that a percentage of electric companies in the US Proxy group (and in Canada) own some regulated generation, which suggests that these companies have somewhat more business risk than HQD and HQT.”

And further on page 53

“as discussed in the following section of this testimony the incremental ROE required to offset the increased operating risk of regulated generation is approximately 41 basis points.”

Would Dr. Villadsen agree that an extra 0.41% is needed to offset the added risk of regulated generation as compared to a traditional Canadian Transmission and

distribution utility? If she does not agree with that estimate what extra ROE is needed for a regulated utility with generation as compared to one without?

- c) If the adjustment is not made to the ROE but instead to the common equity ratio, what incremental common equity ratio is needed to offset the added risk of regulated generation as compared to a pure T&D company?

M3.1-VECC-4 Incentive Regulation

- a) Ms. Villadsen bases her 48% common equity ratio in part on the increased risk that incentive regulation imposes on shareholders. Can she indicate any studies or analysis that she has performed on the impact of incentive regulation in Canada?
- b) Is Dr. Villadsen aware of any Canadian regulator that has increased the allowed ROE or common equity when putting a utility on incentive regulation?

M3.1-VECC-5 Compensating Shareholders

- a) Is Dr. Villadsen aware that OPG is included in the Ontario Provincial budget as income from government business enterprises and that in the 2016 budget <http://www.fin.gov.on.ca/en/budget/ontariobudgets/2016/bk9.html>, the Province of Ontario stated:

Powering Up for the Future

The Province remains committed to building a cleaner and more sustainable energy system for all Ontarians while reducing electricity system cost pressures. Since 2003, more than \$34 billion has been invested in cleaner energy generation in Ontario, with Hydro One investing about \$15 billion in modern transmission and distribution infrastructure. Other initiatives include:

- Pursuing the continued operation of the Pickering Nuclear Generating Station beyond 2020 up to 2024. By doing this, Ontario Power Generation (OPG) would protect 4,500 jobs across the Durham region, avoid eight million tonnes of GHG emissions, and save Ontario electricity consumers up to \$600 million.
- Moving forward with OPG's refurbishment of the four units at the Darlington Nuclear Generating Station. The Independent Electricity System Operator has updated its contract with Bruce Power to refurbish six nuclear units, in addition to two already refurbished units at the Bruce nuclear site. Together, this secures over 9,800 megawatts (MW) of affordable, reliable and emission-free power.

- a) Please confirm that in the Ontario Government's infrastructure programme it includes the costs of the Darlington refurbishment programme as provincial government expenditures.
- b) Please indicate whether any of the utilities in Dr. Villadsen's proxy sample are instructed by their owners to follow provincial or state-wide non-financial objectives, such as preserving 4,500 jobs, and if their owners have ever put out a release with titles similar to that of Ontario's "Jobs for today and tomorrow". In Dr. Villadsen's judgement is such an attitude by the shareholder consistent with the stand alone principle?
- c) Can Dr. Villadsen cite any literature in finance or economics that indicates that where a shareholder imposes a more risky strategic direction on a company they own, this necessitates a higher common equity ratio or allowed ROE due to this self-imposed risk? Or put another way, isn't the higher required rate of return or common equity ratio a decision that reflects an external risk that cannot otherwise be controlled rather than a willingly undertaken strategy which must by definition offer them a positive NPV?
- d) Is Dr. Villadsen aware that previously when the forerunner of OPG embarked on a significant nuclear programme all electricity consumers were saddled with a "stranded debt charge" that has only just been removed for some consumers? How did Dr. Villadsen take the ability of the Province to levy extra charges on all electricity uses (as well as tax payers) into account in reducing the risk of the DRP to OPG and itself?
- e) In Dr. Villadsen's judgment is OPG as a 100% owned OBCA company riskier than when it was a part of a provincial crown company and would her recommendation change if it reverted to crown status?
- f) Why did Dr. Villadsen not compare OPG to the only other North American operator of a Candu nuclear reactor?

M3.1-VECC-6. Equity Ratios

Please review the Concentric document published by the Canadian Gas Association May 27, 2016 titled Authorized Return on Equity for Canadian and U.S. Gas and Electric Utilities, a copy of which is attached. The following conclusion appears on the first page:

EQUITY RATIOS

The median authorized common equity ratio has declined slightly over the past few years in both Canada and the U.S. The gas distribution ratio is now 39.25% in Canada, vs. 50% in the U.S. The median electric distribution equity ratio is now 40% in Canada, and 50% in the U.S.¹ Electric transmission equity ratios remain at 36% in Canada.

The differences between allowed equity ratios in Canada and the U.S. seem attributable to a few factors. Regulators in both countries rely on peer group analysis, which reinforces prevailing levels of allowed equity ratios. Regulators also look for material differences in risk or financial metrics before changing the allowed equity ratio, so they tend to remain relatively stable. While credit rating agencies notice the greater leverage of Canadian companies, and rank some of these utility companies as “Aggressive” in terms of financial risk, most companies have been able to maintain A or A- level credit ratings, so the regulatory response has been muted.

- b) Would Dr. Villadsen agree or disagree with Concentric’s assessment?