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February 15, 2019

VIA E-MAIL

Ms. Kirsten Walli  
Board Secretary  
Ontario Energy Board  
2300 Yonge St.  
Toronto, ON

Dear Ms. Walli:

**Re: EB-2018-0063 – Ottawa River Power Corporation 2019 Electricity Distribution Rates  
Final Submissions of Vulnerable Energy Consumers Coalition (VECC)**

Please find enclosed the final submission of VECC in the above-noted proceeding. We have also directed a copy of the same to the Applicant.

Yours truly,

*(Original Signed By)*

John Lawford  
Counsel for VECC

Copy to: Ottawa River Power Corporation

**Ottawa River Power Corporation**

**Application for electricity distribution rates effective May 1, 2019**

**Final Submissions of Vulnerable Energy Consumers Coalition (VECC)**

Ottawa River Power Corporation (Ottawa River) filed an incentive rate-setting mechanism application with the Ontario Energy Board (OEB) on September 25, 2018 under section 78 of the Ontario Energy Board Act, 1998, S.O. 1998, c. 15, (Schedule B), seeking approval for changes to its electricity distribution rates to be effective May 1, 2019.

VECC submissions on the application relate to Ottawa River's request for incremental funding for a new substation.

Incremental Capital Module (ICM) Request

Ottawa River's ICM request is for funding to build a new 44kV 5 MVA substation (MS-4) in Almonte. The latest in-service date for the project is June 2019. The project consists of \$87,000 in property costs and \$1,698,850 for costs related to engineering and design, equipment, construction, electrical, miscellaneous and a 10% contingency. Ottawa River Power confirmed it is not applying for the recovery of the land costs.<sup>1</sup>

Ottawa River has 11 substations. There are three in the Almonte area: MS-1, MS-2 and MS-3. The combined capacity of the three substations is 13,000 kVA as follows:

- MS-1: Refurbished in 2009. Single 5000 kVA transformer; no provision for fans.
- MS-2: Built in 1975 (43 years old). Single 5000 kVA transformer; provision for fans.
- MS-3: Built in 1965 (53 years old). Single 3000 kVA transformer; no provision for fans

Ottawa River indicates the new substation MS-4 is needed to address high growth and load capacity issues in Almonte.

**Summary of VECC's Position**

VECC supports the future need for a new substation in Almonte as contemplated in the DSP. However, VECC submits Ottawa River has not adequately justified building the substation ahead of 2020. There are no new circumstances that have arisen since the DSP that warrant building the substation in 2019. Rather, VECC submits that if Ottawa River had made any of the system changes recommended in the DSP and the Barkley Report, additional capacity would have been available to address any potential capacity shortfalls to 2020. On this basis, VECC submits the OEB should not approve Ottawa River's ICM request in 2019. Customers, particularly low-income customers, should not have to pay in advance for a new substation that reasonably could have been built as planned for future growth beyond 2020.

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<sup>1</sup> Staff 34 (b)

## Background

Ottawa River last rebased for 2016 rates (EB-2014-0105). Ottawa River filed a 2015 Distribution System Plan as part of its 2016 Cost of Service Application. The future addition of a fourth substation in Almonte was contemplated in the DSP. The DSP states “Ottawa River owns and operates three individual transformer stations in Almonte (MS-1, MS-2 and MS-3) and two substations will require upgrading in the next 10 years (MS-2 and MS-3) and the addition of a new substation is planned for future growth beyond 2020.”<sup>2</sup>

The DSP also indicated:

- Voltage conversion will be reviewed as an alternative to replacing the transformer.
- The installation of a fan kit on the Almonte MS-2 transformer will provide additional supply for the feeders and extend the life of the transformer.

Since the DSP, Ottawa River indicates the arrival of a new President in April 2016<sup>3</sup> is the most notable change<sup>4</sup> and with this change, the President commissioned a Substation Condition Assessment that was completed by Costello Utility Consultants (Costello) in September 2017.

VECC submits Costello’s report was not an in-depth analysis of substation condition. Rather, Costello summarized substation deficiencies based on age, environmental and public/worker safety. Most of the deficiencies were related to safety risks. Ottawa River indicates that with respect to the transformers in Almonte, it was not made aware of any specific issues or concerns other than the age of the MS-2 and MS-3 transformers which Ottawa River would have already known.<sup>5</sup>

The need for a new station in Almonte was only mentioned by Costello in the Executive Summary of the Report as follows:

*“The Almonte area is experiencing high load growth due to the residential housing boom given its close proximity to Ottawa and two of the three existing stations require some or total replacement and one new station is required for growth.”<sup>6</sup>*

Costello did not provide a timeline for a new substation and there was no load growth or capacity analysis of any kind in the body of the report to justify the need for a new station now. Rather, the mention of a new station appears randomly in the Executive Summary. VECC submits the Costello Report does not justify a new substation build in 2019.

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<sup>2</sup> EB-2014-0105 Exhibit 2 Rate Base 5.0 Introduction P4

<sup>3</sup> VECC-4

<sup>4</sup> Staff-17

<sup>5</sup> Staff-21 (a)

<sup>6</sup> Appendix DP1

Ottawa River was unable to provide a Terms of Reference for the Costello study.<sup>7</sup> Costello was sole-sourced to do the study.<sup>8</sup> Costello was also sole sourced<sup>9</sup> to do the electrical engineering, design and project management for the new substation.<sup>10 11</sup> In addition, Costello verified the reasonableness of the of the total cost estimate for the substation project. Ottawa River indicates informal talks were held with another vendor, but no written estimate was provided.<sup>12</sup> In VECC's view it appears Costello was involved in several areas of interest with Ottawa River.

Prior to the Costello Report, Ottawa River hired Barkley Technologies Inc. (Barkley) in 2016 to prepare a Municipal Planning Substation Report, dated August 16, 2016. The Barkley Report recognizes the ongoing development of Almonte and resulting load growth over many years. Barkley indicates the three substations in Almonte are approaching capacity limits making it difficult to move load between them for maintenance or emergency situations. The Report studied the load characteristics and the relationship between stations to determine the most efficient and economical way to expand the system to meet the needs of Almonte now and in the future. The need for a new station was part of the analysis.

VECC submits the Barkley Report includes the detailed load capacity analysis in Almonte that was missing from the Costello Report.

Barkley undertook the following power flow simulations:

- MS#1 Out of Service<sup>13</sup>
- MS#2 Out of Service<sup>14</sup>
- MS#3 Out of Service<sup>15</sup>
- Tie Lines & Upgrades<sup>16</sup>
- New Development<sup>17</sup>

The main objectives of the power flow simulations were as follows:

- Existing System: Determine the maximum load the existing substations and feeders can support while each station is removed from service and what the most efficient configurations are.
- Enhanced System: What system changes are necessary to allow removal from service each substation and picking the load up from the other two during peak conditions.

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<sup>7</sup> VECC-10

<sup>8</sup> VECC-10

<sup>9</sup> Staff-23

<sup>10</sup> Application P23

<sup>11</sup> VECC-6 (h)

<sup>12</sup> Staff-23 (b)

<sup>13</sup> Appendix 2 P12

<sup>14</sup> Appendix 2 P21

<sup>15</sup> Appendix 2 P27

<sup>16</sup> Appendix 2 P31

<sup>17</sup> Appendix 2 P37

- Future System: Add forecasted development load and determine if a new station is required, where it will be located and how to back-feed it if removed from service.

The report provided the following recommendations:

- Upgrade transformers at MS-3 to 5 MVA to provide backup relief for MS#1 as well as maintenance capacity;
- Install a third feeder at MS#3 (3F3) to maximize tie line capability;
- Install HV primary tap changes for voltage support;
- Install voltage regulators; and
- Install tie lines and upgrades.<sup>18</sup> (noting feeder development and conductor upgrading remains as the most effective way to deal with weather events, planned and unplanned interruptions and expanding the utility)

The Barkley study also determined that based on 4 MVA forecasted development load and assuming MS-3 has been upgraded to 5 MVA, a new substation will be required as the load comes on stream.<sup>19</sup> This finding is consistent with the DSP. However, Barkley did not specify 2019 as the date a new substation was needed, presumably assuming that the above system recommendations would be addressed first. To the best of VECC's knowledge, the above recommendations have not been undertaken by Ottawa River.<sup>20</sup>

Ottawa River has put forward two reasons that justify the new MS-4 Substation in Almonte now. One, to meet the customer load growth in the Almonte area. Two, to address capacity issues as Ottawa River indicates there is not enough capacity to serve the rest of the community, should a worse case situation occur and one of the two 5,000 kVA transformers at either MS-1 or MS-2 fails.<sup>21</sup>

Since 2009, there have been 2 outages on MS-1, for 0.5 hours and 3 hours, respectively, and one outage on MS-2 for 0.42 hours. The last outage was in 2014.<sup>22</sup>

VECC submits the above two issues (load growth & capacity) are not new and Ottawa River was previously aware of these issues and considered these issues. Ottawa River was already aware of the level of load growth in Almonte and as demonstrated by the Barkley report, Ottawa River undertook an analysis that looked at what system changes were necessary to allow removal from service of each

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<sup>18</sup> are the most expensive options in terms of capital costs but offer the most benefits in terms of maintenance options and reliability. Voltage regulation equipment is an effective short term solution, but feeder development and conductor upgrading remains as the most effective way to deal with weather events, planned and unplanned interruptions and expanding the utility

<sup>19</sup> Appendix 2 P37

<sup>20</sup> Staff-30

<sup>21</sup> Staff-25 (b)

<sup>22</sup> VECC-12 (f)

substation and picking the load up from the other two during peak conditions. The need for a new substation sooner than 2020 was not an outcome of Costello or Barkley’s analysis.

Ottawa River originally indicated the winter peaking load in 2017 was 10.755 MVA,<sup>23</sup> leaving 2.245 MVA of available capacity given that there is currently 13 MVA of transformer capacity installed.

In response to round two interrogatories, Ottawa River revised the 2017 winter peaking load to 8.7 MVA due to an error, thereby significantly reducing the capacity shortfall in an emergency situation as contemplated by Ottawa River when MS-1 or MS-2 fails.<sup>24</sup>

The table below shows Ottawa River’s latest winter peaking forecast. The updated winter peaking forecast for 2022 is less than Ottawa River’s original forecast for 2017.<sup>25</sup>

<b>Year</b>	<b>Summer Peak (MVA)</b>	<b>Winter Peak (MVA)</b>
<b>2017</b>	<b>8.2</b>	<b>8.7</b>
<b>2018</b>	<b>8.9</b>	<b>9.1</b>
<b>2019</b>	<b>9.2</b>	<b>9.4</b>
<b>2020</b>	<b>9.5</b>	<b>9.7</b>
<b>2021</b>	<b>9.8</b>	<b>10.0</b>
<b>2022</b>	<b>10.1</b>	<b>10.3</b>

Barkley utilized a 2016 winter peak of 8326 kW in its analysis of emergency situations and did not conclude a new substation had to be built in 2017 due to capacity issues.<sup>26</sup> Rather, Barkley proposed system changes to ensure additional capacity was available in emergency situations to protect customers against prolonged outages.

VECC submits the same load growth and capacity issues existed previously. Ottawa River indicates the need for additional capacity in Almonte was being discussed at least three years earlier with the previous management.<sup>27</sup> However, the capacity shortfall is now significantly less than originally thought. In VECC’s view, there are no new circumstances or significant changes that have occurred to justify building the substation ahead of schedule. In fact, if any of the recommendations in the DSP and Barkley Report related to system changes had been implemented to provide contingencies in a failure situation, a case could have potentially been made to defer the building of the new substation until rebasing in 2021.

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<sup>23</sup> VECC-7 (a)

<sup>24</sup> VECC-21

<sup>25</sup> Ibid.

<sup>26</sup> Ottawa River is a winter peaking utility Application P21

<sup>27</sup> Staff-21 (b)

For example, the DSP recommendation for Ottawa River to install a fan kit on the MS-2 transformer to provide additional supply for the feeders and extend the life of the transformer was not undertaken by Ottawa River. The MS-2 transformer has provision for cooling fans but none have been installed.<sup>28</sup> The installation of cooling fans would have increased the capacity of MS-2 by 33% or 1650 kVA.<sup>29</sup> The cost to install cooling fans at MS-2 is approximately \$30,000.<sup>30</sup> If MS-1 were to fail and fans had been installed in MS-2, there would be enough capacity to meet requirements until 2020.

The DSP indicated that all substations are expected to achieve or exceed their maximum useful life of 60 years. Primarily due to age and the Costello Report, Ottawa River now indicates MS-3 is forecasted to be replaced in 2021, and MS-2's forecasted refurbishment date will be calculated with the next cost of service application in 2021.<sup>31</sup> VECC submits further analysis is required to further justify these proposed replacement/refurbishment dates.

VECC further notes that although customer counts in Almonte have increased between 2013 and 2017, consumption has decreased since 2015, primarily because of conservation.<sup>32</sup> A decreasing trend in consumption is forecast for the 2019 to 2030 period. This needs to be taken into consideration in determining future system needs.

## **Conclusion**

In considering the above, VECC submits Ottawa River has not adequately justified building the substation ahead of 2020. There are no new circumstances or conditions that have arisen since the DSP that warrant building the substation in 2019. The same capacity and load growth issues have existed since 2015. On this basis, VECC submits the OEB should not approve Ottawa River's ICM request in 2019. Customers, particularly low-income customers, should not have to pay in advance for a new substation that reasonably could have been built as planned for future growth beyond 2020.

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<sup>28</sup> Staff-19 (c)

<sup>29</sup> Staff-20

<sup>30</sup> DSP P74

<sup>31</sup> Staff-10 (c)

<sup>32</sup> VECC-5