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September 18, 2015

DELIVERED BY EMAIL, COURIER & RESS

Ms. Kirsten Walli
Board Secretary
Ontario Energy Board
2300 Yonge Street
Suite 2701
Toronto, ON M4P 1E4

Dear Ms. Walli:

Re: North Bay Hydro Distribution Ltd. ("NBHDL")
Reply Submissions regarding Working Capital Allowance
Board File No. EB-2014-0099

Pursuant to Procedural Order No. 3, please find enclosed NBHDL's Reply Submissions in regards to the above noted matter. Also enclosed is an updated study completed by Navigant which reflects corrections made in response to the submissions of the parties in this matter.

The updated study reflects an updated working capital requirement of 10.31%. NBHDL amends its request for relief to reflect the updated Navigant study.

Yours very truly,

BORDEN LADNER GERVAIS LLP
Per:

Original signed by John A.D. Vellone

John A.D. Vellone

cc: Todd Wilcox, NBHDL
Melissa Casson, NBHDL
Cindy Tennant, NBHDL
Parties in EB-2014-0099

EB-2014-0099

IN THE MATTER OF the *Ontario Energy Board Act, 1998*, S.O. 1998, c.15, (Schedule B);

AND IN THE MATTER OF an Application by North Bay Hydro Distribution Limited for an order approving just and reasonable rates and other charges for electricity distribution to be effective May 1, 2015.

REPLY SUBMISSIONS OF NORTH BAY HYDRO DISTRIBUTION LIMITED

September 18, 2015

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REPLY SUBMISSIONS OF NORTH BAY HYDRO DISTRIBUTION LIMITED

DELIVERED: SEPTEMBER 18, 2015

A. INTRODUCTION

1. On December 12, 2015, North Bay Hydro Distribution Limited ("**NBHDL**" or the "**Applicant**") filed a cost of service application (the "**Application**") with the Ontario Energy Board (the "**Board**") under section 78 of the *Ontario Energy Board Act, 1998*, S.O. 1998, c. 15, (Schedule B), seeking approval for changes to the rates that NBHDL charges for electricity distribution, to be effective May 1, 2015. The Board assigned the Application file number EB-2014-0099.

2. NBHDL is pleased to present this written reply to the submissions on the working capital allowance calculation from Board staff ("**Staff**"), Energy Probe Research Foundation ("**EP**"), the Vulnerable Energy Consumers Coalition ("**VECC**"), the School Energy Coalition ("**SEC**"), and the North Bay Taxpayers Association ("**NBTA**"), each received on September 11, 2015 (Staff, VECC, EP, SEC and NBTA shall be referred to collectively as the "**Parties**").

3. In general, NBHDL's submissions are organized around the following four recurring themes.

4. First, decisions of a utilities' management are generally presumed to be prudent. However, those decisions can be challenged on reasonable grounds. The test, when determining prudence, is whether a decision was reasonable under the circumstances that were known or ought to have been known to the utility at the time the decision was made. Hindsight should not be used in determining prudence. However, each of Staff, EP, SEC and VECC make the mistake of resting their submissions entirely on the benefit of hindsight, specifically relying on the Board's recent decision to eliminate the 13% approach to calculate working capital allowance and relying on subsequent the Navigant lead-lag study, to argue that NBHDL's processes are not reasonable and that the Board should not allow full recovery of NBHDL's proven working capital requirement.

5. Second, prudence should not be assessed using a very narrow, single-factor lens. Rather, an assessment of prudence should take into consideration all of the considerations relevant to a utility management's decision making. When considering NBHDL's processes that relate to its working capital requirements – the proven reliability, timeliness and accuracy of the processes, as well as the OM&A and capital costs underlying those processes, are all directly relevant. However, each of Staff, EP, SEC, and VECC assess these processes from a single and very narrow lens of the impact on working capital requirements alone. The public interest is not served if ratepayers are made worse off in the long-run because, in changing processes to reduce the working capital allowance calculation, a utility is forced to increase its OM&A and capital expenditures beyond the value of the reduced working capital allowance. The public interest is also not served if the Board imposes an arbitrary reduction on a utility's actual working capital requirements, thereby forcing management to make rapid and not well tested changes to its existing and proven processes (not a very likely outcome) or forcing management to fund the shortfall in revenue requirement by making arbitrary cuts to its operating and capital budgets.

6. Third, an obligation to continuously improve operations to develop and adopt best practices should not be confused with an obligation to have already implemented best practices in every aspect of business <u>on day one</u>. NBHDL is willing to commit formally to the Board that, if the Board approves NBHDL's requested 10.31% working capital allowance, NBHDL will complete a comprehensive review of all of its processes and systems underlying its working capital requirements to identify opportunities to reduce its working capital allowance requirements, while continuing to minimize impacts on its OM&A and capital budgets. NBHDL will implement those changes that strike the right balance between OM&A, capital and working capital costs. Experience has shown that these changes are likely to take a considerable amount of time, effort and expense to implement. In addition, any changes to the billing process, as one example, necessitates extensive customer engagement and education as they are directly impacted by any change. However, NBHDL is willing to commit to completing any such changes prior to its next rebasing application and will file evidence of this effort in its next rebasing

application. This commitment, together with the Board's existing incentive regulation mechanism, provides sufficient incentive for management to continuously improve its overall productivity and cost performance in respect of working capital, OM&A and capital during the IRM period. The Board can approve a working capital allowance of 10.31%. An arbitrary reduction is not required in the circumstances.

7. Fourth, a reduction to NBHDL's actual and proven working capital requirements would not provide an incentive to NBHDL to improve. Rather, it would constitute an arbitrary penalty that would make it incredibly difficult for NBHDL to achieve any such improvements. This is because any changes to NBHDL's billing, collections or expense processes must be carefully analysed, properly designed to meet staffing and system requirements, and thoroughly tested and reviewed prior to implementation. Changes to customer facing billing and collections processes also require customer engagement and education efforts. Management, acting prudently, cannot rush through any of these changes. Hydro One's recent experience with major billing errors after rushing in a new billing system provides adequate caution of the consequences of not taking a measured approach. As a result, any reduction to revenue requirement below NBHDL's actual and proven working capital requirements would need to be funded by equivalent reductions elsewhere in NBHDL's budget. This would most likely involve OM&A cuts well below the settled amounts. NBHDL would then be expected to operate as normal under a now strained OM&A budget. This in-turn would make it incredibly difficult for NBHDL to then undertake the major incremental work effort and expense involved in analysing, designing, implementing and testing changes to its billing, collection and expense processes.

B. BACKGROUND & CORRECTIONS

8. The Application was prepared pursuant to the Board's Chapter 2 Filing Requirements dated July 18, 2014 (the "**Governing Filing Requirements**"). Section 2.5.1.3 of the Governing Filing Requirements provided that in respect of calculating the allowance for working capital, unless otherwise directed by the Board to undertake a lead/lag study, the Applicant had an option to calculate its working capital allowance using either the 13% allowance approach or using a full lead-lag study.

9. Consistent with Board policy at the time the Application was filed, NBHDL elected to avoid the expense and complication of preparing a lead-lag study and instead used the 13% allowance approach. The Applicant was not required to prepare a lead-lag study by the Board or by the Governing Filing Requirements. In addition, billing lag did not impact the Applicant's working capital allowance in rates because of the use of the 13% approach.

10. NBHDL's decision not to complete a lead-lag study at the time of its Application cannot be faulted as imprudent. The decision was expressly contemplated and permitted by the Board in its policies at the time. The vast majority of other LDCs in the Province of Ontario, including all of those equivalent in size to NBHDL, made the same decision. As a result, the lead-lag information was not known to management at the time the Application was filed.

11. On June 5, 2015, the Board wrote a letter to the parties to EB-2014-0099 indicating that the Board had recently updated its policy for the calculation of the allowance for working capital. In the letter, the Board acknowledges that the new working capital policy was not known when NBHDL filed its application and the policy does not specifically address implementation for active cost of service applications. Given this, the Board requested that NBHDL file a letter indicating its preferred option with respect to the working capital allowance for 2015 rates.

12. On June 12, 2015, NBHDL filed a letter which acknowledged the Board's new policy direction with respect to the calculation working capital allowance. To assist, rather than oppose, the Board in its new policy direction, NBHDL voluntarily waived its legal right

to seek recovery of a working capital allowance of 13% in rates in a manner consistent with the Governing Filing Requirements applicable to the Application. Instead, NBHDL undertook to retain Navigant Consulting, Inc. ("**Navigant**") to perform a lead-lag study for its business. The outcome would be to ensure that NBHDL recovered no-more in rates than its actual working capital requirements necessitate.

13. On July 28, 2015, NBHDL filed a lead-lag study (the "**Study**") prepared by Navigant and on August 31, 2015, NBHDL filed responses to various interrogatories in respect of the Study (the "**IRRs**").

14. Following a review of the Parties' submissions, Navigant has identified two specific errors in the Study which, in Navigant's views, must be corrected. Specifically:

    a. First, NBHDL has confirmed that there were errors in the underlying data used to calculate the payroll expense lead time. This was flagged by EP in their submissions at page 8.

    b. Second, NBHDL has confirmed that HST is not paid on payroll and benefits. This was flagged by EP in their submissions at page 9.

15. Navigant has revised its Study to correct these two specific errors. A copy of this updated study is attached as Appendix "A" to these reply submissions (the "**Updated Study**").

16. NBHDL submits that the Board should use the Updated Study when calculating NBHDL's working capital requirements. Following these corrections, the working capital allowance supported in the Updated Study is **10.31%**.

17. The effect of NBHDL's voluntary agreement to not seek a 13% working capital allowance in rates (as was permitted by law) and rather to cooperate with the Board's policy results in an immediate reduction in revenue requirement of **$145,292**. All of the Parties have ignored this principles based, and voluntary, concession by NBHDL.

18. NBHDL submits that the Updated Study (and the original Study) constitute expert evidence and should be afforded such weight by the Board. Navigant is an independent third party, its expertise is clearly outlined in Appendix B of the Updated Study (which includes a list of recent cases before the Board where its lead-lag work has been

previously accepted), and Navigant has expressly acknowledged its duties as an expert before the Board in completing Form A which is attached at the very end of the original Study. NBHDL submits that the Board should reject the submissions of VECC (at para. 1.5) that the arguments of EP themselves constitute expert evidence that is as good as, or superior to, Navigant's expertise. EP has not filed evidence in this proceeding. NBHDL has been given no opportunity to test that evidence. And EP has not complied with the Board's rules relating to expert evidence. EP arguments are simply that, arguments, and should be afforded the according weight by the Board.

C. GENERAL POLICY ISSUES

C.1 The OM&A and Capital Costs of LDC Processes

19. In this context, each of Staff, SEC, EP and VECC, have made submissions to the Board that the working capital allowance for NBHDL **not** be calculated based on NBHDL's actual working capital requirements, as calculated in the Updated Study.

20. Rather, these Parties take the position that, as most succinctly put in the submissions of SEC:

> "the Board's determination of the appropriate WCA cannot solely be based on ensuring that a distributor has used the correct methodology and data in their lead-lag study. The Board must ensure that a distributor's processes that underlie the input data to the lead-lag study are reasonable."

21. NBHDL does not agree.

22. The Parties limit their submissions to the impact of NBHDL's processes on the calculation of working capital. The Parties' submissions ignore the impact of these same processes on OM&A and capital costs. The problem is, these are exactly the same underlying processes that the Parties agreed to reach complete settlement on, which was approved by the Board in its decision and order dated July 16, 2015. NBHDL's existing processes reflect a direct effort by management of NBHDL to minimize the OM&A and capital costs. Ratepayers are already benefitting directly from these low cost processes.

23. Put simply: Any changes to a distributor's billing, collection and expense processes must take into account not only the impact on working capital, but also the impact on operating and capital costs.

24. NBHDL submits that its current processes are reasonable in the circumstances. Particularly when understood in the context of the Board's recent change in policy as it relates to working capital. As previously discussed, NBHDL's decision not to complete a lead-lag study at the time of its Application cannot be faulted as imprudent. The decision was expressly contemplated and permitted by the Board in its policies at the time, and the majority of other LDCs in the Province of Ontario, including all of those equivalent in size to NBHDL, made the same decisions.

25. Because of this, NBHDL's processes have been designed to minimize OM&A and capital impacts on ratepayers. The Study is the first time that management of NBHDL has been given access to the information necessary to understand how its processes also impact the Board's determination of working capital allowance. Previously, NBHDL's processes had no impact at all on the Board's determination of the working capital allowance because of the 13% option. Going forward, management of NBHDL will work to optimize its processes towards minimizing its working capital allowance, in addition to minimizing OM&A and capital impacts on ratepayers.

26. However, NBHDL's underlying billing, collections and expense processes cannot be changed overnight. Changes must be well planned, thoroughly tested and implemented in an orderly manner that will not interrupt existing processes. Hydro One's recent experience with major billing errors demonstrates what can happen if changes are rushed without fulsome planning or testing. For example, prior experience with changing the billing and collections processes to accommodate time-of-use billing associated with the implementation of new smart metres took approximately 24 months for NBHDL to complete (and NBHDL was one of the few LDCs to complete this work on-time). Even the relatively simple, recent changes to the billing and collections processes to accommodate the new OESP is expected to take approximately 12 months.

C.2 Continuous Improvement in Productivity and Cost Performance

27. NBHDL agrees that continuous improvement in productivity and cost performance is a fundamental outcome of the Renewed Regulatory Framework for Electricity Distributors (the "**RRFE**"). Management of NBHDL acknowledges their role in continuously striving to develop and adopt best practices.

28. However, an obligation to continuously improve operations to develop and adopt best practices should not be confused with an obligation to have already implemented best practices in every aspect of business on day one.

29. The Parties in their submissions confuse these two concepts. Specifically, throughout their submissions the Parties confuse an obligation to continuously improve with an obligation to have already adopted purported "best practices". This is perhaps most clearly illustrated in Staff's submissions at pg. 2 that:

> "OEB staff submits that North Bay's approach does not represent best practice. This is evidenced by the shorter billing lags by other distributors."

The Parties then use this confusion to argue that the Board should impose a discretionary reduction on NBHDL's proven and actual working capital requirements.

30. One problem with this line of reasoning is that it ignores the information that management of NBHDL had available to it when it approved the processes which form the basis of the Application. Prior to the Study, management did not have access to information that showed the relationship between its processes and the actual lead-lag analysis. This was entirely consistent with Board policy at the time. Rates were set using the 13% approach, and because of this, management designed its processes principally to minimize operating and capital costs.

31. In this context, the Parties are now relying on the Study, and the Board's change in policy to remove the 13% approach, and with the full benefit of hindsight, arguing that management of NBHDL's decisions with respect to its processes were imprudent. However, to be prudent, a decision must have been reasonable under the circumstances <u>at</u>

the time the decision was made. The benefit of hindsight must not be misused in determining prudence.

32. Another problem is that the alleged "best practices" do not take into account the OM&A and capital costs associated with implementing any of those practices. In response to Staff-2, NBHDL illustrates the OM&A budgets for the LDCs referenced by Staff in their submissions on billing lag. NBHDL's OM&A costs ($6.4MM) are significantly lower that any of the comparators (ranging from $26.3MM to $543.1MM). Put simply, NBHDL operates with fewer staff and other resources to complete all of its billing, collections and expense functions.[1]

33. In short, the prudence of management's decisions should not be judged on the basis of information that was not available to management at the time the Application was prepared. Management should be given an opportunity to do their job: to best manage their business processes to minimize overall costs for ratepayers. This was not possible in the unique circumstances of this Application, because the Study was prepared very late in the process - only after the Board changed its policy on working capital allowance.

34. Minimizing costs for ratepayers is not just about minimizing the working capital allowance portion of costs, as the other Parties assume. Rather, it is about finding improvements that optimize processes to strike the right balance between a lower working capital requirement, on the one hand, and higher OM&A and capital costs on the other hand. None of the Parties have made any mention of these corresponding increases in costs. They would assume that they do not exist.

35. As noted in the introduction of these submissions, NBHDL is willing to commit formally to the Board that, if the Board approves NBHDL's requested 10.31% working capital allowance, NBHDL will complete a comprehensive review of all of its processes and systems underlying its working capital requirements to identify opportunities to reduce its

[1] When preparing its Application, NBHDL conducted a benchmarking analysis of its billing, finance and administrative staffing levels against those of other comparable LDCs. Management wanted to make sure that its proposed staffing levels were prudent, to minimize OM&A costs for ratepayers, prior to filing the Application. What management found was that on an absolute basis, over the 5 utilities assessed, NBHDL has 15.3 fewer staff filling these roles that its comparators, and when normalized for number of customers, NBHDL has 5.1 fewer staff filling those roles than its comparators. Ratepayers have benefited directly from these lower staffing costs which went into the OM&A costs in the Application.

working capital allowance requirements, while continuing to minimize impacts on its OM&A and capital budgets. NBHDL will implement those changes that strike the right balance between OM&A, capital and working capital costs. Experience has shown that these changes are likely to take a considerable amount of time, effort and expense to implement. However, NBHDL is willing to commit to completing any such changes prior to its next rebasing application. NBHDL will file evidence of this effort in its next rebasing application.

36. Together with this commitment, the Board's existing incentive regulation mechanism provides sufficient incentive for management to continuously improve its overall productivity and cost performance in respect of working capital, OM&A and capital during the IRM period. The Board can approve a working capital allowance of 10.31%. An arbitrary reduction is not required in the circumstances.

C.3 The Importance of Ensuring Full Cost Recovery on WCA

37. If, on the other hand, the Board does not approve a working capital allowance of 10.31%, which is reflective of NBHDL's actual working capital costs in the test year, NBHDL will have no choice but to make even deeper cuts to its OM&A budget than was agreed to in settlement to address this shortfall in revenue requirement. The shortfall in revenue requirement caused if the Board accepts the proposals of each of EP, SEC, VECC and Board Staff are set out in the table below.

	Navigant Study	Energy Probe/SEC	VECC	Board Staff
WCA %	10.31%	7.97%	8.00%	9.07%
Base Distribution - Revenue Requirement	11,785,736	11,659,348	11,660,969	11,718,761
Variance of Intervenors/Staff to NBHDL actual requirements per lead/lag		(126,388)	(124,767)	(66,975)

38. As described above, NBHDL cannot change its billing, collection and expense processes over a short period of time. Because of this, as described further below, if the Board imposes a reduction in the working capital allowance that does not meet NBHDL's actual working capital requirements – the reduction in revenue requirement will need to be addressed through budgetary cuts elsewhere. Because the OM&A budget has already been reduced in settlement, this will mean cutting staff positions, leading to less and

lower quality service during the term of the IRM plan. With less operating revenue, NBHDL will have fewer resources with which to undertake a review of its internal billing and collections and expense processes. This is why NBHDL's commitment above is only if the Board approves its actual working capital requirement of 10.31%.

39. With these arbitrary reductions in already stressed OM&A and capital budgets, NBHDL will not have sufficient resources to undertake the material work effort required to make any changes to its billing and collections process without making even deeper cuts to its OM&A and capital budgets.

40. As mentioned in paragraph 26 above, NBHDL's experience is that making large scale changes to billing, collections, and expense processes takes time and resources to execute. When NBHDL converted over to TOU rates, it involved extensive consultations and changes to billing processes and systems. The customer consultation and communication process was initiated in late 2009 and early 2010, integrated with smart meter deployment communication efforts. However, NBHDL did not cutover to TOU rates until September 2011. Beginning in summer 2010, NBHDL began to work on process re-engineering including developing and testing billing system module changes, data management procedure and protocols, data warehousing and bill printing. Making changes with billing systems is very difficult as third parties are involved and any solutions must be fully tested before being declared fully operational. Even after the September 2011 cutover, it took several months to handle various unexpected problems not previously contemplated. This conversion was a major undertaking, it tied up almost all available resources, required extensive overtime and the expense of third party contractors to support. The same experience has been true with other programs that involve billing and CIS systems. Currently NBHDL is working closely with the province, the Board and other LDC's to implement the new OESP program. Even though this involves only a relatively small scale change in terms of applying a credit, all parties are learning just how difficult it is to implement this in practice.

41. In this context, if the Board approves a reduced working capital allowance, it will require NBHDL to make OM&A cuts and reductions below what the parties agreed was just and reasonable in settlement, at the same time as all of the Parties seem to be implying that

NBHDL should be making considerable resource commitments over and above what was approved in the settlement agreement to undertake a full-scale review of and changes to its billing, collections and expense processes.

D. DETAILED REPLY

D.1 Reply to Board Staff Submissions

42. Board staff's submissions principally takes issue with the billing lag determination in the Navigant lead-lag study.

43. Specifically:

> "OEB staff notes that the lead lag study shows North Bay Hydro's billing lag of 23.97 days. The billing lag is the period between the time a utility reads a customer's meter in order to calculate consumption for a given period of service and the time the resulting bill is sent to that customer."

44. Prior to the Board's recent policy change as it relates to the calculation of working capital allowance, NBHDL's working capital allowance would have been established using the 13% approach. At the time the Application was filed, NBHDL's working capital allowance calculated for rate setting purposes had absolutely no correlation with billing lag.

45. It was only when the Board changed its policy, and as a result NBHDL voluntarily undertook to complete a lead-lag study, did this change. However, the prudence of NBHDL's existing billing, collections and expense processes cannot now be assessed with the full benefit of hindsight. The question is whether or not NBHDL's decisions were prudent at the time those decisions were made.

46. In this context, management of NBHDL did not have access to lead-lag data when designing its processes. It is not now reasonable to assume management had this data, or that management would have known of the pending change in Board's policy as it relates to the 13% approach.

47. In this context, it would have been imprudent for management to incur incremental or excessive operating costs to minimize billing lag when, under the 13% approach, only operating costs had an impact from a rate setting perspective.

48. OEB staff goes on to note that:

> Prior lead lag studies before the OEB have shown billing lags ranging from 7.7 to 19.0 days -- significantly below the billing lag reported by North Bay Hydro."

49. NBHDL submits that the Board must be careful to compare apples-to-apples when assessing billing processes. Staff's comparison fail in this regard. Rather, Staff compares NBHDL's billing process with the billing process used by 7 of the largest LDCs in the province of Ontario.

50. Not one of the LDCs cited by Staff are comparable to NBHDL, as explained in response to part (b) of Staff-2: Each of these LDCs are significantly larger than NBHDL - and they have access to an operating budget that range between 5 times (Veridian) and 100 times (HONI) greater than NBHDL's operating budget. Put simply, they have more staff and more expensive systems to complete their billing functions.

51. What does this mean in practice? Looking specifically at the billing function, the evidence before the Board is that NBHDL operates its entire billing department with only 2 FTEs and the support of the equivalent of 1 IT FTE.[2] NBHDL has also provided evidence that it has been able to handle an increasing workload on its billing function without increasing this FTE count.[3]

52. Each of the other 7 LDCs described in this comparison have much larger billing departments, and do not face nearly the same resourcing constraints as NBHDL.

53. The operating cost savings associated with billing department staffing is directly reflected in NBHDL's operating budget, which was approved by the Board in the settlement. It is not now reasonable to assume away these resourcing restraints when looking at working capital allowance. It is exactly the same process.

[2] Exhibit 4, page 49, Table 4-11.
[3] Exhibit 4, page 39, lines 1-7 and Exhibit 4, page 50, lines 28-30.

54. Board staff goes on to note that:

> "North Bay Hydro also states that it also waits for preliminary IESO rates to ensure more accurate bills to customers. Accuracy of billing is a very important goal. At question is whether North Bay can improve its process without sacrificing accuracy."

55. NBHDL agrees with the question staff is posing. However, no answer has been proposed. At this stage, absent a comprehensive assessment of existing processes and resources, NBHDL cannot say that process improvements can be implemented without sacrificing accuracy.

56. These process improvements themselves constitute major undertakings. NBHDL's billing process cannot be changed overnight. Changes must be well planned, thoroughly tested and implemented in an orderly manner that will not interrupt existing processes. Because changes to billing processes also have a direct customer impact, these changes must also undergo customer engagement and education efforts.

57. As noted previously in these submissions, prior experience with changing the billing and collections processes to accommodate time-of-use billing associated with the implementation of new smart metres took approximately 24 months for NBHDL to complete. And even something that appears to the customer to be a relatively minor change, such as the introduction of the new OESP on the bill, involves an intense work effort to change the billing and collections processes which is expected to take approximately 12 months.

58. In this context, it is not reasonable to assume, as Staff has done, that NBHDL can with its existing resource constraints, simply improve its billing process without sacrificing accuracy.

59. Board staff goes on to note that:

> "OEB staff notes that the accuracy of information necessary to accurately bill RPP customers (i.e. the prior months consumption and current RPP prices) is not improved by waiting for any data from the IESO. Most RPP customers are interval metered; even those which are not interval metered do not require any

> information from the IESO in order to bill customers. Once set by the OEB, RPP prices do not fluctuate and are therefore a known element for the purposes of billing. OEB staff does not know if there are limitations to North Bay's customer information system that have resulted in North Bay's current billing process."

60. NBHDL's billing system set-up is broken into multiple cycles based on geographical area. All customers located within that area (which constitute multiple rate classes) are combined into a billing cycle and NBHDL cannot segregate customers between RPP and non-RPP for billing purposes as Board staff has assumed. Staffing levels and processes (both of which are reflected in NBHDL's operating and capital budgets) dictate that NBHDL must bill all customer classes within a cycle at the same time.

61. This is why, in response to Staff-2(b), NBHDL explains multiple benefits of its existing process, including: (i) increased billing accuracy for non-RPP customers; (ii) more accurate accounting for financial statement reporting; and (iii) more accurate process for RPP customer settlement which impacts the deferral account balances and subsequent dispositions. Staff appears to have mischaracterized this response in their submissions.

62. Board staff goes on to note that:

> "However, OEB staff submits that North Bay's approach does not represent best practice. This is evidenced by the shorter billing lags by other distributors."

63. NBHDL has addressed the very problematic implications of this in Section C1, paragraphs 27-35 of its submissions above.

64. Board staff goes on to note that:

> "By waiting until after the IESO provides the preliminary market price information North Bay Hydro is introducing an unnecessary revenue lag for RPP customers and increasing the overall requirement for working capital in its revenue requirement. In making this submission, OEB staff recognizes that there are differences between the customer information systems (CIS) used by electricity distributors in Ontario. However, there is nothing on the record to indicate that North Bay has unique circumstances."

65. NBHDL is not just waiting around for this preliminary market price information. The time also represents the length of time it takes to actually begin the production of the bills given NBHDL's current resourcing levels.

66. NBHDL has organized its billing cycles into very efficient workload packages. NBHDL is resourced to work efficiently within these cycles including meter reading, AMI system operation including metering communication troubleshooting, meter changes, exception billing, final billing, retailer settlement, collections, customer service, bill printing and delivery.

67. The operating cost savings associated with billing department staffing is directly reflected in NBHDL's operating budget, which was approved by the Board in the settlement. It is not now reasonable to assume away these resourcing restraints when looking at working capital allowance. It is exactly the same process.

68. Following a series of calculations, Board staff goes on to note that:

> "One of the outcomes of the Renewed Regulatory Framework for Electricity (RRFE) is to ensure continuous improvement in productivity and cost performance. The RRFE contains expectations that distributors should continuously strive to develop or adopt best practises. Other lead lag studies show that other distributors in Ontario are achieving lower billing lags. In doing so, they reduce the working capital requirements in their revenues and provide better value to their customers."

69. NBHDL has addressed Staff's comment on the RRFE focus on continuous improvements in productivity and cost performance in Section C1, paragraphs 27-35 of its submissions above.

70. Again, Board staff is not comparing apples-to-apples when comparing NBHDL to 7 of the largest LDCs in the Province.

71. And Board staff's assumption about the impact of billing lag on working capital allowance was not true under the Board's previous policy on working capital allowance, which permitted recovery using the 13% method. The prudence of management's decisions on processes should not now be judged with the benefit of hindsight.

72. Board staff concludes that:

> "A working capital requirement of 10.43% of OM&A and cost of power calculated by the lead lag study may be an accurate reflection of North Bay Hydro's current working capital needs based on North Bay's past processes. However, given that OEB's RRFE places emphasis on customer value, continuous improvement and incenting the adoption of best practises, OEB staff believes that the OEB should impose a working capital allowance of 9.1% of the sum of controllable OM&A expenses and the cost of power in order to drive efficiency, provide an incentive for North Bay Hydro to improve its billing operations and provide better value for its customers over the four years that will follow under the Price Cap incentive rate-setting term."

73. The Updated Study, prepared by Navigant, proves the actual working capital requirements of NBHDL is 10.31%. This is an accurate reflection of NBHDL's actual working capital needs based on actual processes.

74. As described elsewhere in these submissions, an arbitrary reduction would not accomplish the goal of driving efficiency or incenting NBHDL to improve its billing operations. Rather, it would constitute an arbitrary penalty, imposed with the full benefit of hindsight, on NBHDL for having a billing process that minimizes operating cost impacts on ratepayers – as was perfectly logical for management to do under the 13% approach to working capital allowance – rather than one that increases operating costs so as to also minimize the impact on working capital allowance.

75. As was described elsewhere in these submissions, this arbitrary reduction is also not required because NBHDL has committed to undertake exactly those types of improvements if the Board approves NBHDL's actual working capital requirements.

D.2 Reply to EP Submissions <u>(Supported by VECC and SEC)</u>

D.2.1 Billing Lag

76. At pages 3-4 of its submissions, EP makes a number of submissions on the billing lag determination. Its submissions are supported by both VECC and SEC.

77. EP argues that:

> "Based on the response to Energy Probe-4 and Staff-2, this high billing lag appears to be the result of a unique billing process followed by NBHDL relative to other distributors."

78. NBHDL's billing process is certainly unique. However, and contrary to what is implied by EP, there are no standardized "best practices" as it relates to billing processes. Rather, each LDC creates a billing process to fit within its particular staffing and system availability.

79. Given this, and as was noted in response to Staff's submissions - NBHDL submits that the Board must be careful to compare apples-to-apples when assessing billing processes. EP submissions fail in this regard. Rather, EP compares NBHDL's billing process with the billing process used by 7 of the largest LDCs in the province of Ontario. Not one of the LDCs cited by EP are comparable to NBHDL, as explained in response to part (b) of Staff-2: Each of these LDCs are significantly larger than NBHDL - and they have access to an operating budget that range between 5 times (Veridian) and 100 times (HONI) greater than NBHDL's operating budget. Put simply, they have more staff and more expensive systems to complete their billing functions.

80. What does this mean in practice? Looking specifically at the billing function, the evidence before the Board is that NBHDL operates its entire billing department with only 2 FTEs and the support of the equivalent of 1 IT FTE.[4] NBHDL has also provided evidence that it has been able to handle an increasing workload on its billing function without increasing this FTE count.[5]

81. Each of the other 7 LDCs described in this comparison have much larger billing departments, and do not face nearly the same resourcing constraints of NBHDL.

82. EP goes on to argue that:

> "NBHDL acquires meter data for the full calendar month on the last day of the month for the vast majority of its customers and then waits until the 15th of the following month for the net system load shape data it receives from the IESO in

[4] Exhibit 4, page 49, Table 4-11.
[5] Exhibit 4, page 39, lines 1-7 and Exhibit 4, page 50, lines 28-30.

order to produce the bills. This means that all customers have to wait a minimum of 15 days for their bill to be issued."

83. As was briefly noted in response to Staff's submissions - NBHDL does not "wait" until the 15th day of the following month to produce the bills. Rather, 15 days represents the length of time it takes to actually begin the production of the bills given NBHDL's current resourcing levels. NBHDL has organized its billing cycles into very efficient workload packages. NBHDL is resourced to work efficiently within these cycles including meter reading, AMI system operation including metering communication troubleshooting, meter changes, exception billing, final billing, retailer settlement, collections, customer service, bill printing and delivery.

84. The operating cost savings associated with billing department staffing is directly reflected in NBHDL's operating budget, which was approved by the Board in the settlement. It is not now reasonable to assume away these resourcing restraints when looking at working capital. These are exactly the same processes.

85. EP goes on to argue that:

> "NBHDL then takes up to the end of the following month (Staff-2) to produce all bills for customers where the meter data was taken from the end of the previous month. This means that customers will get their bills somewhere between 16 and 30 days after the meter data point."

86. This too is a direct function of NBHDL's staffing limitations. NBHDL cannot print all of its bills at once. To deal with this issue, NBHDL has organized its bill printing into cycles that range from 16 to 30 days after the meter data point.

87. EP goes on to argue that:

> "Clearly this results in a significantly longer billing lag than is experienced by customers served by other distributors."

88. NBHDL disagrees. The only evidence on the record is of the billing lag of 7 of the largest LDCs in the Province of Ontario. None of these LDCs provide a fair basis of comparison to NBHDL. None of these LDCs have to deal with anywhere near the same resourcing

constraints that NBHDL operates within. There is no evidence on the record to compare NBHDL's billing lag with the billing lag of similarly sized, truly comparable LDCs.

89. EP goes on to argue that:

> "In addition, NBHDL has added 3 days to the billing lag to account for customers that receive their bill by mail (Energy Probe-1), as per the noted sections in the Distribution System Code. However, based on Appendix A in the Board Letter, the allowance for payments by mail is accounted for the collection lag, not in the billing lag."

90. This conclusion implied by EP is incorrect. EP appears to be confusing (whether deliberate or not) two distinct concepts: (i) the delay in the billing process caused by the mailing of bills to customer before those customers actually receive those bills, which pursuant to Navigant's expert report is properly included in the calculation of billing lag, on the one hand, and (ii) delays in the receipt of payments which are sent by mail to NBHDL, which in accordance with Appendix A of the Board Letter is properly included in the calculation of collection lag.

91. EP goes on to argue that:

> "Energy Probe submits that NBHDL is not following best practices in terms of getting their bills out to their customers in a timely manner consistent with other distributors. Energy Probe submits that the Board should reduce the billing lag from 23.97 days to 19.0 days, the highest billing lag seen by the Board to this date. This would provide an incentive to NBHDL to adopt best practices and reduce its cash flow requirements and at the same time reduce costs borne by ratepayers. It also reflects the movement of the days for mailing from the billing lag to the collection lag."

92. In response, and in summary, NBHDL submits that:

a. There is no evidence of "best practices" on the record. Billing process are always unique to LDCs, taking into account staffing and system restraints.

b. EP is drawing an unfair conclusion by comparing NBHDL's billing process to 7 of the largest LDCs in the Province.

c. EP ignores the evidence on the record that all of NBHDL's billing is completed by just 2 FTEs (plus 1 additional FTE in the IT department). The operating cost savings associated with billing department staffing is directly reflected in NBHDL's operating budget, which was approved by the Board in the settlement. It is not now reasonable to assume away these resourcing restraints when looking at working capital. These are exactly the same processes.

d. An arbitrary reduction in NBHDL's working capital requirement would not "provide an incentive to NBHDL to adopt best practices." Rather, because of an inability to implement untested changes to its billing processes, it would force NBHDL to make arbitrary cuts elsewhere in an already tight operating budget, leaving even fewer resources available for NBHDL to complete the necessary analysis and to implement meaningful changes to its billing process.

For all of the foregoing reasons, NBHDL submits that the Board should reject the arbitrary reduction in billing lag being proposed by EP in its submissions.

D.2.2 Collection Lag

93. At pages 4-5 of its submissions, EP makes a number of submissions on the collection lag calculations. Its submissions are supported by both VECC and SEC.

94. EP argues that:

> "NBHDL is requesting a collection lag of 24.56 days. The calculation of this figure is provided in the response to NBTA-2. Energy Probe submits that this analysis is flawed and should be rejected by the Board.''

95. NBHDL disagrees. The calculation of collection lag was performed by an independent third party expert, Navigant, and the methodology used by Navigant is reflective of the data limitations faced by NBHDL and is entirely consistent with the methodology Navigant has used for other utilities.

96. In this regard, NBHDL submits that the Board should place weight in the independent and expert evidence of Navigant, and not in the biased and self-serving submissions of the intervenors that wish to lower the rates – regardless of the consequences.

97. EP argues that:

> "In particular, the first "bucket" used in the accounts receivable analysis is 0 to 30 days, which is longer than the amount of time customers have to pay and avoid late payment charges. This period is effectively 19 days for those customers that are mailed an invoice and 16 days for those customers that receive their bill electronically, as described in the response to Energy Probe-1, part (b).
>
> In other words, it is unreasonable to assume that the accounts receivable in the first bucket (0 to 30 days) are received on average at 15 days. A review of the accounts receivable for distributors that have filed lead lag studies shows that the first bucket used by NBHDL is too large."

98. In response, NBHDL notes that the 0 to 30 day aging bucket for Collections Lag was selected based on what data is actually available from NBHDL's accounting systems. This data limitation cannot be assumed away. Contrary to EP's assumption, NBHDL's billing system is not at all comparable to the 7 largest utilities in the Province. NBHDL discussed it's informational limitation with Navigant. Navigant confirmed in no uncertain terms that 0 to 30 days is a common bucket used in lead-lag studies for other utilities. Notably, Navigant's expertise in this regard is drawn from across North America, and is not limited to the 7 utilities which EP is make reference too.

99. EP argues that:

a. "As an example, in EB-2014-0002, the study filed by Horizon Utilities had two buckets in place of the one used by NBHDL. The first bucket use by Horizon was 0 to 16 days and the second was less than 30 days. In the case of Horizon, more than 85% of the revenue in the first NBHDL bucket is in 0 to 16 day bucket. There is no reason to suggest that the figures would be significantly different for NBHDL, given that payment deadlines are the same for all distributors across the province."

100. This is conjecture and is purposefully misleading. There is no evidence to suggest that methodology utilized by Horizon is any more or less correct that the methodology used by Navigant for NBHDL. To make the point, and without agreeing with the validity of the comparison but rather to illustrate the purposefully misleading nature of EP's submissions, EP ignores the fact that NBHDL's collection lag is well within the norm of the collections lag seen by each of the 7 largest LDCs in the Province of Ontario:

Utility	Collection Lag
NBHDL (EB-2014-0099)	24.56
London Hydro (EB-2011-0146)	30.29
Horizon (EB-2010-0131)	24.00
Horizon (EB-2014-0002)	21.77
Hydro Ottawa (Eb-2010-0133)	25.47
THESL (EB-2014-0116)	22.21
HONI (EB-2013-0416)	28.77
Veridian (EB-2013-0174)	23.61

101. EP argues that:

> "Given this flawed approach in using such a large first bucket, Energy Probe submits that the analysis provided by NBHDL is insufficient for the Board to rely on to set the collection lag.
>
> Given the lack of reliable supporting evidence in this proceeding, Energy Probe submits that the collection lag should be set based on the policy as set out in the Board Letter. In particular, the Board set the default collection lag to 22.0 days to reflect the minimum payment period plus allowances for payments by mail as specified in s. 2.6 of the Distribution System Code. This is noted in Appendix A to the Board Letter."

102. In response, and in summary, NBHDL submits that:

a. There is no evidence that Navigant's methodology is flawed. Navigant is an independent third party expert that has signed the Board's form of acknowledgement, and their evidence is more credible and reliable than the misleading assertions of EP.

b. EP's assumption of 22 days is entirely unreasonable and is not supported in evidence. Notably, only one of the 7 largest LDCs in the Province of Ontario has a collection lag that would meet the value assumed by EP.

D.2.3 Payment Process Lag

103. At pages 5-6 of its submissions, EP makes a number of submissions on the payment processing lag calculations. Its submissions are supported by both VECC and SEC.

104. In particular, EP identifies two purported problems with the methodology and calculations used by Navigant.

105. EP argues that:

> "First, NBHDL has used a figure of 4.21 days to process cash payments received in the office, excluding payments made by debit cards. This is because NBHDL has indicated that it only has two scheduled pick-ups by an armoured car service each week.
>
> Energy Probe submits that the payment processing lag, as defined in the Study at page 8, is the time from "when the customer provides a payment to NDHDL to such time as the funds associated with that payment are available to the company." Energy Probe submits that the company has the funds available to it when it receives the cash, not when it transfers the cash to its financial institution."

106. EP incorrectly assumes that the payments received are all cash. That is not factually correct. Using the same data file that was used to compile the response to EP-1(g), approximately 86% of the payments received in the office are cheques. These cheques do not clear, and the funds associated with those payments are not available to the company, until long after the cheques are actually deposited in the financial institution. For the remaining 14%, which are payments in cash, those funds are also not available to NBHDL for use until such time as the amounts are deposited in the bank. This is because of NBHDL's cash management policies and procedures.

107. EP asks the Board to make arbitrary adjustments to the working capital allowance calculation in this regard. But it has failed to demonstrate how NBHDL's processes are in

any way imprudent. Cash can be easily stolen, and tight controls around its collection and use are important. And two scheduled pick-ups per week reflects the right balance between getting the cash into the bank quickly, while not incurring unnecessary hassle or expense of pick-ups where none are really required.

108. EP goes on to argue that:

> "Furthermore, even if the payment is not considered available to NBHDL until the funds are transferred to the financial institution, NBHDL has not provided any evidence to support that any additional cost would be higher than the reduction in the WCA allowance built into the revenue requirement."

109. NBHDL was never asked or required to provide any such evidence in this proceeding. Remember the Board's policy on working capital allowance calculations changed mid-stream, meaning this was never a requirement when the Application was prepared. However, NBHDL agrees that a comprehensive analysis of its processes from the perspective of working capital allowance, OM&A and capital would be helpful. NBHDL has promised to do exactly that if the Board funds the 10.31% in rates.

110. EP argues that:

> "Second, and most importantly, the calculation shown in the response to the Energy Probe interrogatory results in a weighted average processing lag based on the number of payments, rather than on the dollar figures associated with the types of payments.
>
> As explained in Appendix A to the Study, dollar weighting should be used for both leads and lags. An example is given under the heading of Dollar Weighting in the Study that illustrates the folly of using the number of transactions rather than the dollars associated with the transactions."

111. The calculations were not weighted using actual dollar figures associated with the types of payments because this data was simply not available. NBHDL discussed EP's concern with its expert consultant, Navigant, which advised that in their experience many utilities do not have this information available, and an alternative approach must be used. In one

study Navigant completed, revenue and account data was available by payment type and the impact to the overall revenue lag was *de minimis.*

112. EP argues that:

> "The example provided is equally applicable to the type of payments. Energy Probe submits it is extremely unlikely that the larger customers of NBHDL have an employee make a monthly trip to the NBHDL office with cash in hand to make their payments. Indeed it is reasonable to assume that the cash transactions are nearly all related to residential bills, which are, on average, significantly smaller than the bills paid by customers in other rate classes. Therefore, it is submitted that the evidence upon which the 1.80 days has been calculated does not stand up to scrutiny and should be rejected."

113. This is conjecture. There is no basis for these assertions in evidence. NBHDL submits that the methodology and calculations proposed by its independent expert consultant, Navigant, for payment processing lag should be accepted by the Board. There is no basis to reject a real and known lag and replace it with an assumed value that has no basis in actual costs, as is proposed by EP.

D.2.4 PILS Expense Leads

114. At pages 7-8 of its submissions, EP makes a number of submissions on the PILs expenses expense lead calculations. Its submissions are supported by both VECC and SEC.

115. In its assessment, EP recommends that the Board assume that NBHDL followed its "usual practice" and pay installments on a monthly basis as indicated in its response to the interrogatory. EP then makes certain assumptions on what those payments would've have been for 2014 to re-calculate a weighted lead time.

116. NBHDL submits that EP's assumed methodology should be rejected by the Board. It does not reflect its usual practice. If NBHDL followed the installment plan proposed by EP, it would have ended up paying $659,519 - over $150,000 more in PILs that it was actually obligated to pay (in response to EP-8(b), NBHDL notes the total assessed was $471,143 plus $1,194.30). This would have been imprudent, and does not constitute a reasonable assumption by EP.

117. Not surprisingly, the vast majority of this overpayment is weighted towards the latter half of 2014. The problem is that NBHDL updated its PILS estimate in or around July of each year, and adjusted its installment payments accordingly which resulted in no further installments after July 2014. This reality is not reflected in the assumptions made by EP.

118. In this context, NBHDL submits that the Board should accept Navigant's methodology and calculations as a reasonable determination of the PILs expense lead for NBHDL for 2014.

D.2.5 Payroll Calculation in OM&A Expenses and HST Calculation

119. The issues raised by EP at pages 8-9 of its submissions as it relates to payroll and the HST calculation have been addressed by Navigant in the Updated Study.

120. NBHDL has no further submissions in this regard.

D.3 Reply to NBTA Submissions

121. NBTA made the following submissions in respect of NBHDL's response to interrogatory number NBTA-2:

> "Please supply details of the amounts used to calculate the Weighted Average Number of Collection Lag days shown in the response."

122. NBHDL provided detailed information in three tables in response to part (a) of NBTA-2 inclusive of total revenues per AR bucket, percentage of revenue per AR bucket, and a third table that showed the determination of a weighted average number for collection lag. The response to part (b) of the same interrogatory explains the methodology used to calculate the collection time. It is unclear what other details can be provided or are being requested.

123. NBTA made the following submissions in respect of NBHDL's response to interrogatory number NBTA-4:

> "Response would indicate that rents are received annually in arrears. Since rents are usually paid in advance, please explain who this arrangement is with and why this arrangement exists.

If rents are received in advance, rental income would have a lead time rather than a lag time."

124. In response, NBHDL notes that rent from Electric Property is related to attachments to NBHDL's poles and is treated differently than the typical property rent example provided above by NBTA. The agreements on hand state that the Attacher shall pay to the Owner annual payments determined by multiplying the number of poles of the Owner to which the Attacher had Attachments on December 31 in the year prior times the Attachment Fee as determined in accordance with Article 12.2.

125. NBTA also made submissions in respect of NBHDL's responses to NBTA-5 and NBTA-6. These interrogatories are now the subject of a separate motion which has been brought by NBTA. NBHDL will provide its response on these matters in due course as part of the motion process.

E. CONCLUSIONS

126. For all of the foregoing reasons, NBHDL submits that the Board should make an order for just and reasonable rates in the test year approving the Applicant's working capital allowance of **10.31%,** which is supported by the expert study prepared by Navigant (the Updated Study) and is directly reflective of the Applicant's actual working capital needs.

127. None of the Parties have taken issue with NBHDL's request for Board approval of recovery of incremental costs (both internal and external) associated with the Navigant lead-lag study. Staff noted that "provided the final costs for the study are in line with the amounts quoted by Navigant and provided that the final costs including any additional legal support are below the materiality threshold, OEB staff has no issue with the recovery of these costs as the amounts are immaterial and they are clearly incremental to the costs already approved by the OEB in the interim revenue requirement."

All of which is respectfully submitted this 18th day of September, 2015.

Original signed by John A.D. Vellone
John A.D. Vellone

TOR01: 6049150: v3

NAVIGANT

September 15, 2015

Re: Update to Working Capital Requirements of North Bay Hydro Distribution Ltd.'s Distribution Business

Navigant has made the following changes to "Working Capital Requirements of North Bay Hydro Distribution Ltd.'s Distribution Business" report:

1. Recalculation of the payroll information updating the source data; and
2. Recalculation of the Harmonized Sales Tax ("HST") excluding the inadvertent inclusions of Payroll and Property Taxes.

The payroll information was updated for five pay periods. Incorrect dates were entered into the lead-lad model and the impact on cash working capital was recalculated. The impact on the working capital percentage was inconsequential (approximately .03 percent).

The HST calculation captured all OM&A components (payroll and benefits, property taxes, and misc. OM&A). The calculation was modified to only capture misc. OM&A and the impact on cash working capital was recalculated. The impact of the HST correction on the working capital percentage was approximately 0.1 percent.

The updated working capital percentage within the enclosed report reflects the changes outlined above. For ease of reference, the changes that have been made to the report have clearly been marked with sidebars. No other changes were made to the report.

Best regards,

Ralph Zarumba

Director

NAVIGANT

Working Capital Requirements of North Bay Hydro Distribution Ltd.'s Distribution Business

Prepared for:

North Bay Hydro Distribution Ltd.

Navigant Consulting Ltd.
333 Bay Street
Suite 1250
Toronto, ON, M5H 2R2

www.navigant.com

September 14, 2015

This report (the "report") was prepared for North Bay Hydro Distribution Ltd. ("NBHDL") by Navigant Consulting, Ltd. ("Navigant"). The report was prepared solely for the purposes of NBHDL's rate filing to before the Ontario Energy Board and may not be used for any other purpose. Use of this report by any third party outside of NBHDL's rate filing is prohibited. Use of this report should not, and does not, absolve the third party from using due diligence in verifying the report's contents. Any use which a third party makes of this report, or any reliance on it, is the responsibility of the third party. Navigant extends no warranty to any third party.

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Section I: Executive Summary

Navigant was engaged by North Bay Hydro Distribution Limited ("NBHDL") to prepare a lead-lag study to calculate the working capital requirements for NBHDL's distribution business. The results of this study are provided in this report and are intended to be used in NBHDL's rebasing proceeding filed with the Ontario Energy Board ("OEB").

Performing a lead-lag study requires two key undertakings:

1. Developing an understanding of how the regulated distribution business operates in terms of products and services sold to customers/purchased from vendors, and the policies and procedures that govern such transactions; and,
2. Modeling such operations using data from a relevant period of time and a representative data set. It is important to ascertain and factor into the study whether (or not) there are known changes to existing business policies and procedures going forward. Where such changes are known and material, they should be factored into the study.

Results from the lead-lag study using 2014 data identify the following working capital amount in Table 1, below.

Table 1: Summary of Working Capital Requirements

Year	2014
Percentage of OMA	**10.31%**
Working Capital Requirement	**$ 8,165,259**

Table 2, below summarizes the detailed working capital requirements for 2014 calculated in the study.

Table 2: NBHDL Distribution Working Capital Requirements (2014)

Description	Revenue Lag Days	Expense Lead Days	Net Lag Days	Working Capital Factor	Expenses	Working Capital Requirements
Cost of Power	65.58	33.02	32.56	8.92%	$ 70,516,783	$ 6,289,679
OM&A Expenses	65.58	15.97	49.61	13.59%	$ 8,704,414	$ 1,183,148
DRC	65.58	24.36	41.22	11.29%	$ 1,778,578	$ 200,868
PILS	65.58	(28.70)	94.28	25.83%	$ 500,000	$ 129,149
Interest Expense	65.58	44.80	20.78	5.69%	$ 1,089,717	$ 62,044
Total					**$ 82,589,492**	**$ 7,864,888**
HST						$ 300,370
Total - Including HST						$ 8,165,259
Working Capital as a Percent of OM&A incl. Cost of Power						**10.31%**

Organization of the Report

Section II of the report discusses the lag times associated with NBHDL's collections of revenues. The section includes a description of the sources revenues and how an overall revenue lag is derived.

Section III presents the lead times associated with NBHDL's expenses. The section includes a description of the types of expenses incurred by NBHDL's distribution operations and how expenses are treated for the purposes of deriving an overall expenses lead.

Section IV presents a summary of the results from the study.

Section II: Revenue Lags

A distribution utility providing service to its customers generally derives its revenue from bills paid for service by its customers. A revenue lag represents the number of days from the date service is rendered by NBHDL until the date payments are received from customers and funds are available to NBHDL.

Interviews with NBHDL staff indicate that its distribution business receives funds from the following funding streams:

1. Retail Customers; and,
2. Other Sources (for example, revenues for service charges and late payments, sale of scrap and other miscellaneous services performed by NBHDL).

NBHDL currently takes into account the Ontario Clean Energy Benefit (OCEB) when billing customers and is reimbursed for OCEB through the settlement processes with the Independent Electricity System Operator (IESO). The OCEB is expected to cease December 31, 2015. OCEB was removed from retail revenues in this study to reflect this known and measurable change. NBHDL currently charges both residential and non-residential customers for the Debt Retirement Charge (DRC) and remits the DRC collected from customers to the Ontario Electricity Financial Corporation (OEFC). O.Reg 156/15 exempts residential customers from paying DRC on electricity consumed after December 31, 2015. DRC was removed from residential customers' retail revenues in this study to reflect this known and measurable change.

The lag times associated with the funding streams above and considering the known and measurable changes described were weighted and combined to calculate an overall revenue lag time as shown below.

Table 3: Summary of Revenue Lag

Description	Lag Days	Revenues	Weighting	Weighted Lag
Retail Revenue	65.59	$ 97,138,801	98.87%	64.85
Other Revenue	64.82	$ 1,106,358	1.13%	0.73
Total		**$ 98,245,158**	**100.00%**	**65.58**

Retail Revenue Lag

Retail Revenue lag consists of the following components:

1. Service Lag;
2. Billing Lag;
3. Collections Lag; and,
4. Payment Processing Lag.

The lag times for each of the above components, when added together, results in the Retail Revenue Lag for the purpose of calculating the working capital requirements for NBHDL's distribution business. The components are intended to represent a continuous process from the end date of the customer's previous billing cycle to the date in which the payment is available to NBHDL. Figure 1 illustrates the start and end point for each component of NBHDL's retail revenue lag.

Figure 1: Retail Revenue Lag

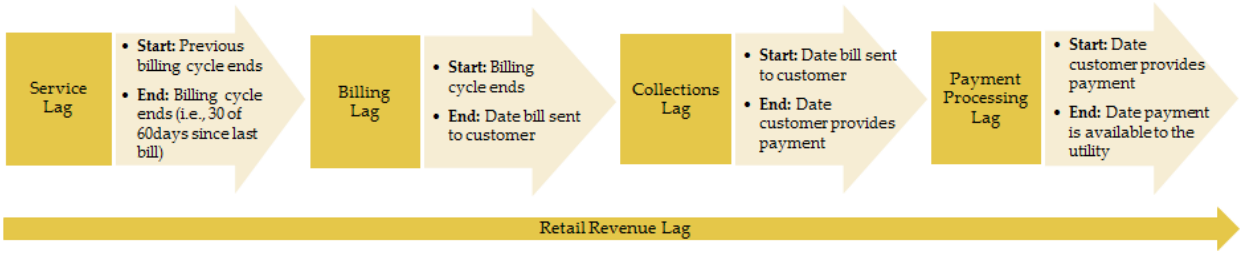

Table 3, below summarizes the total Retail Revenue Lag.

Table 4: Summary of Retail Revenue Lag

Description	Lag Days
Service Lag	15.25
Billing Lag	23.97
Collections Lag	24.56
Payment Processing Lag	1.80
Total	**65.59**

The estimation of each component of the Retail Revenue Lag is described below.

Service Lag

The Service Lag is the time from NBHDL's provision of electricity to a customer, to the time the customer's service period ends, which is typically defined as when the meter is read. All NBHDL customers are billed monthly. Therefore, the Service Lag was estimated to be 15.25 days.

Billing Lag

The Billing Lag is the time period from when the customer's service period ends, which is typically defined as when the meter is read, and the time that the bill is sent to the customer. NBHDL bills customers using the preliminary net system load shape from the IESO (available after the 15th of each month). Therefore, all bills are generated between the 15th and 30th of the month. In addition, three days are added to bills that are sent to customers using mail. Discussions with NBHDL staff and analysis of meter billing data indicated that NBHDL customers have an average billing lag of 23.97 days.

Collections Lag

The Collections Lag is the time period from when the bill is sent to the customer (including three days for bills that are sent by mail), until the time when the customer provides a payment to NBHDL. The Collections Lag is measured by analyzing the receivables aging data provided by NBHDL. NBHDL's Collection lag was calculated to be 24.56 days for NBHDL's distribution operations.

Payment Processing Lag

The Payment Processing lag is the time period from when the customer provides a payment to NBHDL until such time as the funds associated with that payment are available to the company. The Payment Processing Lag is measured by analyzing the payment methods used by NBHDL customers. Some examples of the payment methods used include credit card, pre-authorized payment and branch payment.

NBHDL provided the processing time associated with each method of payment and the number of customers using each method of payment. Using such data provided by NBHDL for the calendar year 2014, a customer-weighted average payment processing lag of 1.80 days was determined for NBHDL's distribution operations.

Other Revenue Lag

NBHDL collects revenues from a variety of other activities such as service charges (collection fees, change of occupancy, legal letters, service calls, etc.), sale of scrap, and interest from monthly bank balances. NBHDL staff provided monthly data and payment information for each component of other revenue lag. Using such data provided by NBHDL for the calendar year 2014, a revenue-weighted average other revenue lag of 64.82 days was determined for NBHDL's distribution operations. Table 5 provides a breakdown of the amounts and revenue lag time associated with each component of the revenue lag.

Table 5: Summary of Other Revenues

Description		Amounts	Revenue Lag Time	Weighting	Weighted Lag Time
Rent from Electric Property	$	199,398	182.50	18.02%	32.89
Late Payment Charges	$	142,104	41.57	12.84%	5.34
Service Charges	$	598,993	41.58	54.14%	22.51
MicroFIT Monthly Charge	$	2,160	45.23	0.20%	0.09
NBHDL Services Management Fee	$	53,654	45.20	4.85%	2.19
Sale of Scrap	$	9,702	45.20	0.88%	0.40
Interest from Monthly Bank Balances	$	99,332	15.21	8.98%	1.37
Misc. Other Charges	$	1,015	41.11	0.09%	0.04
Total	**$**	**1,106,358**		**100.00%**	**64.82**

Section III: Expense Leads

Expense Leads are defined as the time period between when a service is provided to NBHDL and when payment is required for that service. Typically services are provided in advance of payment which reduces the capital requirement of the company. Therefore, in conjunction with the calculation of the revenue lag, expense lead times were calculated for the following items:

1. Cost of Power;
2. OM&A Expenses;
3. Debt Retirement Charge;
4. Payments in Lieu of Taxes;
5. Interest on Long Term Debt; and,
6. Harmonized Sales Tax.

Cost of Power

For the purpose of the distribution lead-lag study, cost of power expenses were considered to consist of payments made by NBHDL to its vendors in the following categories:

1. IESO Cost of Power Expenses;
2. Hydro One Cost of Power Expenses;
3. Customer Rebates;
4. Payments to Micro Feed-in Tariff (MFIT), and Feed-in Tariff (FIT) customers; and,
5. Payments to retailers.

Expense lead times were calculated individually for each of the items listed above and then dollar-weighted to derive a composite expense lead time of 33.02 days for cost of power expenses.

Table 6: Summary of Cost of Power Expenses

Description		Amounts	Weighting	Expense Lead Time	Weighted Lead Time
IESO Cost of Power	$	68,020,906	96.46%	32.78	31.62
Hydro One Cost of Power	$	1,266,460	1.80%	54.13	0.97
Customer Rebates	$	162,252	0.23%	39.47	0.09
Payments to MFIT and FIT customers	$	458,533	0.65%	47.16	0.31
Retailer Payments	$	608,631	0.86%	3.80	0.03
Total	**$**	**70,516,783**	**100.00%**		**33.02**

The following pages provide detailed transactional information for approximately 98 percent of the Cost of Power expenses: IESO Cost of Power and Hydro One Cost of Power expenses.

IESO Cost of Power Expenses

NBHDL purchases its power supply requirements on a monthly basis from the IESO and pays for such supplies on a schedule defined by the IESO's billing and settlement procedures. NBHDL provides the OCEB to customers and is reimbursed by the government through the settlement processes with the IESO. The OCEB is expected to cease December 31, 2015 and this study considers this a known and measurable change. Taking the information on actual payments made by NBHDL in 2014 and adjusting for the cessation of the OCEB, a dollar-weighted Cost of Power expense lead time of 32.78 days was calculated. Table 7 below summarizes the components of the Cost of Power expense lead calculation.

Table 7: Summary of IESO Cost of Power Expenses

Delivery Period	Amounts	Weighting Factor %	Payment Date	Service Lead Time	Payment Lead Time	Total Lead Time	Weighted Lead Time
Jan-14	$ 7,017,957	10.32%	2/19/2014	15.50	19.00	34.50	3.56
Feb-14	$ 7,036,252	10.34%	3/18/2014	14.00	18.00	32.00	3.31
Mar-14	$ 6,745,445	9.92%	4/16/2014	15.50	16.00	31.50	3.12
Apr-14	$ 4,776,424	7.02%	5/16/2014	15.00	16.00	31.00	2.18
May-14	$ 4,619,277	6.79%	6/17/2014	15.50	17.00	32.50	2.21
Jun-14	$ 4,652,565	6.84%	7/17/2014	15.00	17.00	32.00	2.19
Jul-14	$ 5,227,628	7.69%	8/19/2014	15.50	19.00	34.50	2.65
Aug-14	$ 4,580,095	6.73%	9/17/2014	15.50	17.00	32.50	2.19
Sep-14	$ 4,805,019	7.06%	10/17/2014	15.00	17.00	32.00	2.26
Oct-14	$ 5,267,573	7.74%	11/19/2014	15.50	19.00	34.50	2.67
Nov-14	$ 5,810,647	8.54%	12/16/2014	15.00	16.00	31.00	2.65
Dec-14	$ 7,482,023	11.00%	1/19/2015	15.50	19.00	34.50	3.79
Total	**$ 68,020,906**	**100.00%**					**32.78**

Hydro One Cost of Power Charges

NBHDL provides payment to Hydro One for cost of power expenses on a monthly basis including network, connection and low voltage services. Based upon information on payments made by NBHDL in 2014, a dollar-weighted Hydro One Cost of Power Charges expense lead time of 54.13 days was calculated. Table 8, below summarizes the components of the Hydro One Cost of Power Charges expense lead calculation.

Table 8: Summary of Hydro One Cost of Power Charges

Delivery Period		Amounts	Weighting Factor %	Payment Date	Service Lead Time	Payment Lead Time	Total Lead Time	Weighted Lead Time
Jan-14	$	128,094	10.11%	3/9/2014	15.00	39.00	54.00	5.46
Feb-14	$	98,035	7.74%	4/6/2014	14.50	38.00	52.50	4.06
Mar-14	$	103,795	8.20%	5/6/2014	14.50	39.00	53.50	4.38
Apr-14	$	56,360	4.45%	6/9/2014	16.00	41.00	57.00	2.54
May-14	$	80,150	6.33%	7/5/2014	15.00	37.00	52.00	3.29
Jun-14	$	106,079	8.38%	8/5/2014	14.50	39.00	53.50	4.48
Jul-14	$	95,973	7.58%	9/7/2014	16.00	40.00	56.00	4.24
Aug-14	$	93,826	7.41%	10/5/2014	15.00	38.00	53.00	3.93
Sep-14	$	167,739	13.24%	11/9/2014	16.50	40.00	56.50	7.48
Oct-14	$	118,418	9.35%	12/9/2014	15.50	39.00	54.50	5.10
Nov-14	$	109,879	8.68%	1/6/2015	15.00	37.00	52.00	4.51
Dec-14	$	108,112	8.54%	2/8/2015	15.50	39.00	54.50	4.65
Total	**$**	**1,266,460**	**100.00%**					**54.13**

OM&A Expenses

For the purpose of the distribution lead-lag study, OM&A expenses were considered to consist of payments made by NBHDL to its vendors in the following categories:

1. Payroll & Benefits;
2. Property Taxes; and,
3. Miscellaneous OM&A.

Expense lead times were calculated individually for each of the items listed above and then dollar-weighted to derive a composite expense lead time of 15.97 days for OM&A expenses.

Table 9: Summary of OM&A Expenses

Description	Amounts	Weighting	Expense Lead Time	Weighted Lead Time
Payroll & Benefits	$ 4,874,682	56.00%	19.48	10.91
Property Taxes	$ 66,357	0.76%	(67.42)	(0.51)
Miscellaneous OM&A	$ 3,763,376	43.24%	12.89	5.57
Total	**$ 8,704,414**	**100.00%**		**15.97**

Payroll & Benefits

The following items were considered to be expenses related to the Payroll & Benefits of NBHDL's regulated business:

1. Basic payroll;
2. Three types of payroll withholdings including the Canada Pension Plan, Employment Insurance, and Income Tax withholdings;
3. Contributions made by NBHDL to the NBHDL Pension Plan;
4. Group Life Insurance and Group Health and Dental Insurance related administrative fees and premiums, short and long-term disability, spending account, and employee assistance program;
5. Payments made by NBHDL on account of the Employer Health Tax (EHT);
6. Payments made by NBHDL to the Workplace Safety and Insurance Board (WSIB);
7. Payments made by NBHDL for the Social Club; and,
8. Payment made by NBHDL for union fees to CUPE.

When all Payroll, Withholdings and Benefits were dollar-weighted using actual payment data, the weighted average expense lead time associated with Payroll & Benefits was determined to be 19.48 days as shown in Table 10, below.

Table 10: Summary of Payroll & Benefits Expenses

Description	Amounts		Weighting	Expense Lead Time	Weighted Lead Time
Payroll	$	2,440,892	50.07%	11.61	5.82
Withholdings	$	1,138,412	23.35%	44.91	10.49
Pensions	$	697,756	14.31%	27.36	3.92
Group Life Insurance	$	43,227	0.89%	(14.21)	(0.13)
Group Health and Dental	$	353,725	7.26%	(14.21)	(1.03)
Short-Term and Long-Term Disability	$	50,767	1.04%	(14.21)	(0.15)
Spending Account	$	4,429	0.09%	(14.34)	(0.01)
Employee Assistance Program	$	2,495	0.05%	11.00	0.01
EHT	$	71,734	1.47%	8.60	0.13
WSIB	$	39,309	0.81%	28.25	0.23
CUPE	$	29,778	0.61%	33.19	0.20
Social Club	$	2,158	0.04%	33.25	0.01
	$	**4,874,682**	**100.00%**		**19.48**

Property Taxes

NBHDL makes property tax payments to the City of North Bay and the Ministry of Finance. These payments are made in the current year for the current year and are typically made in installments. Using the payment dates and amounts associated with NBHDL's distribution business for calendar year 2014, a dollar-weighted expense lead (-lag) time of negative 67.42 days was determined. Table 11, below summarizes the components of the property tax expense lead calculation.

Table 11: Property Tax Expenses

Municipality or Vendor	Amounts		Weighting Factor %	Payment Date	Service Lead Time	Payment Lead Time	Total Lead Time	Weighted Lead Time
City of North Bay	$	29,567	44.56%	2/13/2014	182.50	(320.00)	(137.50)	(61.27)
City of North Bay	$	33,504	50.49%	6/27/2014	182.50	(186.00)	(3.50)	(1.77)
Ministry of Finance	$	3,286	4.95%	4/3/2014	182.50	(271.00)	(88.50)	(4.38)
Total	**$**	**66,357**	**100%**					**(67.42)**

Miscellaneous OM&A

The Miscellaneous OM&A category includes items such as product purchases, equipment rentals, and provision of general services to NBHDL. Based on 2014 transactions in NBHDL's accounts payable system under the Miscellaneous OM&A category, a dollar-weighted expense lead time of 12.89 days was derived. Table 12, below summarizes the components of miscellaneous OM&A expense lead calculation.

Table 12: Summary of Miscellaneous OM&A Expenses

Description	Amounts		Weighting	Expense Lead Time	Weighted Lead Time
Outside Services	$	745,368	19.81%	12.33	2.44
Other Misc. OM&A	$	2,173,808	57.76%	(0.84)	(0.49)
Material Purchases	$	844,199	22.43%	48.73	10.93
Total	**$**	**3,763,376**	**100.00%**		**12.89**

Interest on Short-Term and Long-Term Debt

NBHDL makes interest payments on long-term and short-term loans out of current year revenues. NBHDL makes interest payments on three loans: infrastructure Ontario/smart meter loan, City of North Bay debt, and swap/capital loan. Table 13, below summarizes the components of the interest expense lead calculation. Taking into account the various long term and short term debt instruments, a dollar-weighted expense lead time of 44.80 days was determined for the 2014.

Table 13: Summary of Interest Expenses

Description	Amounts		Weighting	Expense Lead Time	Weighted Lead Time
Infrastructure Ontario/Smart Meter Loan	$	93,577	8.59%	0.41	0.04
City of North Bay Debt	$	975,580	89.53%	49.63	44.43
Swap/Capital Loan	$	20,560	1.89%	17.75	0.33
Total	$	1,089,717	100.00%		**44.80**

Debt Retirement Charge (DRC)

NBHDL makes payments for the debt retirement charge on a monthly basis to the Ontario Electricity Financial Corporation. O.Reg 156/15 exempts residential customers from paying DRC on electricity consumed after December 31, 2015. This has been modeled as a known and measurable change and only DRC to non-residential customers is included in the model. Using the estimated non-residential payment amounts that were made in calendar year 2014, a dollar-weighted expense lead time of 24.36 days was determined for DRC. Table 14, below summarizes the components of the DRC expense lead calculation.

Table 14: Summary of DRC Expenses

Delivery Period	Amounts	Weighting Factor %	Payment Date	Service Lead Time	Payment Lead Time	Total Lead Time	Weighted Lead Time
Jan-14	$ 186,556	10.49%	2/6/2014	15.50	6.00	21.50	2.26
Feb-14	$ 202,129	11.36%	3/6/2014	14.00	6.00	20.00	2.27
Mar-14	$ 170,270	9.57%	4/2/2014	15.50	2.00	17.50	1.68
Apr-14	$ 172,250	9.68%	5/9/2014	15.00	9.00	24.00	2.32
May-14	$ 138,798	7.80%	6/12/2014	15.50	12.00	27.50	2.15
Jun-14	$ 119,366	6.71%	7/10/2014	15.00	10.00	25.00	1.68
Jul-14	$ 130,470	7.34%	8/7/2014	15.50	7.00	22.50	1.65
Aug-14	$ 128,027	7.20%	9/11/2014	15.50	11.00	26.50	1.91
Sep-14	$ 125,946	7.08%	10/14/2014	15.00	14.00	29.00	2.05
Oct-14	$ 121,841	6.85%	11/13/2014	15.50	13.00	28.50	1.95
Nov-14	$ 127,772	7.18%	12/11/2014	15.00	11.00	26.00	1.87
Dec-14	$ 155,153	8.72%	1/14/2015	15.50	14.00	29.50	2.57
Total	**$ 1,778,578**	**100.00%**					**24.36**

Payment in Lieu of Taxes (PILs)

NBHDL makes payments in lieu of taxes in three installments to the relevant taxing authorities. Using payment amounts that were made in calendar year 2014, a dollar-weighted expense lead time of negative 28.70 days was determined for PILs. Table 15, below summarizes the components of the PILS expense lead calculation.

Table 15: Summary of PILs Expenses

Delivery Period		Amounts	Weighting Factor %	Payment Date	Service Lead Time	Payment Lead Time	Total Lead Time	Weighted Lead Time
2014	$	300,000	60.00%	5/16/2014	182.50	(229.00)	(46.50)	(27.90)
2014	$	100,000	20.00%	6/19/2014	182.50	(195.00)	(12.50)	(2.50)
2014	$	100,000	20.00%	7/10/2014	182.50	(174.00)	8.50	1.70
Total	**$**	**500,000**	**100.00%**					**(28.70)**

Harmonized Sales Tax (HST)

The expense lead times associated with the following items that attract HST were considered in NBHDL's distribution lead-lag study.

1. Revenues;
2. Cost of Power; and,
3. OM&A[1].

A summary of the expense lead times and working capital amounts associated with each of the above items is provided in Table 16. Note that the statutory approach described at the outset was used to determine the expense lead times associated with NBHDL's remittances and disbursements of HST (i.e., remittances are generally on the last day of the month following the date of the applicable period).

Table 16: Summary of HST Working Capital Amounts

Description	HST Lead Time	Working Capital Factor	2014	
Revenues	(24.66)	-6.76%	$	(853,252)
Cost of Power	43.59	11.94%	$	1,094,751
OM&A Expenses	43.92	12.03%	$	58,871
Total			$	300,370

[1] Costs within OM&A that attract HST include Outside Services, and Miscellaneous OM&A.

Section IV: Conclusions

Using the results described under the discussion of revenue lags and expense leads, and applying them to NBHDL's distribution expenses for 2014, NBHDL's working capital requirements were determined. Table 17, below summarizes the working capital requirements for 2014 calculated in the study.

Table 17: NBHDL Distribution Working Capital Requirements (2014)

Description	Revenue Lag Days	Expense Lead Days	Net Lag Days	Working Capital Factor	Expenses	Working Capital Requirements
Cost of Power	65.58	33.02	32.56	8.92%	$ 70,516,783	$ 6,289,679
OM&A Expenses	65.58	15.97	49.61	13.59%	$ 8,704,414	$ 1,183,148
DRC	65.58	24.36	41.22	11.29%	$ 1,778,578	$ 200,868
PILS	65.58	(28.70)	94.28	25.83%	$ 500,000	$ 129,149
Interest Expense	65.58	44.80	20.78	5.69%	$ 1,089,717	$ 62,044
Total					**$ 82,589,492**	**$ 7,864,888**
HST						$ 300,370
Total - Including HST						$ 8,165,259
Working Capital as a Percent of OM&A incl. Cost of Power						**10.31%**

The following known and measurable changes have been made to the study to reflect changing policy:

1.1 Ontario Clean Energy Benefit (OCEB) and Ontario Electricity Support Program (OESP)

The Ontario government has indicated that the OCEB program will cease on December 31, 2015. This clear direction is considered a known and measurable change. OCEB amounts are not included in the estimate of North Bay's working capital amount.

The Ontario government has also indicated that a new program, OESP, administered by the Ontario Energy Board will be implemented January 1, 2016. Though NBHDL is preparing its billing system and staff for the implementation of this program, there are several details that are not yet available to accurately model the program's impact on working capital. To accurately model the impact of OESP, the tariff must be determined, the number of eligible customers, and the rebates available for individual customers. These details are not available at this time. Therefore, the OESP is not assessed in the estimate of North Bay's working capital amount. When the necessary details of this program become available, its impact can be assessed.

1.2 Debt Retirement Charge (DRC)

O.Reg 156/15 exempts residential customers from paying DRC on electricity consumed after December 31, 2015. This has been modeled as a known and measurable change and only DRC to non-residential customers is included in the model.

Appendix A: Working Capital Methodology

Working capital is the amount of funds that are required to finance the day-to-day operations of a regulated utility and which are included as part of a rate base for ratemaking purposes. A lead-lag study is the most accurate basis for determination of working capital and was used by Navigant for this purpose.

A lead-lag study analyzes the time between the date customers receive service and the date that customers' payments are available to NBHDL (or "lag") together with the time between which NBHDL receives goods and services from its vendors and pays for them at a later date (or "lead")[2]. "Leads" and "Lags" are both measured in days and are dollar-weighted where appropriate.[3] The dollar-weighted net lag (lag minus lead) days is then divided by 365 (or 366 for leap years) and then multiplied by the annual test year expenses to determine the amount of working capital required. The resulting amount of working capital is then included in NBHDL's rate base for the purpose of deriving revenue requirements.

Key Concepts

Two key concepts need to be defined as they appear throughout the report:

Mid-Point Method

When a service is provided to (or by) NBHDL over a period of time, the service is deemed to have been provided (or received) evenly over the midpoint of the period, unless specific information regarding the provision (or receipt) of that service indicates otherwise. If both the service end date ("Y") and the service start date ("X") are known, the mid-point of a service period can be calculated using the formula:

$$\text{Mid-Point} = \frac{([Y-X]+1)}{2}$$

When specific start and end dates are unknown, but it is known that a service is evenly distributed over the mid-point of a period, an alternative formula that is generally used is shown below. The formula uses the number of days in a year (A) and the number of periods in a year (B):

$$\text{Mid-Point} = \frac{A/B}{2}$$

Statutory Approach

In conjunction with the mid-point method, it is important to note that not all areas of the study may utilize dates on which actual payments were made to (or by) NBHDL. In some instances, particularly for the HST, the due dates for payments are established by statute or by regulation with significant penalties for late payments. In these instances, the due date established by statute has been used in lieu of when payments were actually made.

Expense Lead Components

As used in the study, Expense Leads are defined to consist of two components:

1. Service Lead component (services are assumed to be provided to NBHDL evenly around the mid-point of the service period), and

[2] A positive lag (or lead) indicates that payments are received (or paid for) after the provision of a good or service.

[3] The notion of dollar-weighting is pursued further in the sub-section titled "Key Concepts".

2. Payment Lead component (the time period from the end of the service period to the time payment was made and when funds have left NBHDL's possession).

Dollar Weighting

Both leads and lags should be dollar-weighted where appropriate and where data is available to accurately reflect the flow of dollars. For example, suppose that a particular transaction has a lead time of 100 days and has a dollar value of $100. Further, suppose that another transaction has a lead time of 30 days with a dollar value of $1 Million. A simple un-weighted average of the two transactions would give us a lead time of 65 days ([100+30]/2). However, when these two transactions are dollar weighted, the resulting lead time would be closer to 30 days which is more representative of how the dollars actually flow.

Methodology

Performing a lead-lag study requires two key undertakings:

1. Developing an understanding of how the regulated distribution business operates in terms of products and services sold to customers/purchased from vendors, and the policies and procedures that govern such transactions; and,
2. Modeling such operations using data from a relevant period of time and a representative data set. It is important to ascertain and factor into the study whether (or not) there are known changes to existing business policies and procedures going forward. Where such changes are known and material, they should be factored into the study.

To develop an understanding of NBHDL's operations, interviews with personnel were conducted. Key questions that were addressed during the course of the interviews included:

1. What is being sold (or purchased)? If a service is being provided to (or by) NBHDL, over what time period was this service provided;
2. Who are the buyers (or sellers);
3. What are the terms for payment? Are the terms for payment driven by industry norms or by company policy? Is there flexibility in the terms for payment;
4. Are any changes to the terms for payment expected? Are these terms driven by industry or internally? What is the basis for any such changes;
5. Are there any new rules or regulations governing transactions relating to distribution operations that are expected to materialize over the time frame considered in this report; and,
6. How are payments made (or received)? Payment types have different payment lead times (i.e., internet payments have shorter deposit times than cheque deposit times)

Appendix B: Expert Information

Ralph Zarumba, Director in the Energy Practice at Navigant Consulting, specializes in Regulatory Matters. Mr. Zarumba oversees that part of Navigant's Energy Practices specializing in retail regulatory matters. Mr. Zarumba has appeared as an expert in several dozen regulatory proceedings in Canada and the United States.

Business address: 30 South Wacker Drive, Suite 3100, Chicago, IL 60606

Navigant has previously undertaken or supported numerous lead-lag studies across North America and for several of Ontario's electricity local distribution companies (LDCs) including Hydro One, Toronto Hydro, Horizon Utilities, Hydro Ottawa, London Hydro and others. Navigant lead-lag reports have been submitted by many of these other clients as evidence to support their rate submissions, and our approach and findings have been accepted, in large part, by the OEB and interveners. Some examples of recent lead-lag studies conducted by Navigant where Mr. Zarumba was the projected manager which have been filed with the OEB by Ontario utilities are outlined below.

Table 18: Recent Navigant Lead-Lag Studies (Ontario)

Utility	Reference
Toronto Hydro-Electric System Limited	EB-2014-0116 Exhibit 2A, Tab 3, Schedule 2
Hydro One Networks Inc. (distribution)	EB-2013-0141 Exhibit D1, Tab 1, Schedule 3
Hydro One Networks Inc. (transmission)	EB-2012-0031 Exhibit D1, Tab 1, Schedule 3, Attachment 1
Horizon Utilities	EB-2014-0002 Exhibit 2, Tab 4, Schedule 1

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Professional History

- Director, Navigant Consulting
- Director, Science Applications International Corporation
- President, Zarumba Consulting
- Management Consultant, Sargent & Lundy Consulting Group
- President, Analytical Support Network, Inc.
- Manager, Pricing Practice, Synergic Resources Corporation
- Senior Analyst – San Diego Gas & Electric Company
- Senior Analyst – Wisconsin Electric Power Company
- Analyst 4 – Eastern Utilities Associates
- Analyst – Illinois Power Company

Education

- MA, Economics, DePaul University, Chicago, IL
- BS, Economics, Illinois State University, Normal, IL

Ralph Zarumba is a Director in the Energy Practice with 30 years of experience specializing in regulatory issues and economic analysis associated with energy utilities in North America, Europe and Asia. Mr. Zarumba has appeared as an expert witness in a number of regulatory and legal proceedings addressing electric generation, transmission and distribution issues, unregulated operations of utility holding companies, asset valuation and regulatory treatment of Smart Grid investments. He has also assisted clients in other matters including Depreciation Studies, Transfer Pricing Mechanisms and evaluation of the results of competitive bidding for electric generation services. These testimonies have been presented before the Nova Scotia Utility and Review Board, the Federal Energy Regulatory Commission ("FERC"), the Massachusetts Department of Public Utilities, the Rhode Island Public Utilities Commission, the Illinois Commerce Commission, the Wisconsin Public Service Commission, the Ontario Energy Board, the New York Public Service Commission, the New Mexico Public Regulation Commission, the Kansas Corporation Commission as well as a number of other venues. Mr. Zarumba has provided a number of papers and presentations on various regulatory and market analysis issues.

Recent Whitepapers

» White Paper Prepared for the Ontario Energy Board on Approaches to Rate Mitigation for Transmitters and Distributors

http://www.ontarioenergyboard.ca/OEB/_Documents/EB-2010-0378/EB-2010-0378_Navigant_Report.pdf

» White Paper Prepared for the Ontario Energy Board Cost addressing Distributor Efficiency

http://www.ontarioenergyboard.ca/OEB/_Documents/EB-2012-0397/Navigant_Report_Elect-Dist-Efficiency_20130225.pdf

» White Paper Prepared for the Ontario Energy Board Cost addressing Cost Assessment Models for Regulators

http://www.rds.ontarioenergyboard.ca/webdrawer/webdrawer.dll/webdrawer/rec/319593/view/Cost%20Assessment%20Model%20Report_Jan%2013%202011_20120116pdf.PDF

» Economic Issues Related to Tariff Development (with Thomas Welch)

http://www.erranet.org/index.php?name=OE-eLibrary&file=download&id=6052&keret=N&showheader=N

Recent Publications

Public Utilities Fortnightly "Pricing Social Benefits - Calculating and allocating costs for non-traditional utility services" Ralph Zarumba, Benjamin Grunfeld and Koby Bailey, August 2013

American Gas "Modernization: The Quest for 21st Century Utilities" Ralph Zarumba and Peter Haapaniemi, November 2012

Public Utilities Fortnightly "Pre-Funding to Mitigate Rate Shock" Sherman Elliot and Ralph Zarumba, September 2012

Cost of Service

- Provided testimony in the proceedings reviewing the 2014 Nova Scotia Power Cost-of-Service study (NSPI-P-892-/M05473).
- Prepared and sponsored before the FERC a cost-of-service filing supporting a Reliability Must-Run filing on the Cayuga Operating Company.
- Managed a project team which completed a Remaining Life Study for the Western Minnesota Municipal Power Agency.
- For a confidential client reviewed the cost-of-service application for a natural gas distributor in Central Canada.

Regulatory and Pricing

- Assisted the Ontario Energy in formulating a regulatory process and pricing design for Revenue Decoupling.
- Prepared a white paper on rate mitigation mechanisms for the Ontario Energy Board.
- Prepared a white paper for the Ontario Energy Board on apportion of regulatory commission costs to various stakeholders.
- Prepared a number of working capital studies for various distributors and transmitters in the Province of Ontario.
- Prepare a functional cost separation study for a regulated electric utility in Ontario.
- For a confidential client prepared a benchmarking analysis of the costs of regulatory proceedings associated with the introduction of new electric generation.
- Prepared an analysis of the pricing of voluntary renewable energy products for a Midwestern public power association.
- Led a team that prepared a cost of service, rate design, legal evaluation and financial analysis for the Puerto Rico Electric Power Authority.
- Performed a Pricing Strategy for the South Carolina Public Service Company (Santee Cooper).
- Prepared a financial plan, electric rate design and phase-in plan for a new electric generation plan for Fayetteville (North Carolina) Public Works Commission.

» Assisted Commonwealth Edison Company in their Electric Rate Request (Illinois Commerce Commission Docket No. 10-467).

» Prepared proposals for Retail Conjunctive Billing Pricing filed in Illinois and Wisconsin which were filed before the Illinois Commerce Commission and the Wisconsin Public Service Commission.

» Developed the Wisconsin Electric Power Company's first Curtailable Electric Tariff available to commercial customers.

» Negotiated complex service contracts with thermal energy customers which led to a major expansion of the Wisconsin Electric Steam System.

» Assisted Indianapolis Power & Light in preparing a cost recovery plan for Energy Efficiency and Demand Side Management Expenditures.

» Trained regulatory staffs in the Republic of Macedonia, Bosnia and Herzegovina, Croatia and Albania.

» Prepared proposals for ancillary services pricing based upon market-based mechanisms for San Diego Gas and Electric Company.

» Completed the development of wholesale and retail rate designs for a southeastern G&T, an analysis of stranded cost exposure for a northeastern utility, and prepared a strategic plan for a large municipal utility.

» Developed a proposal for electric generation transfer pricing that would be used as a transition mechanism between the existing vertically integrated utility and a deregulated environment.

» Filed testimony in Wisconsin proposing that state's first Demand Response Program.

Demand Response

» Assisted the Building Owners and Managers of Chicago (BOMA/Chicago) develop a program where they can bid demand response based ancillary services into the PJM market.

» Prepared a presentation for the Public Utilities Commission of Ohio on Commercial and Industrial Dynamic Pricing and Demand Response in an unregulated regulatory environment.

Electric Transmission

» Assisted the Long Island Power Authority to purchase distribution, transmission and regulatory assets and prepared its non-jurisdictional open-access transmission tariff.

» Prepared the pricing portion of a FERC open access tariff (Docket No. ER96-96-43.000) for San Diego Gas and Electric Company; testified on revenue requirements and pricing including opportunity costs.

Generation Market Analysis

» For a major public power generation owner prepared a strategy of internal coal versus natural gas generation dispatch protocols including the treatment of liquidated damages.

» Co-authored a report for Nalcor on the feasibility and economics of the proposed development of the Lower Churchill Hydroelectric project.

» Prepared a number of electric market price forecasts for many regions of the United States and Central America.

» Supported the electric pricing and infrastructure analysis for a Least-Cost Resource Plan for San Diego County.

» Prepared an analysis of the saturation of coal-fired electric generation technology in the Western Electric Coordinating Council.

» Developed a long-run electric expansion plan for the Railbelt System in Alaska.

» Managed a team that prepared a long-term capacity and energy forecast for a medium-sized municipal utility.

» For Manitowoc Public Utilities prepared a resource plan evaluating various generation expansion options.

Merger, Acquisition and Divesture

» On behalf of the Minnesota Public Service Commission, Mr. Zarumba co-authored an analysis of the merger savings associated with the proposed Primergy Merger (the proposed combination of Northern States Power and Wisconsin Energy). The analysis included a detailed review of cost savings that would emanate from the merger and regulatory commitments made by the companies to regulatory authorities in Minnesota.

» The Ontario Energy Board desired to identify factors that potentially impede the combination of regulated distributors in that province. Mr. Zarumba co-authored a study which identified those factors and discussed policies in other jurisdictions.

» For the Manitowoc Public Utilities prepared an analysis that evaluated the divesture of its transmission assets to the American Transmission Company.

» For a confidential client prepared a valuation to support a proposed acquisition of a Midwestern Electric and Natural Gas utility by a regional utility. The analysis included an analysis of a sale of the electric operations of the target utility to another regulated utility.

International

» Currently assisting the Israel Public Utility Authority is electric tariff reviews for the Israel Electric Company and the Jerusalem District Electric Company.

» Mr. Zarumba assisted the electric regulator in the Republic of Macedonia with various regulatory issues including pricing design, revenue requirements and privatization issues. Included in the assistance was the development of market designs for the electricity sector.

» Completed a tariff implementation plan proposal for the privatization of the distribution companies of the Bulgarian Electric Utility.

» Led a team to implement regulatory procedures and methodology for the electric power industry in Bosnia and Herzegovina.

» Conducted a study of the electric power market in El Salvador including a quantification of the level of generation market power using the Lerner Index.

FORM A

Proceeding: EB-2014-099

ACKNOWLEDGMENT OF EXPERT'S DUTY

1. My name is Ralph Zarumba (*name*). I live at 736 Central (*city*), in the Evanston (*province/state*) of Illinois .

2. I have been engaged by or on behalf of North Bay Hydro, Ltd. (*name of party/parties)* to provide evidence in relation to the above-noted proceeding before the Ontario Energy Board.

3. I acknowledge that it is my duty to provide evidence in relation to this proceeding as follows:
   (a) to provide opinion evidence that is fair, objective and non-partisan;
   (b) to provide opinion evidence that is related only to matters that are within my area of expertise; and
   (c) to provide such additional assistance as the Board may reasonably require, to determine a matter in issue.

4. I acknowledge that the duty referred to above prevails over any obligation which I may owe to any party by whom or on whose behalf I am engaged.

Date July 24, 2015

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Signature