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BY COURIER

April 26, 2019

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

Dear Ms. Walli:

EB-2018-0242 - Hydro One Networks Inc., 1937680 Ontario Inc., Peterborough Distribution Inc. and Peterborough Utilities Services Inc., MAAD s.86 asset purchase application – Filing of Supplemental Evidence

As indicated by Hydro One's legal representation in a letter to the Board dated March 19th, the Applicants' are now providing supplemental evidence. Please find attached the new exhibit marked as Exhibit A, Tab 5, Schedule 1 – Supplemental Evidence. This exhibit is being provided to address some of the conclusions reached by the OEB in its Decision and Order on Hydro One's distribution rate application EB-2017-0049.

All the above noted items have been submitted electronically using the Board's Regulatory Electronic Submission System. Two (2) hard copies will be sent to the Board.

Sincerely,

ORIGINAL SIGNED BY JOANNE RICHARDSON

Joanne Richardson

SUPPLEMENTAL EVIDENCE

1.0 PREAMBLE

On October 12, 2018 Hydro One filed a MAAD application to purchase PDI and on February 27, 2019 Hydro One updated Exhibit A, Tab 4, Schedule 1 and Attachment 18. Interrogatory responses on the original evidence were filed on February 27, 2019. Included in that Application was an exhibit, "Future Cost Structures" (Exhibit A, Tab 4, Schedule 1), to assist the Board in understanding Hydro One's rate plans for PDI's customers after the deferred rebasing period. The purpose of this Supplemental Evidence is to explain in detail Hydro One's proposed cost allocation and rate design for PDI customers at the end of the rebasing deferral period. The Supplemental Evidence demonstrates that the application of Hydro One's proposed cost allocation and rate design to PDI customers in a Year 11 rebasing will: (a) result in an allocation of costs to PDI customers that reflects the cost to serve them; (b) result in rates that collect costs from PDI customers that are less than what those customers would have paid in the absence of the proposed transaction; and (c) leave Hydro One legacy customers unharmed or slightly better off than they would have been in the absence of the proposed transaction. In fact, the outcome of the cost allocation model and rate design reflects the sharing of cost savings in Year 11 and beyond for the benefit of both PDI and Hydro One legacy customers.

2.0 DISTRIBUTION SECTOR EFFICENCY

Hydro One's consolidation of the distribution sector has and will continue to result in beneficial outcomes for all customers - both for the customers of acquired utilities and Hydro One's legacy customers. This aligns with the key objective of the OEB's consolidation framework, to seek out efficiencies through consolidations.

Hydro One's purchase of PDI will result in over $9 million of savings in Year 11 (i.e., the first rebasing year), as shown in Table 1 below.

Table 1: Savings Resulting from Hydro One's Acquisition of PDI ($M)

PDI Status Quo Total Cost to Serve	$26.3	*Ex. A, Tab 4, Schedule 1 – Table 4*
Total Residual Cost to Serve	17.0	*Ex. A, Tab 4, Schedule 1 – Table 4*
Ratepayer Savings (Year 11)	**$9.3**	

3.0 TRACKING COST TO SERVE

(a) Tracking Costs during Deferred Rebasing Period

In Exhibit A, Tab 2, Schedule 1, Table 1 of this MAAD application, Hydro One has provided the forecast incremental OM&A and capital cost to serve the customers of PDI, and commits to tracking the *actual* incremental OM&A and capital costs to serve PDI customers until the end of the ten year deferral period. This tracking will allow the Board to compare the actual incremental costs to serve PDI customers with that forecast in this application. The actual incremental OM&A and capital costs to serve PDI customers will be reflected in Hydro One's revenue requirement upon rebasing of rates at the end of the ten year deferral period.

(b) Tracking Costs from Year 11 Onwards

In response to concerns raised in EB-2017-0049 (the "Distribution Rates Decision") relating to not updating in future rate-setting applications the adjustment factors[1] (that were to be used in determining the allocation of fixed assets to previously acquired customers within the cost allocation model), Hydro One will track the capital costs to serve PDI customers *after* the rebasing period (i.e., Year 11 onwards). Hydro One will review the adjustments factors taking

[1] Adjustment factors are generically used to shift cost allocated between rate classes.

into account the actual capital costs at the time of future cost of service applications (see Section 4.0 below). By doing so, the direct assignment of capital costs to PDI customers will continue to remain accurate in the long term, and the fixed asset adjustment factors will reflect the most up-to-date asset cost data.

The OEB's cost allocation model uses fixed assets as the primary allocator for the costs of operating and maintaining distribution assets and since Hydro One proposes to use the principles embedded within the cost allocation model to allocate all other OM&A costs (e.g., customer, and administration and general costs), Hydro One will only track PDI's incremental OM&A costs until the time that PDI is harmonized into Hydro One's rate structure. The OM&A cost tracking during the deferral period will demonstrate the savings achieved from the acquisition at the time rates are harmonized, but is not required thereafter for use within the cost allocation model.

Hydro One cannot track, on an actual basis, either during the deferral period or after, the costs associated with certain Hydro One resources that PDI customers will enjoy the benefit of (i.e., those resources that are also required by and paid for by legacy customers). These costs, referred to as Shared Costs in Exhibit A, Tab 4, Schedule 1 (page 6 of 12) of this Application, include costs that cannot be directly associated with serving a specific group of customers. Any assignment of these Shared Costs to a specific customer group or rate class must be done through a cost allocation methodology.

4.0 COST ALLOCATION AND RATE DESIGN

This section of the Supplemental Evidence is intended to assist the Board by clarifying the cost allocation and rate design methodology that Hydro One proposes for acquired utilities, including any future harmonization of PDI.

(a) Separate Rate Classes

Hydro One believes that the best way to ensure that PDI customers are charged only their costs to serve is to introduce new rate classes for them. Creating new rate classes allows Hydro One to allocate to PDI customers only the cost of fixed assets used to serve them given the customer density and distribution system configuration of PDI's service area. As discussed below, fixed assets are a key driver of the majority of costs within the OEB's cost allocation model.[2] As a result, in order to determine the total cost to serve the acquired PDI customers, it is critically important that those customers are appropriately allocated their specific fixed asset costs.

Setting the rates for the new PDI customer rate classes in Year 11 and beyond will involve two key steps:

- a cost allocation methodology that ensures an appropriate allocation of fixed assets and their associated costs, as well as an allocation of Shared Costs; and
- a rate design methodology that utilizes the Board's approved range of revenue-to-cost ratios.

Both of these steps are aimed at ensuring that the costs to serve PDI customers are accurately reflected in rates. These steps also ensure that the rates payable by both PDI customers and Hydro One legacy customers are lower (or at least no greater) than they would be otherwise (i.e., had no acquisition occurred). Hydro One's proposals with respect to each of these steps are detailed below.

[2] As shown in Tab E4 "TB Allocation Details" of the OEB's cost allocation model, the allocation of the OM&A costs in UsofA 5005-5055 and 5085-5175 which captures all distribution related costs, are allocated based on the rate classes share of fixed asset accounts. In addition, the allocation of net income, interest, and depreciation costs to rate classes are also driven by fixed assets.

(b) Cost Allocation

In order to ensure the equitable treatment of both legacy and acquired customers, Hydro One proposes to use the principles underlying the OEB's cost allocation model to determine the cost allocation to all rate classes. To the extent necessary, the OEB's cost allocation model will be adjusted to achieve the following objectives:

1. Ensure that costs[3] allocated to the PDI rate classes reflect the fixed assets specifically used in PDI's service area.
2. Ensure that the PDI rate classes are appropriately allocated Shared Costs[4], which includes a share of upstream distribution assets required to provide service to PDI's service area.

Hydro One fully anticipates that the cost allocation process described above, and detailed in the following sections, will result in a fair and reasonable allocation of costs to the PDI rate classes that will be less than what the cost-to-serve the PDI customers would be if PDI is not acquired.

Allocation of Costs Based on Actual Fixed Asset Cost

The allocation of fixed assets within the cost allocation model is the key factor driving the allocation of the bulk of a utility's revenue requirement, including: a large portion of OM&A, depreciation, net income, and interest costs. The OEB's cost allocation model allocates a utility's total fixed assets costs to each rate class based on the peak load and number of customers in each rate class relative to the other classes. This approach to the allocation of fixed assets is appropriate when allocating costs to rate classes whose customers are spread out across

[3] Costs include capital related costs such as depreciation, net income and interest costs, as well as operations and maintenance costs associated with fixed assets used in PDI's service area.

[4] Hydro One's Shared Costs reflect: (i) shared facilities used to provide operations and maintenance services (i.e. service centres and maintenance yards), billing and IT system costs, and other miscellaneous general plant; (ii) OM&A costs associated with shared services, such as planning, finance, regulatory, human resources, information technology, customer services and corporate communications; and (iii) asset and related OM&A costs associated with upstream distribution facilities used by former PDI customers (i.e. costs formerly captured under LV charges).

a utility's service territory. However, if the objective is to determine the costs of serving a specific area within a utility's service territory, this approach does not take into account the unique characteristics (e.g. customer density, distribution system configuration) of the service area for which costs are being allocated.

Use of Adjustment Factors to More Accurately Reflect Costs

Given the critical role of fixed assets in the allocation of costs, and the fact that PDI's customers are located within a defined service area with its own unique characteristics, the use of adjustment factors within the cost allocation model is a way to ensure that the amount of fixed assets allocated to the PDI rate classes matches the amount of fixed assets specifically used to serve the customers within their service area. At the time of harmonization of PDI, Hydro One will know the amount of fixed assets that are used to serve the former PDI service territory[5] and proposes to include adjustment factors in its cost allocation model to ensure the appropriate amount of fixed assets are allocated to the PDI rate classes. This is effectively a direct allocation of locally-used fixed assets to PDI customers. In other words, the adjustment factor ensures a more accurate reflection of the fixed assets, and associated costs, required to serve PDI customers.

Adjustment factors are not a new concept within cost allocation models. Since 2012, the Board has approved the use of density factors to adjust the amount of costs allocated to Hydro One's density-based rate classes. A Street Light Adjustment Factor is used to adjust the number of customer connections associated with the streetlight class for cost allocation purposes. Weighting factors for Services and for Billing and Collections are used within the OEB's cost allocation model to ensure that rate classes are allocated an appropriate share of costs related to those functions.

[5] Consisting of the fixed assets at the time of acquisition plus any capital additions since acquisition.

Accordingly, Hydro One proposes to use the adjustment factors discussed above within its cost allocation model to determine the amount of gross fixed assets allocated by the model to the PDI rate classes. Given that depreciation and net fixed assets are directly associated with the value of gross fixed assets, Hydro One also proposes corresponding adjustments for those quantities.

Hydro One acknowledges that over time the adjustment factors may change as assets that were installed over a period of many years are replaced at current costs. However, the adjustment factors will always need to reflect the specific attributes (e.g. customer density, distribution system configuration) of the acquired utilities' service territory. In order to mitigate concerns with how those adjustment factors will be set in the future, as mentioned previously, Hydro One proposes to continue tracking the distribution gross fixed asset costs associated with serving the PDI customers, and update the adjustment factors at the time of future cost of service applications, as necessary.

Allocation of Shared Costs

Hydro One proposes to allocate Shared Costs to PDI's rate classes by applying the same allocation principles and allocators[6] normally used in the OEB's cost allocation model to allocate such costs. No adjustment factors will be applied for the purposes of allocating Shared Costs. This will ensure that the same principles and allocators are used to allocate Shared Costs to both Hydro One's legacy customers and PDI's rate classes, in order to equitably establish the costs of serving all rate classes.

Included in Shared Costs are the costs associated with upstream distribution facilities used by former PDI customers (i.e. costs formerly captured under LV charges). Hydro One will ensure that only the portion of the PDI load that was previously supplied through upstream distribution

[6] E.g., number of customers, weighted number of bills).

facilities (i.e. not supplied directly from the transmission system) is used to determine the allocation of upstream distribution costs to the PDI rate classes.

(c) Rate Design

The appropriate rate design applicable to PDI customers will be determined in the Year 11 rebasing, based on the OEB's rate design policies in effect at the time. However, based on the OEB's current practice, Hydro One proposes to determine the rates revenue to be collected from PDI customers as follows: (a) determine the revenue to cost ("R/C") ratio for all rate classes including PDI rate classes, by comparing the total revenue collected at current rates[7] against the costs allocated to each rate class; and (b) adjust the R/C ratios for each class if necessary to bring them within the Board's approved range. The Board's approved range of R/C ratios is a recognition of the fact that determination of costs by rate class is an *allocation* process that by its very nature is not a precise determination of the actual cost-to-serve a particular rate class[8]. Rates established based on a R/C ratio within the Board's approved range are considered to appropriately reflect the Board's rate setting objectives.

Hydro One fully anticipates that it will be possible to set rates for the PDI rate classes that result in a R/C ratio that both falls within the Board's approved ranges *and* results in an allocation of savings to both legacy and PDI customers. As discussed in Exhibit A, Tab 4, Schedule 1, Hydro One is committing to charge PDI customers no more than the higher goal post amount of $26.3M and no less than their residual cost to serve of $17.0M. Rates that collect revenues below the

[7] Current rates for PDI will be the distribution rates that were frozen at the time of acquisition, plus any OEB-approved adjustments to those rates since the end of the rate-freeze period.

[8] Page 2, of EB-2007-0667 Report of the Board – Application of Cost Allocation for Electricity Distributors issued November 28, 2007 states "The Board also recognizes however, that cost allocation is by its very nature, a matter that calls for the exercise of some judgement, both in terms of the cost allocation methodology itself and in terms of how and where cost allocation principles fit within the broader spectrum of rate setting principles that apply to – and the objectives sought to be achieved in – the setting of utility rates".

upper goal post ($26.3M) will result in savings to the customers of PDI, while rates that collect revenues greater than the lower goal post ($17.0) will result in savings to legacy customers.

(d) Outcome of Cost Allocation and Rate Design – "No Harm"

Hydro One fully anticipates that the cost allocation methodology described above will result in a fair and reasonable allocation of costs to the PDI rate classes that will be less than what the cost-to-serve the PDI customers would be if PDI is not acquired.

Hydro One is also confident that the rate design process will result in rates that fall within the Board's approved R/C ratio ranges and will collect revenues from PDI customers that will be between the goal posts as described in Exhibit A, Tab 4, Schedule 1. This will ensure that no customers are harmed from a rate perspective.

Hydro One engaged Navigant Consulting Ltd. to evaluate whether the cost allocation and rate design approaches described in this supplemental evidence are appropriate and consistent with accepted regulatory practices. This includes, with respect to rate design, whether the adjustment of the revenue-to-cost ratio as described in the supplemental evidence is appropriate and consistent with accepted regulatory practices. Navigant concluded that the cost allocation and rate design approaches that Hydro One has described in this evidence are appropriate and consistent with accepted regulatory practices. A copy of Navigant's report is attached at Appendix A to this exhibit.

5.0 SHARING OF CONSOLIDATION SAVINGS

The question is not whether the PDI transaction will result in consolidation savings, but rather how those savings will be shared amongst customer groups. The outcome of the cost allocation model, and the resulting rates to be charged to legacy and PDI customers using the methodology described above, will establish the extent to which customers share the savings resulting from the

harmonization. PDI's customers will be charged no more than what they would otherwise have been paying (i.e., costs to be collected will be between the "goal posts"). Hydro One's legacy customers will similarly be charged no more than what they would pay in the absence of a PDI acquisition. Any recovery of costs from PDI's customer classes "between the goalposts" (i.e., over their Total Residual Cost to Serve but less than the PDI Status Quo Total Cost to Serve) means that Hydro One legacy customers will receive benefits from the consolidation, as will PDI's customers.

To demonstrate that the cost allocation methodology is about the sharing of savings between PDI's customers and Hydro One legacy customers (and that neither of these customer groups will incur additional costs), Hydro One has provided in Table 2 below an illustrative example of Hydro One's proposed cost allocation and rate design in the context of a consolidation.

Table 2: Illustrative Cost Allocation Exercise ($M)

	Hydro One Legacy	**Acquired Utility**	**Combined**
Status Quo Revenue Requirement to be Collected From Customers	**$1000**	**$50**	**$1050**
Post-Consolidation Cost to Serve	1000	30	1030
Impact of Cost Allocation Model Treatment of Shared Costs	(15)	15	0
Post-Consolidation Cost Allocation	**985**	**45**	**1030**
Impact of Setting R/C Ratio Within Board Approved Range on Rates Revenue Requirement Collected from Customers	5	(5)	0
Post-Consolidation Rates Revenue Requirement	**$990**	**$40**	**$1030**
Consolidation Benefits	**($10)**	**($10)**	**($20)**

In the Table 2 illustration, the Status Quo revenue requirement to be collected from Hydro One's legacy customers is $1000M in Year 11. If there were no consolidations, Hydro One would recover this revenue requirement from existing Hydro One legacy customers. Similarly, the Status Quo revenue requirement of the acquired utility is $50M, which the acquired utility (in the

absence of the consolidation transaction) would need to recover from its customers in Year 11. The combined distribution sector revenue requirement would be $1050M.

However, through consolidation, Hydro One is able to achieve savings of $20M to operate the distribution system of the acquired utility, thereby reducing the combined post-consolidation distribution sector revenue requirement to $1030M. These distribution sector savings of $20M align with the objective of the OEB's consolidation framework – namely, to ensure that the consolidation of the distribution sector results in beneficial outcomes for customers. There are clearly tangible benefits from this transaction. The question is only: how will the benefits achieved from the consolidation be shared among customers?

Hydro One believes that the savings from consolidation should benefit both legacy and acquired customers. As described in the cost allocation section above, Hydro One will use the OEB's cost allocation model to allocate costs to all customers, including customers of the acquired utility. The costs allocated will include both the residual costs to serve the acquired utility and a portion of Shared Costs. This allocation of Shared Costs represents the "savings" that will accrue to Hydro One's legacy customers.

In the Table 2 illustration, the cost allocation model has allocated $45M to the acquired utility ($30M in residual costs to serve plus $15M in Shared Costs). The $15M in Shared Costs are costs that will no longer be allocated to serve legacy customers. If the acquired utility has not had its rates rebased for an extended period of time, there could be a disparity between cost structures and rates in Year 11 regardless of the significant savings achieved. If this is the case, Hydro One will need to set R/C ratios within the Board's approved R/C ranges, which will impact the acquired utility's rates revenue requirement. For example, if the acquired utility's cost to serve of $45M is reduced by $5M as a result of setting the R/C ratios that will mean a total rates revenue requirement of $40M to be collected from the acquired utility's customers. This shifts $5M of the savings achieved from Hydro One legacy customers to the acquired customers. However,

Hydro One's legacy customers will still benefit from the consolidation – their revenue requirement collected through rates is $10M lower than it would have been in the Status Quo. At the same time, the acquired utility's revenue requirement collected through rates is $40M versus $50M in the Status Quo.

Independent review of proposed cost allocation and rate design approach

Prepared in the context of the Hydro One and PDI and Hydro One and OPDC MAAD applications

Prepared for

Prepared by

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April 26, 2019

Name and qualifications

My name is Benjamin Grunfeld. I am a Managing Director in Navigant's Global Energy Practice. I am the Canadian Power and Utilities Client Segment Leader. In this role, I am responsible for overseeing Navigant's business with regulated utilities and non-regulated energy companies in Canada. My area of expertise, as it relates to this proceeding, is cost allocation and rate design. For over 10 years I have advised clients in Ontario, across Canada, and around the world on cost allocation and utility rates design matters.

Scope of review

Navigant was engaged to evaluate whether the cost allocation and rate design approaches described in Hydro One's evidence are appropriate and consistent with accepted regulatory practices, including, with respect to rate design, whether the adjustment of the revenue-to-cost ratio as described in the evidence is appropriate and consistent with accepted regulatory practices.

Evidence reviewed

Navigant reviewed the following:

- Hydro One's September 26, 2018 mergers, acquisitions, amalgamations, and divestitures (MAAD) application to purchase OPDC, OEB proceeding EB 2018-0270 ("OPDC MAAD Application"), and Hydro One's October 12, 2018 MAAD application to purchase PDI, OEB proceeding EB-2018-0242 ("PDI MAAD Application");
- Hydro One's April 26, 2019 supplemental evidence filed in the OPDC MAAD Application at Exhibit A, Tab 5, Schedule 1 ("OPDC Supplemental Evidence") and Hydro One's April 26, 2019 supplemental evidence filed in the PDI MAAD Application at Exhibit A, Tab 5, Schedule 1 ("PDI Supplemental Evidence"); and
- The 2021 cost allocation model that Hydro One filed as part of Hydro One's 2018 to 2022 distribution rate application ("Distribution Rate Cost Allocation Model") as part of OEB proceeding EB-2017-0049 at Exhibit G1, Tab 3, Schedule 1, Attachment 4; and
- The relevant sections (i.e. those related to Issue 56) of the OEB's decision and order regarding Hydro One's 2018 to 2022 distribution rate application ("Distribution Rate Decision") as part of OEB proceeding EB-2017-0049.

The proposed approach to cost allocation and rate design described in the OPDC Supplemental Evidence and the PDI Supplemental Evidence incorporates changes relative to the approach outlined in

the Distribution Rate Cost Allocation Model. However, several elements are the same, and the Distribution Rate Cost Allocation Model provided Navigant with a worked, numerical, example of the approach upon which to perform a detailed review.

Summary conclusions

Navigant believes that the cost allocation and rate design approaches described in the OPDC Supplemental Evidence and the PDI Supplemental Evidence are appropriate and consistent with accepted regulatory practices.

Basic principles of cost allocation

The primary purpose of cost allocation is to aid in the design of rates. The National Association of Regulatory Utility Commissioners (NARUC) Electric Utility Cost Allocation Manual describes five ways regulators rely on cost allocation studies:

1. To attribute costs to different categories of customers based on how those customers cause costs to be incurred;
2. To determine how costs will be recovered from customers within each customer class;
3. To calculate costs for individual types of service based on the costs each service requires the utility to expend;
4. To determine the revenue requirement for the monopoly services offered by the utility in both monopoly and competitive markets; and
5. To separate shared costs between different regulatory jurisdictions.[1]

Preparing a cost allocation study involves three fundamental steps:

1. Functionalising a utility's costs (e.g., production, transmission, distribution, customer service, general and administrative);
2. Classifying the costs (demand, energy, customer); and
3. Allocating the costs to customer classes.

The result of a cost allocation study is a summation of costs attributed to the provision of service to a group, or class, of customers. The study generally takes as the starting point the utility's prudent costs of doing business. From there, several basic principles guide the process of allocating costs to different customer classes. The foremost principle is cost causation – costs should be borne by those causing the

[1] NARUC. "Electric Utility Cost Allocation Manual". January 1992.

incurrence of such costs or benefitting from the service. Additional guiding principles include ensuring fair allocation between groups and avoiding undue discrimination.

Cost causation refers to an attempt to determine what, or who, is causing costs to be incurred by the utility. Direct assignment is always the preferred approach for attributing costs to customer classes and should be used where a direct link can be made between costs and the service provided to specific customers. However, usually only a small percentage of a utility's costs can be directly assigned because most costs are incurred by a utility to jointly serve many classes of customers. Costs that cannot be directly assigned, such as joint or common costs, are allocated. Utility operational structures may also dictate which costs can be directly assigned to specific customer classes. Utility operations are typically organised to provide service to customers without regard to their rate class.

Cost allocation studies and the resulting attribution of costs to customer classes often appear to be quite precise. In practice, however, any allocation framework requires many assumptions and subjective judgements.

OEB principles of cost allocation for electricity distribution

The OEB established a uniform way to functionalise, classify, and allocate electricity distribution costs to customer classes. The Uniform System of Accounts (USofA) is organised by function and is the required form for functionalising costs incurred by electricity distribution companies. A trial balance by account is one of the first inputs to a cost allocation study. For Ontario electricity distributors, the process of classifying and allocating costs is also standardised through the OEB's cost allocation model (CAM). Through the CAM, each USofA is assigned as either demand- or customer-related (or a combination of both), and specific allocation factors are assigned to spread the relevant costs across customer classes.

Navigant is familiar with the CAM, including the establishment of customer classes and development of allocation factors. Generally, the policies embedded in the CAM are consistent with cost allocation principles and policies employed across the industry in North America.

Navigant is aware of a limited number of exceptions to the standard application of the CAM. Hydro One, for example, has density-based rate classes and applies adjustment factors within the CAM to modify the allocation of costs between the density-based rate classes (e.g., urban, rural, etc.) within a given customer segment (e.g., residential, demand-billed general service, etc.). These exceptions require the approval of the OEB and are thoroughly reviewed through the application process.

Basic principles of rate design

Likely the most widely cited work on utility ratemaking is the 1961 publication “Principles of Public Utility Rates” by Professor James C. Bonbright in which he identified guiding principles for rate design. To paraphrase, rates should be designed:

1. To yield enough revenue to recover costs;
2. Based on a fair apportionment of costs among different customers and avoiding ‘undue discrimination’ in rate relationships;
3. To provide efficient price signals and discourage wasteful usage; and
4. To be relatively stable, predictable, simple, and easy to understand.

The cost allocation study provides the basis for ensuring costs and revenue are apportioned fairly among customer classes. While great effort is expended to identify cost drivers and appropriate allocation factors to spread costs among customer classes, allocation factors are naturally subject to judgment and imprecision.

The theoretical ideal of cost-of-service-based rate design is to develop rates that precisely recover the costs allocated to a respective customer class. When revenue equals allocated costs, the class has a revenue-to-cost ratio of one. In practice, this outcome is rarely achieved. Consequently, it is generally accepted that an appropriate outcome is a revenue-to-cost ratio that falls within a range around one. Determining the appropriate level of tolerance that can be allowed and still result in rates that are just and reasonable is the subject of much debate.

Approaches for tying rate design to cost allocation studies vary widely across Canada and the United States. Navigant has not performed an exhaustive study of standards applied by regulators and public service commissions in each province or state, but we are aware that various policies are followed. Examples range from requiring all classes to be within one percent of cost of service, to simply viewing the cost allocation study as one of many factors to be considered when setting rates. Navigant believes it is generally recognised that allowing a utility flexibility to deviate from a revenue-to-cost ratio of one is an appropriate response to the imprecise cost allocation process and a reasonable approach to balance competing rate design objectives.

OEB principles of rate design for electricity distribution

Like the cost allocation protocols employed in the CAM, the OEB has established standardised classes and a standardised rate structure for each class.

In 2007, the OEB adopted a policy recognising "bands or ranges of tolerance" around revenue-to-cost ratios of one. The OEB concluded that a range approach is preferable to the implementation of a specific revenue-to-cost ratio, stating, "a revenue-to-cost ratio of one may not be achievable or desirable for other reasons (for example, to accommodate different rate design objectives)".[2] The OEB decision was informed by an analysis of existing ranges in place across electricity distributors, reflecting the assumptions and judgments at the time when determining the respective levels of rates. The OEB approach was an incremental step, moving toward cost-of-service-based rates, and the OEB expects that over time the bands will narrow and move closer to one.

Criteria for assessing whether cost allocation approach described in the OPDC Supplemental Evidence and PDI Supplemental Evidence is appropriate and consistent with accepted regulatory practices

Navigant was asked to review whether Hydro One's cost allocation as described in the OPDC Supplemental Evidence and the PDI Supplemental Evidence is appropriate and consistent with accepted regulatory practices. Navigant's review focused on the proposal's adherence to the principle of cost causation and consistency with methods adopted in the OEB cost allocation model. To the extent Hydro One's proposal represents a deviation from approved OEB policy, Navigant reviewed the proposed method and associated justification to determine whether the departure remained consistent with general cost allocation principles.

Assessment of Hydro One approach

Hydro One proposed to use the existing CAM framework – in particular, using allocated fixed assets (or plant) and customer numbers as the primary basis for allocating operations, maintenance, and administrative costs, and other elements of Hydro One's revenue requirement – to determine the cost to serve acquired utility customers.

The OEB's CAM follows many well-established cost allocation practices for distribution utility functions. Consistent with the principles described in the NARUC Electric Utility Cost Allocation Manual, the CAM classifies plant accounts as either demand or customer related, or a combination of both. The classified plant is allocated based on the contribution of each class to peak demand or total customers. The same

[2] Ontario Energy Board, Application of Cost Allocation for Electricity Distributors, Report of the Board, EB-2007-0667, November 28, 2007.

allocation approach is applied to the depreciation expense. Allocated plant is then used to derive the allocation of most operation and maintenance expenses, which in turn is used to allocate administrative costs.[3] Allocated plant is also used to spread net income, taxes, and interest expense to each customer class.

To distinguish customers in the acquired utility service territory from legacy customers, Hydro One proposed to create unique customer classes for customers from the acquired utility. Hydro One supports the creation of new customer classes stating, "[it] allows Hydro One to allocate to [acquired] customers only the actual cost of fixed assets used to serve them given the customer density and distribution system configuration of [the acquired] service area". To the extent that the cost to serve the acquired utility customer classes is different from the cost to serve Hydro One's legacy customer classes, this is a valid justification for creating unique classes for customers from the acquired utility.

Hydro One proposed to include an adjustment factor within the CAM to modify the gross fixed assets and depreciation expense allocated to the acquired utility customer classes. Hydro One proposed to develop the adjustment factor by comparing the gross value of directly tracked fixed assets plus the gross value of the portion of Hydro One's upstream distribution facilities that supply the acquired customers to the value of gross fixed assets that is allocated to the acquired classes using the CAM's standard demand and customer allocation factors.

Application of the adjustment factor serves three purposes:

1. To restate the gross fixed assets allocated to the acquired customers as if those costs were directly assigned;
2. To restate the depreciation expense allocated to the acquired customers; and
3. To allow the adjusted gross fixed assets by customer class to flow through the CAM to derive allocation factors for accounts that are allocated based on allocated plant.

Direct assignment of gross fixed assets in the acquired utility service territory, quantified as the recorded value of the assets at the time of acquisition plus subsequent capital additions, is the distinguishing feature of Hydro One's proposed approach. Directly tracking the distribution plant in service for the benefit of specific customers provides a basis for allocating operation and maintenance costs, along with shared administrative costs, among acquired and legacy customers and determining the cost to serve each

[3] Customer/bill counts by class are also used to allocate expense in customer-related operations, maintenance and administrative accounts

group. Similar approaches are commonly utilised by multi-jurisdictional utilities with assets and customers dispersed over distinct geographies or regulatory jurisdictions.

As stated previously, direct assignment is always the preferred approach for allocating costs to customer classes and should be used where a direct link can be made between the costs incurred and the service provided to specific customers. Navigant believes the fixed asset adjustment factors are a reasonable representation of a direct assignment of gross plant to the acquired customers.

In Hydro One's Distribution Rate Cost Allocation Model depreciation expense related to the accounts corresponding to the directly-assigned assets was also scaled by the gross fixed asset adjustment factors. Navigant believes this adjustment is required to match the allocation of gross plant and depreciation expenses.

The downstream impacts of the adjustment factors result in a reasonable allocation of operations, maintenance, and administrative costs and the other elements of Hydro One's revenue requirement to both the acquired and legacy customers, as the allocation follows the standard approach within the CAM.

In the OPDC Supplemental Evidence and the PDI Supplemental Evidence Hydro One committed to continue to track capital costs to serve acquired customers beyond the Year 11 rebasing and "update the adjustment factors at the time of future cost of service applications". This commitment is important because it enables Hydro One to maintain the proper apportionment of plant to the acquired customer classes as subsequent capital is invested and other circumstances (e.g., system configuration, customer mix, usage patterns, etc.) in the acquired service territory change.

Navigant believes the cost allocation approach embedded in the CAM is consistent with accepted cost allocation principles and industry practice. Furthermore, the adjustments proposed by Hydro One, provide a reasonable basis for determining the cost to serve the acquired utility customers.

Criteria for assessing whether rate design, in particular the use of revenue-to-cost ratio, as described in the OPDC Supplemental Evidence and PDI Supplemental Evidence is appropriate and consistent with accepted regulatory practices

Navigant was asked to review whether Hydro One's proposed application of the revenue-to-cost ratio to acquired utility customer classes as described in the OPDC Supplemental Evidence and the PDI Supplemental Evidence is appropriate and consistent with accepted regulatory practices. Navigant's

review focused on whether it is reasonable to establish acquired customer class revenue targets at a revenue-to-cost ratio other than one. Navigant evaluated Hydro One's proposed application of the revenue-to-cost ratio and associated justification to gauge the extent to which it adhered to general rate design principles and OEB policy.

Assessment of Hydro One approach

After the 10-year rate stabilisation period, Hydro One's Year 11 rebasing filing will provide an updated comparison of the costs allocated to each rate class and the revenue collected at then-current rates. Hydro One anticipates adjusting rates and hence the expected revenue recovered from each class as needed to ensure acquired customer classes fall within the OEB approved revenue-to-cost ratio range while at the same time maintaining expected revenue between the status quo and the residual cost to serve the acquired utility customers.

The actual effect of rebasing acquired customer rates through Hydro One's proposed cost allocation method will not be known for many years. At the time of the Year 11 rebasing filing, rates for acquired customers will not have been rebased for a period of at least ten years and are likely to fall short of recovering the allocated costs. For example, in the Distribution Rate Cost Allocation Model several acquired customer rate classes were well within the OEB established revenue-to-cost range, while others were below the low end of the range and required adjustment.

Navigant believes that providing a range of acceptable revenue-to-cost ratios is a reasonable approach to provide the necessary flexibility to recognise the imprecision inherent in cost allocation as a determinant of cost to serve and the need to balance potentially competing rate design objectives such as setting rates that reflect the cost to serve while mitigating large one-time rate increases. Navigant's assessment is grounded in the practical reality that, while theoretically ideal, a revenue-to-cost ratio of one is seldom achieved. For various reasons utility regulators rarely, if ever, set immovable point targets for the revenue-to-cost ratio recognising that flexibility within a range is desirable to enable other fundamental objectives of the rate design process.

Hydro One's proposal, to continue to recognise the OEB-approved revenue-to-cost ratio ranges, provides flexibility when setting rates through which the benefits of the acquisition can be shared between the acquired and legacy customers while protecting the acquired customers from rates that could exceed the status quo cost of service. Over time, Hydro One should view the revenue-to-cost ratios for the acquired rate classes through the same lens it views the revenue-to-cost ratios for similar legacy customer classes. As rates harmonise and the benefits of the acquisition are realised by customers, the range of revenue-to-cost ratios achieved could narrow and trend toward a ratio of one.