

DARLINGTON REFURBISHMENT CONSTRUCTION WORK IN PROGRESS IN RATE BASE

1.0 PURPOSE

This evidence provides a description of the proposed regulatory treatment of construction work in progress ("CWIP") associated with OPG's Darlington Refurbishment project.

2.0 OVERVIEW

OPG seeks approval to include CWIP in rate base for the Darlington Refurbishment project, effective March 1, 2011. This proposal to include CWIP in rate base for the Darlington Refurbishment project results in rate base being \$125.5M higher in 2011 and 306.0M higher in 2012 as shown in Ex. B3-T1-S1 Table 1 and has a test period impact of \$37.9on the nuclear revenue requirement. Additional information on this project is provided in Ex. D2-T2-S1.

Section 3 of this exhibit provides the background and context for OPG's proposal to include CWIP in rate base for the Darlington Refurbishment project. Section 4 presents the proposed regulatory treatment and its impact. Section 5 discusses OPG's proposal for performance monitoring and reporting requirements.

This proposal is also supported in a study by Charles River Associates. The Charles River Study provides information on other North American jurisdictions and regulators that have adopted CWIP in rate base and the benefits that these jurisdictions saw flowing from its adoption. It also assesses the common arguments for and against the use of this methodology. The study, which concludes that CWIP in rate base should be adopted in Ontario for large-capital, multi-year projects, is provided as Ex. D4-T1-S1.

3.0 BACKGROUND

On April 3, 2009, the Chair of the OEB issued a statement initiating a consultation process to consider amendments to several existing regulatory constructs with the goal of removing barriers to infrastructure investment in Ontario. In his Statement dated April 3, the Chair indicated:

1 The magnitude of current and future utility infrastructure investment has led me
2 to consider how the OEB could create conditions which would foster timely
3 investment by utilities in required infrastructure.
4

5 This was followed up with a second Statement from the Chair, a Staff Discussion Paper and
6 stakeholder submissions. On January 15, 2010, the OEB issued EB-2009-0152, a Report of the
7 Board on The Regulatory Treatment of Infrastructure Investment in connection with Rate-
8 regulated Activities of Distributors and Transmitters in Ontario (the "Report"). The Report
9 indicates that the OEB will consider, among other things, applications to include CWIP in rate
10 base on a case-by-case basis, in advance of a project being declared in-service. As concluded in
11 the Report, inclusion of CWIP in rate base is consistent with the Chair's stated objective above
12 and is an important mechanism that is widely used to reduce barriers to investment by utilities¹.
13

14 The Report, on page 6, defined CWIP in rate base to be a mechanism that would "...allow CWIP
15 to be included in rate base prior to the asset coming into service, thereby allowing the applicant
16 to recover the carrying cost on the capital investment, typically interest costs on debt and a
17 return on the investment." CWIP is defined in the Report as a temporary holding account that
18 captures the expended costs incurred in the design and construction of facilities that meet
19 general capitalization rules and thresholds.
20

21 On page 15 on the Report, the OEB explains how the CWIP in a rate base model would work
22 indicating that it would "...allow utilities to apply to include up to 100 percent of prudently incurred
23 CWIP costs in rate base. This approach allows utilities to recover the interest costs on debt and
24 a return on equity (i.e. the weighted cost of capital) during the construction period. The
25 depreciation or return of investment will continue to be recovered once the project goes into
26 service." OPG is proposing to adopt the CWIP in rate base model described above for its
27 Darlington Refurbishment project.
28

29 OPG engaged Charles River Associates to generally consider the question of the inclusion of
30 CWIP in rate base. In response, Charles River has provided a study that describes the other
31 North American jurisdictions and regulators that have adopted CWIP in rate base and the

¹ See Exhibit D4-T1-S1 for a discussion of the inclusion of CWIP in rate base in other jurisdictions.

benefits that these jurisdictions saw or expect from its adoption. It also assesses the common arguments for and against the use of this methodology. The study, which concludes that CWIP in rate base should be adopted in Ontario for large-capital, multi-year projects, is provided as Ex. D4-T1-S1.

4.0 PROPOSED REGULATORY TREATMENT

Inclusion of CWIP in rate base for the Darlington Refurbishment project is warranted since it meets the criteria for qualifying investments specified by the OEB in its Report. The project spans a number of years, has material costs associated with it (i.e., it is capital intensive) and it will form a significant portion of OPG's rate base once placed into service. Moreover, the risks of the project are similar to those noted by the OEB for green energy projects, which include risks related to project delays, public controversy, and the recovery of costs. Additional details on these criteria are provided below.

OPG proposes to include the capital costs of the Darlington Refurbishment project in rate base during the construction period consistent with the methodology approved in the OEB's Report. The test period opening balance would include capital costs from January 1, 2010, the point at which project costs began to be capitalized. Additions to rate base over the test period would be based on OPG's capital expenditure forecast for the Darlington Refurbishment project as provided in Ex. D2-T2-S1. OPG proposes that 100 per cent of the forecast capital in rate base receive the OEB-approved weighted average cost of capital ("WACC") and that any recovery of depreciation on this capital be deferred until the assets come into service. Differences between forecast and actual expenditures for the Darlington Refurbishment project will be recorded in the existing Capacity Refurbishment Variance Account as described in Ex H1-T1-S1 section 6.5. This will ensure that both ratepayers and OPG are protected if actual project spending differs from forecast. As with all variance accounts, any disposition from this account would require a review and approval by the OEB.

As detailed in Ex. D2-T2-S1, the project is currently starting its definition phase. Work addressed within this phase includes detailed engineering and front-end project planning, including the development of the project cost and schedule baseline. The forecast of capital spending on the

1 project and the specific revenue requirement impacts that flow from this project are explained in
2 the exhibit.

3
4 On page 15 of the Report, the OEB indicates that it will also allow utilities to apply to expense
5 prudently incurred pre-commercial costs. The Report goes on to provide examples of these
6 costs, including preliminary surveys, plans and investigations made for the purpose of
7 determining the feasibility of projects. OPG would have incurred some of these costs prior to
8 January 1, 2010 when costs for the project began to be capitalised. To the extent that there are
9 variances between the actual costs for these activities and the costs included in the current
10 payment amounts these differences would also be captured in the existing Capacity
11 Refurbishment Variance Account. OPG's Darlington Refurbishment project has now progressed
12 to the definition phase, and accordingly, essentially all of the costs attributable to the project in
13 the test period will be capitalized.

14
15 In section 3.4 of the Report, the OEB sets out a number of factors that it will evaluate within the
16 context of considering a proposal for alternative regulatory mechanisms. These factors include:

- 17 • The need for the project
18 • The public interest benefits of the project
19 • The overall cost of the project in absolute terms
20 • The risks or particular challenges associated with the completion of the project
21 • The cost of the project in proportion to the current rate base of the utility
22 • The reasons given for not relying on conventional cost recovery mechanisms
23 • Whether the utility is otherwise obligated to undertake the project

24
25 The first four factors above are covered within Exhibit D2-T2-S1 and its associated attachments.
26 The last three are addressed below.

27 28 **4.1 Costs of the Project in Relation to Current Rate Base**

29 As indicated in Ex. D2-T2-S1, at this preliminary stage the projected cost of the Darlington
30 Refurbishment project is between the "low" bounding case of \$6B and the "high" bounding case
31 of \$10B (2009 dollars). OPG's nuclear rate base in 2012 is approximately \$4.0B as set out in Ex.

1 B1-T1-S1 Table 2. It is clear that the capital expenditures associated with the Darlington
2 Refurbishment project are significant within the context of OPG's nuclear rate base. Even in
3 comparison to OPG's combined regulated hydroelectric and nuclear rate base of approximately
4 \$7.8B, the Darlington Refurbishment project is substantial. Clearly the criterion associated with
5 the project being a significant proportion of rate base has been met.

6 7 **4.2 Reasons for Inclusion of CWIP in Rate Base**

8 As noted in the OEB's Report, including CWIP in rate base provides two principal benefits. First,
9 it provides a smoothing effect on rates and thereby mitigates the rate shock that might otherwise
10 occur when the new plant is placed into service. Second, it can reduce borrowing costs. Both of
11 these benefits are detailed more fully in Ex. D4-T1-S1. These benefits are also discussed in the
12 Charles River Study. Both of these benefits apply in the case of the Darlington Refurbishment
13 project.

14 15 **4.2.1 Impact on Rates during Test Period**

16 One of the primary benefits of including CWIP in rate base is that it avoids potential rate shock
17 and provides a smoothing of rates over time (see Ex. D4-T1-S1, section 3.1). Implicitly, this
18 means that rates will increase gradually during the construction period consistent with the
19 amount of expended CWIP capital that is included in rate base. This gradual increase mitigates
20 the sudden shock that is typically associated with a multi-year project being completed and
21 added to rate base as a single, large quantity. Capitalization of the Darlington Refurbishment
22 project began on January 1, 2010, the first unit is scheduled to be removed from service in 2016
23 and the last unit is scheduled to be returned to service in 2024.

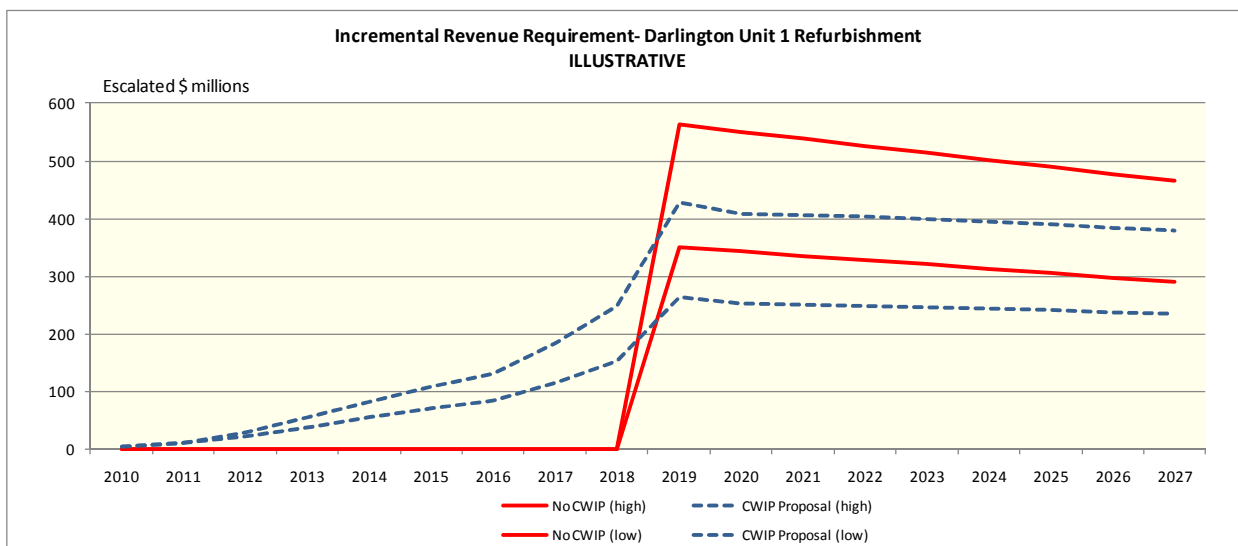
24
25 Table 1 in Ex. D2-T2-S2 and the graphs below illustrate the projected rate impact of including
26 CWIP in rates over the 2011/12 test period, and beyond for the Darlington Refurbishment
27 project. The information beyond the current test period is illustrative only, as elements of the
28 project scope, schedule and cost will only be fully defined at the conclusion of the project's
29 definition phase. It is also important to consider when assessing the analysis of rate impacts
30 provided below that this analysis looks solely at the rate impact of the Darlington Refurbishment

project. As with other utilities, OPG would be expected to have numerous other costs pressures during the project period that would also serve to increase rates.

Table 1 indicates that, over the test period, inclusion of CWIP associated with the Darlington Refurbishment project within rate base results in a modest impact of \$0.37/MWh on the nuclear payment amount. Further, graphs 1 and 2 below show an illustrative view of the incremental revenue requirement associated with the project in both a situation where conventional regulatory approaches are used and in the situation where CWIP is allowed in rate base in advance of project in-service.

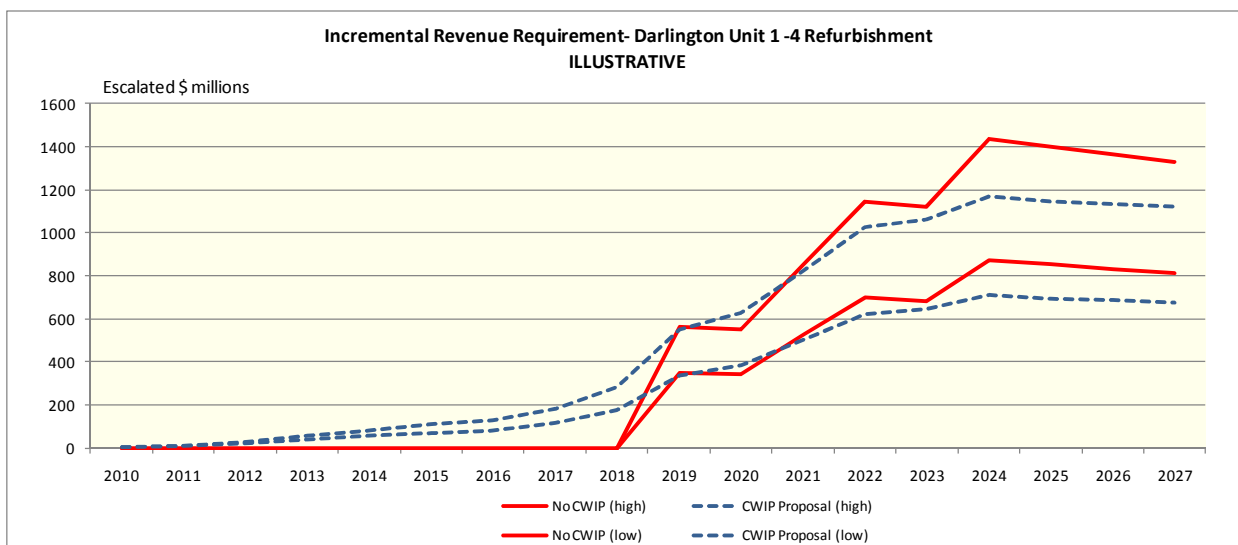
As expected, early recovery of refurbishment costs leads to smaller and more gradual rate increases compared to the rate shock associated with the traditional regulatory approach. Furthermore, there is a lasting benefit of lower rates post in-service date. In the illustrative analysis shown below in Graph 1 (First Darlington Unit), the rate shock associated with the traditional methodology of 2.5 per cent - 4.1 per cent at the in-service date is smoothed to an overall 2.0 per cent - 3.2 per cent rate increase spread over 10 years, with a maximum increase of 0.6 per cent – 1.0 per cent in 2019.

Graph 1
First Darlington Unit



Graph 2 below extends the illustrative analysis to the refurbishment of all four units at Darlington. The traditional regulatory approach leads to four separate rate shocks (2019, 2021, 2022, and 2024) leading to an overall 5.8 per cent - 9.5 per cent rate increase by 2024, the in-service date of the last refurbished unit. The CWIP in rate base proposal smoothes this to an overall 4.9 per cent - 8.4 per cent rate increase, spread over 2010 to 2024, with a maximum annual increase of 1.0 per cent - 1.6 per cent occurring in 2019.

Graph 2
All 4 Darlington Units



All the values shown above are consistent with the project information provided in Ex. D2-T2-S1.

These illustrative graphs demonstrate that inclusion of CWIP in rate base allows the regulator to phase-in the effects of a major capital project. Not only is the rate impact smoothed, but the overall increase is lower as a result of financing charges being recovered as the project is being constructed, as opposed to the typical approach where interest compounds until the project is placed in service.

As the National Regulatory Research Institute has noted: "Sudden jumps in rates for a commodity product produced through large fixed costs with long lives make customers sceptical

1 of the sellers and the regulators. Methods of pre-approval and cost recovery that give weight to
2 gradualism without distorting economic efficiency deserve regulatory attention.”² CWIP in rate
3 base mitigates such “jumps in rates” while maintaining the same regulatory oversight of, and
4 utility decision process for, investing in new assets.

5
6 4.2.2 Information on Project Financing

7 OPG has not yet determined the project financing specifics associated with the Darlington
8 Refurbishment project. Regardless of those specifics, the inclusion of CWIP in rate base will
9 serve to reduce borrowing costs for the utility. An entity’s ability to access financing will be
10 evaluated based on the risks that they face, including the degree of financial leverage and its
11 standing on a number of standard financial risk metrics (e.g., interest coverage ratios).

12
13 In Ex. A2-T3-S1, both of the rating agencies that assess OPG (Standard and Poors and DBRS)
14 rated OPG’s long-term credit rating in the low “A” range. Both agencies referenced OPG’s
15 nuclear program and Standard and Poors specifically referenced weak cash flow metrics.
16 Clearly, inclusion of CWIP in rate base would help these ratings, and lower overall financing
17 costs. In fact, since no allowance has been made for achieving lower financing costs, it could be
18 said that OPG’s illustrative information presented in section 4.2.1 has an added level of
19 conservatism.

20
21 Inclusion of CWIP in rate base is seen by financing entities as a mitigating factor when
22 evaluating the risk of a given project, thereby facilitating access to capital at reasonable interest
23 rates. Further, a utility’s credit rating, as assessed by rating agencies, can be affected by such
24 considerations. Fitch Ratings notes in a discussion of nuclear plant construction financing: “Like
25 any other large capital program, Fitch assesses the capital requirements of a nuclear
26 construction program relative to the available financial resources to determine the effect on credit
27 quality. Fitch also considers whether regulatory support, non-resource financing, federal loan
28 guarantees or fixed-price construction contracts are available to reduce construction risk. *For*

² “Pre-Approval Commitments: When and Under What Conditions Should Regulators Commit Ratepayer Dollars to Utility-Proposed Capital Projects,” National Regulatory Research Institute, November 2008.

1 *regulated U.S. utilities, the availability of a cash return on construction work in progress (CWIP)*
2 *would reduce the construction risk.”³*
3

4 In recognition of the general positive benefit created by the inclusion of CWIP in rate base
5 (associated with the easing of project financing costs), OPG has calculated its forecast interest
6 coverage ratios for 2011 and 2012 for both the traditional regulatory approach and for the
7 approach whereby CWIP is included in rate base. The average improvement over the two-year
8 test period is approximately 1.5 per cent under the alternative regulatory approach. Not
9 surprisingly, this percentage will increase over subsequent test periods, as more capital is
10 expended.
11

12 4.2.3 Obligation to Undertake the Project

13 As indicated in Ex. D2-T2-S1, OPG received direction from the Province requiring OPG to
14 undertake feasibility studies on refurbishing its existing nuclear units in 2007. Further, on
15 February 4, 2010, the Province affirmed the November 2009 decision of OPG’s Board of
16 Directors to proceed with the definition phase of the project. See Ex. D2-T2-S1 for a full
17 discussion of the project.
18

19 **4.3 Performance and Reporting Conditions**

20 OPG expects to be before the OEB for several payment amount applications between this
21 application and the ultimate completion of the Darlington Refurbishment project. Accordingly, it
22 will provide regular updates on project scope, schedule and progress, any variances against
23 budget, and a forecast of future expenditures. As part of these applications, OPG will provide
24 information in both its capital exhibits and make annual entries to the Capacity Refurbishment
25 Variance Account, as detailed in Ex. H1-T1-S1 section 6.5, which will account for all capital over
26 or under spend associated with the project. This variance account approach will permit OPG to
27 true up its capital expenses to actual values, as determined by the OEB.

³ Fitch Ratings, U.S. Nuclear Power: Credit Implications, November 2, 2006. Emphasis added.

1 Since OPG uses a two-year test period, for years in which it does not file an application for
2 payment amounts, OPG proposes to provide to the OEB an annual monitoring report, indicating
3 project status.

4
5 Because of the staged approach to this project (i.e., beginning the definition phase, which is
6 scheduled to last until 2014), OPG expects to be in a position to provide the OEB with a more
7 comprehensive assessment of the project scope, cost and schedule as part of its next
8 application for payment amounts.