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 $37.9 on 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:
The magnitude of current and future utility infrastructure investment has led me to consider how the OEB could create conditions which would foster timely investment by utilities in required infrastructure.

This was followed up with a second Statement from the Chair, a Staff Discussion Paper and stakeholder submissions. On January 15, 2010, the OEB issued EB-2009-0152, a Report of the Board on The Regulatory Treatment of Infrastructure Investment in connection with Rate-regulated Activities of Distributors and Transmitters in Ontario (the "Report"). The Report indicates that the OEB will consider, among other things, applications to include CWIP in rate base on a case-by-case basis, in advance of a project being declared in-service. As concluded in the Report, inclusion of CWIP in rate base is consistent with the Chair’s stated objective above and is an important mechanism that is widely used to reduce barriers to investment by utilities.\(^1\)

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

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

OPG engaged Charles River Associates to generally consider the question of the inclusion of CWIP in rate base. In response, Charles River has provided a study that describes the other 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
project and the specific revenue requirement impacts that flow from this project are explained in
the exhibit.

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

In section 3.4 of the Report, the OEB sets out a number of factors that it will evaluate within the
context of considering a proposal for alternative regulatory mechanisms. These factors include:
• The need for the project
• The public interest benefits of the project
• The overall cost of the project in absolute terms
• The risks or particular challenges associated with the completion of the project
• The cost of the project in proportion to the current rate base of the utility
• The reasons given for not relying on conventional cost recovery mechanisms
• Whether the utility is otherwise obligated to undertake the project

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

4.1 Costs of the Project in Relation to Current Rate Base
As indicated in Ex. D2-T2-S1, at this preliminary stage the projected cost of the Darlington
Refurbishment project is between the “low” bounding case of $6B and the “high” bounding case
of $10B (2009 dollars). OPG’s nuclear rate base in 2012 is approximately $4.0B as set out in Ex.
B1-T1-S1 Table 2. It is clear that the capital expenditures associated with the Darlington Refurbishment project are significant within the context of OPG’s nuclear rate base. Even in comparison to OPG’s combined regulated hydroelectric and nuclear rate base of approximately $7.8B, the Darlington Refurbishment project is substantial. Clearly the criterion associated with the project being a significant proportion of rate base has been met.

4.2 Reasons for Inclusion of CWIP in Rate Base

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

4.2.1 Impact on Rates during Test Period

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

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

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

4.2.2 Information on Project Financing

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

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

Inclusion of CWIP in rate base is seen by financing entities as a mitigating factor when evaluating the risk of a given project, thereby facilitating access to capital at reasonable interest rates. Further, a utility’s credit rating, as assessed by rating agencies, can be affected by such considerations. Fitch Ratings notes in a discussion of nuclear plant construction financing: “Like any other large capital program, Fitch assesses the capital requirements of a nuclear construction program relative to the available financial resources to determine the effect on credit quality. Fitch also considers whether regulatory support, non-resource financing, federal loan guarantees or fixed-price construction contracts are available to reduce construction risk. For
regulated U.S. utilities, the availability of a cash return on construction work in progress (CWIP) would reduce the construction risk.\(^3\)

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

4.2.3 Obligation to Undertake the Project

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

4.3 Performance and Reporting Conditions

OPG expects to be before the OEB for several payment amount applications between this application and the ultimate completion of the Darlington Refurbishment project. Accordingly, it will provide regular updates on project scope, schedule and progress, any variances against budget, and a forecast of future expenditures. As part of these applications, OPG will provide information in both its capital exhibits and make annual entries to the Capacity Refurbishment Variance Account, as detailed in Ex. H1-T1-S1 section 6.5, which will account for all capital over or under spend associated with the project. This variance account approach will permit OPG to 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.
Since OPG uses a two-year test period, for years in which it does not file an application for payment amounts, OPG proposes to provide to the OEB an annual monitoring report, indicating project status.

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