

February 16, 2010

Frequently Asked Questions**Darlington Refurbishment****1. Why does OPG have confidence in its ability to undertake a successful Darlington refurbishment?**

- There are a number of reasons why OPG believes it can deliver a successful refurbishment:
 - a) OPG has the experienced track record in delivering large scale projects.
Examples include:
 - Darlington Vacuum Building Outage: very successful completion of this complex project involving more than 25,000 tasks accomplished in a six-week window;
 - Pickering Safe Storage Project: This \$360 million project, due for completion this spring, is tracking on time and on budget;
 - Pickering A Unit 1 (following Unit 4): Taking the lessons learned from the Return to Service on Unit 4, OPG turned around the Unit 1 Return to Service virtually on time and on budget;
 - Tritium Removal Facility: Another complex project with a high task rate and complicated work completed successfully in 2009;
 - Portland Energy Centre: Construction of the Portland Energy Centre combined cycle gas generating station came in ahead of schedule and under budget.
 - b) Darlington Nuclear is in very good condition going into its planned mid-life refurbishment. We know this through the robust long-standing inspection and maintenance program that demonstrates strong plant condition. This information helps to ensure that there are “no-surprises” when work commences.

Examples include:

- 2008 was Darlington's best year ever. Darlington units were the top three CANDU reactors in the world in 2008 (the fourth unit was in a maintenance outage);
 - Outstanding Unit Capability Factor average of 94.5 per cent is based on unit performance of:
 - Unit 1 - 80.83 per cent (due to maintenance outage)
 - Unit 2 - 98.84 per cent
 - Unit 3 - 99.93 per cent (OPGN's "best ever" performance status)
 - Unit 4 - 98.45 per cent
 - Darlington successfully executed OPG's largest and most complex 2009 nuclear project, the Vacuum Building Outage, finishing more than 25,000 tasks in a 6 week period safely with no lost-time accidents;
 - Leaders of the World Association of Nuclear Operators gathered to tour the Darlington station and learn more about Darlington's operations during their annual Site Vice Presidents' and Plant Managers' working meeting.
- c) The key to success of any major project is careful and thorough planning before starting any work. OPG will undertake a phased approach, starting well ahead of construction with a robust planning process to validate, develop and then implement a successful refurbishment with strong project oversight by expert independent bodies.
- d) There is an experienced leadership team executing the refurbishment. The project leader, then Senior Vice President Bill Robinson successfully delivered the Pickering Unit 1 outage on time and on budget, after examining and making stepped changes following the challenges experienced on the Unit 4 Return to Service project, which was the first mid-life overhaul of any CANDU unit. Moreover, we have learned from our own experience and that of others in the industry.
- e) OPG's will use disciplined work, contractor and resourcing strategies on this complex construction project.

Examples include:

- Using a mockup building for pre-testing applications to provide higher assurance of success before undergoing critical-path work in the reactor building;
- Preplanned contracting strategy to ensure positive outcome for resourcing;
- Careful selection of the contracting team to deliver work;
- Work schedule, with full evolutions of work on one unit before proceeding to the next, allows real-time learning to be applied from one unit to the next;
- This project will have an independent oversight group to ensure OPG's perceptions of its project tracking are validated and verified at each milestone.

2. Will the Refurbishment Project open the door to an increase in employment opportunities for Durham?

- In a time of economic downturn, moving forward toward extended life of Darlington Nuclear will allow us to maintain jobs in the community and for nuclear workers for decades to come.
- It will also provide many planning, development and construction jobs over approximately the next 15-year time period.

During the project early estimates for job creation are:**Definition Phase 2009-2014**

Project management professionals, engineering, and construction workers for infrastructure facilities.

Outage Preparation 2014-2016

Project management professionals, engineering, and construction workers for infrastructure facilities.

Outage Execution 2016 – TBD

Construction trades, engineering and project management professional including planners, schedulers, accountants and construction supervisors.

3. Is there value in a refurbishment of Darlington?

- Yes.
- Darlington's material condition is very good as is its overall performance as a reliable electricity generator.
- Early studies suggest it is a very good candidate for a successful refurbishment and future operating life. This will be validated through Phase 1 study work over the next five years.
- OPG will validate the lifetime unit energy cost (LUEC) of the Darlington refurbishment to be an economical addition to supply mix when compared with all other supply alternatives.
- Darlington's current station performance ensures safe, reliable and economical baseload supply for Ontarians.

4. How much will the refurbishment cost?

- The cost of the refurbishment project will be determined after we have completed all the planning engineering and regulatory assessments. All of these are considerations that go into the preparation of release quality schedules and cost estimates. These schedules should be available by 2015 and will be released prior to construction beginning.
- It would be premature to give an estimate before the 'homework' is complete.

5. When do you expect Darlington Refurbishment to start?

- This is one step in a much longer process.

- The process actually started in early 2008 when initial technical assessments and a screening level business case were prepared.
- Now that we are confident that there is sound basis to proceed, the project will be managed in phases:
 - *Phase 1: Project Definition:* Includes business case validation including environmental assessment, plant condition studies and inspections as well as completion of an integrated safety review: 2009 – 2014
 - *Phase 2: Outage Preparation:* Development of Integrated Improvement and Engineering Plan: 2014 -- 2016
 - *Phase 3: Outage Execution:* Construction 2016 – To be determined through studies

6. Why will it take so long to get to a release-ready cost and schedule?

- The final timeline and cost will not be known until the regulatory and technical scope is determined, engineering is completed, construction contracts are signed, and a release quality cost and schedule is developed. This should be completed by 2015.
- Once that is completed, OPG will have confidence in the scope, cost, and schedule of the project and will set the baseline against which the project will be measured. Funding for this project will be released in phases, in alignment with the above stages. We do not yet need a cost and schedule as no construction work will begin until the 2016 timeframe.
- It would not be prudent to speculate on a potential cost when construction is so many years away and so many variables, outside of OPG control, might impact that estimate.

7. Does Darlington refurbishment impact the pending decision regarding New Nuclear at Darlington?

- No.

- A potential refurbishment of the current Darlington station was always considered and is not related to a new build decision.

8. How does this timeline benchmark with other nuclear refurbishment projects?

- OPG has considered the operating experience of other refurbishments in coming to its current conservative planning assumptions.
- Over the next five years, OPG will perform extensive front-end planning to confirm the project cost and schedule.
- Planning will be done in advance of the project start date, and not while performing the refurbishment outage. This is a key to project success in any project -- well planned projects are, in terms of cost and schedule, better performing projects.

9. What are the immediate next steps in the project?

- In 2010, OPG will fully establish the project management organization; implement project planning governance; develop project infrastructure; develop contract strategies and tendering contracts for major component work.
- As well, OPG will begin the Environmental Assessment (EA) and the Integrated Safety Review (ISR), and complete technical assessments.
- OPG will also confirm full project financing and cost recovery.

10. How will Ontario supply enough power between 2012 and 2020?

- In the near future, the Ontario Power Authority (OPA) is expected to release an Integrated Power System Plan (IPSP) to address Ontario's energy needs for the period 2008-2027. The OPA is the organization responsible for this part of the energy sector and the question is best addressed by that organization.
- OPG's assumptions on the continued operation of Pickering during this period are based on our understanding of the system needs.

11. How will the costs of the Refurbishment Project be financed?

- OPG will establish financing as part of its work program over the next two years. Financing for the current phase will be funded from OPG's general operations.

12. Will there be an independent oversight group to ensure OPG's perceptions of its project tracking are validated and verified?

- Yes, independent oversight is one of the key project principles OPG applies to its major projects. OPG recognizes the need to validate its assumptions and conclusions at each step of the project.
- The oversight group has not been determined at this time. This will be firmed up prior to the project entering a construction phase.

13. Will there be significant impacts from the Darlington refurbishment project on host communities?

- The Environmental Assessment (EA) will look at potential impacts amongst the many aspects of impact to the local area. The EA will be conducted in an open and transparent process that considers socio-economics and reports on them to our stakeholders and the federal authorities.
- There are many anticipated economic benefits in terms of jobs, supply opportunities and economic spin-off for the host community.

14. What makes Darlington a good candidate for refurbishment? Why the optimism expressed in the press release?

- Darlington Nuclear is a station well-maintained through a regular inspection and maintenance regime. Based on this, and on results of further inspections over the past two years, there is reason to believe the plant condition is robust

and will remain so as it enters the refurbishment process. The refurbishment planning and study phase over the next five years will validate the extent of plant condition.

Some of Darlington's performance achievements include:

- INPO award for Darlington (2007);
- Darlington Station had three of the top five performing CANDUs worldwide in 2008;
- Darlington receives "World Class ALARA Performance" award for exemplary performance in occupational dose reduction (2008);
- Darlington operating at 99.99% unit capability in Q1 2009;
- Darlington Nuclear successfully completed its largest and most complex project for the year in 2009 - the Vacuum Building Outage was completed safely and in a timely matter;
- Darlington Tritium Removal Facility employees achieved 10 years without a lost-time injury.

For More Information, Contact:

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