

Performance Report for the Darlington Refurbishment Project

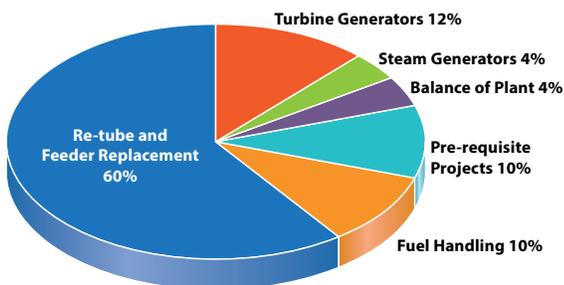
As part of our commitment to keep you informed, this report tracks the performance of Ontario Power Generation’s (OPG’s) Darlington Refurbishment project in the areas of safety, cost and schedule as well as significant accomplishments and progress during the second half of 2015.

Our work in 2015 was focused in two key areas: getting the site infrastructure ready, and completing the Definition Phase work. Our site infrastructure work has progressed, there are a few areas where performance is better than others, but our overall program health at 2015 year end is good. As per our plan, we have completed the planning work and have developed very detailed schedules and cost estimates for all the work packages associated with Darlington’s refurbishment. We have high confidence in the project cost estimate and schedule. We have progressed work according to plan and stayed within the approved budget. We have Board approval to proceed and are waiting for approvals from our shareholder. The details on the status of each project are below.

Other items of interest:

- This year (in addition to our Open Doors events) we held over 60 tours of the Darlington mock-up and training facility. Approximately 600 key stakeholders have come to learn about the project and have expressed enthusiasm and support for our project management approach;
- The Conference Board of Canada prepared a study on the economic benefits associated with Darlington’s refurbishment: they predict that 8,800 jobs will be created over the life of the project and it will add \$15 Billion to Ontario’s gross domestic product (GDP); and
- The public hearings on the renewal of the Darlington operating licence were held and many local stakeholders participated in the five day hearing held in Courtice in November. OPG seeks a long term operating licence which will cover the time period required for refurbishment. OPG also seeks approval of the Integrated Implementation Plan, which lists the regulatory work and schedule required to support refurbishment and long-term safe operation of Darlington.

Major Work Packages



Darlington Refurbishment is made up of many individual projects of various scales and size. Six major project work packages are:

- **Re-tube and Feeder Replacement (“RFR”):** This work includes the removal and replacement of pressure tubes, calandria tubes and feeders in each reactor. This is the largest work package and is the core to the success of refurbishment. It represents the majority of the refurbishment critical path schedule.
- **Turbine Generators:** This consists of inspections and repairs of the four turbine generator sets and the replacement of analog control systems with new digital control systems.
- **Fuel Handling:** This involves the defueling of the reactor and refurbishment of the fuel handling equipment.
- **Pre-requisite Projects:** Numerous smaller scale projects on the Darlington site required to execute refurbishment and/or extend Darlington station life.

- **Steam Generators:** This includes mechanical cleaning, water lancing, inspection and maintenance work of the generators.
- **Balance of Plant:** This work consists of a number of smaller projects to replace or repair components on the reactor side of the unit (such as heavy water and cooling systems) and on the conventional side of the unit (such as electrical system, piping and valve work).

Key Milestones Achieved



The Refurbishment Engineering team is all smiles as they reflect on completing a major milestone!

Engineering Design Complete – One Year Ahead of Construction Start

In August we completed a significant engineering milestone – ahead of schedule. Over 200 design changes for Darlington’s Unit 2 were developed and approved – literally hundreds of components and thousands of parts.

This is a significant Refurbishment Engineering milestone, representing the conclusion of a tremendous amount of teamwork between OPG and our engineering partners. If engineering isn’t complete at the start of the work – you end up with schedule delays and cost over runs.

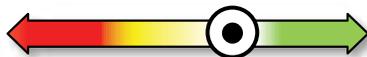
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Overall Program Health



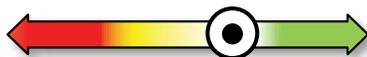
The DRP Definition Phase will end at the end of 2015. Darlington Refurbishment is now transitioning from the Definition Phase to the Execution Phase which begins January 2016. The overall program health remains good.

Cost



The budget for the Definition Phase work, which began in 2010, was \$2.5 Billion. The final cost for the Definition Phase work is expected to be \$2.2 Billion.

Schedule



The program remains on track. As we begin the Execution Phase the focus will turn to mobilization and readiness to ramp up for the Unit 2 refurbishment outage in October 2016.

Safety



Safety performance, including conventional and radiological safety, is excellent both for OPG and our contractor partners. Processes are in place to identify and rectify any small issues that have the potential to result in an injury.

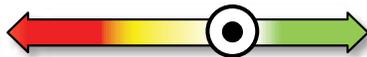
Pre-requisite Projects



Eighteen pre-requisite projects were planned to support Darlington's refurbishment and continued operation. To date more than half (ten) have been completed and commissioned. Four projects are currently in the construction phase. Construction challenges have been encountered on a few projects however these are actively managed and resolved. All are on track to meet the needs of refurbishment. See attached map for full status.

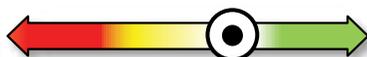
Refurbishment Project Status

Re-tube and Feeder Replacement



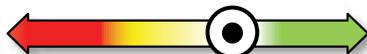
The Re-tube and Feeder Replacement project continues to track well. Testing of all tools is complete. Manufacturing of the tools is progressing with all tool sets scheduled for delivery by April 2016. Long lead materials have been ordered. Worker training and mobilization will begin early in 2016.

Turbine Generators



The Turbine Generator project continues to track well. Unit 2 engineering is complete. Execution for pre-requisite work has begun (i.e., preparation of lifting equipment, inspection of tools and planning of construction work packages). The development of comprehensive work packages is well underway.

Steam Generators



The Steam Generator project continues to track well. Planning is underway in support of pre-requisite work and readiness to execute. The processes for Steam Generator cleaning have been established and the tooling is being developed.

Fuel Handling



On-site commissioning of the fueling and defuelling equipment at the Darlington Fuel Handling Rehearsal Facility is complete. The tool trials were successfully completed and the equipment is ready for on-reactor trials next spring.

Balance of Plant Work



All Balance of Plant scopes of work have been finalized. The majority of the Shutdown Layup bundle designs are complete. The focus is now on the pre-requisite projects needed for the refurbishment of Unit 2.

Legend

Excellent
Good

Marginal
Poor

Status Holding

Trending Degredation

Trending Improvement

For more information, go to www.opg.com/darlingtonrefurb