Q. Please describe the "*pipeline*" for completing capital projects (design, procurement, construction, etc.) as it requires resources to support the desired capital project completion rate and any recent or anticipated resource shortages that might constrain any portion of the "*pipeline".*

A. The capital pipeline is anchored to Hydro's long term and short term plans: twenty year, five year, and one year. Capital planning for year one is planned in detail utilizing planning tools, most commonly Primavera and Microsoft Project. The front-end engineering is brought to AACE class three scope and budget in the time leading up to capital budget submission to the Public Utilities Board. Additionally, the high-level resource mapping is completed to address the coming year work plan.

Upon receiving the Board Order on the upcoming capital plan, project planning is refined down to the detailed task level to confirm the resources required for the approved capital plan. Most projects are managed through a two-year approach, where year one is for pre-work (detail design and procurement) and year two is for execution (construction and commissioning). Unforeseen or break in work is managed by exception.

With respect to procurement, long deliveries are flagged and actively managed in year one through advance quotations and early discussion of available manufacturing windows required to satisfy delivery and in-service dates in year two.

There are two areas where resource shortages may constrain the capital project "pipeline": engineering and project management, and skilled trades required for work execution.

The engineering and project management component is addressed through forecasting and detailed resource planning on an ongoing basis, typically a year in advance to identify constraints.

The requirements for skilled trades workers are met through a combination of internal skilled workers and contractor forces. Internal skilled workers complete ongoing maintenance work and aspects of the in-service commissioning and equipment acceptance testing. Where the capacity exists or the nature of the work from a safety or reliability perspective requires internal equipment knowledge, internal skilled trades will complete the capital work. Otherwise, contractor skilled trades workers are used to complete the capital work.

The availability of internal resources may place constraints on capital work when priority emergency or breakdown work on operating equipment draws the skilled workers from the capital work. This is addressed through rescheduling or working overtime to ensure critical reliability related projects are completed to meet priority winter readiness requirements. However, for less critical projects that have a low reliability or safety impact, the project may be delayed until after the winter period or may be completed as system demand permits equipment outages without placing a risk on reliability.

Hydro has recognized the impact of the requirement of using internal operations forces on the completion of capital work and has identified it as a priority to improve the upfront resource planning and scheduling to become more effective in

completing all internal skilled trade work including operating, non-maintenance and assigned capital work. An initiative was identified in 2013 and is underway in 2014 to improve the planning and scheduling to bring improvements in the completion of both O&M and capital work in 2014 and beyond.

Obtaining skilled workers through contractors has had little impact on the completion of capital work, as necessary skilled workers have been generally available when required. In order to ensure the availability of skilled workers from contractors, Hydro strives to ensure healthy competition for all work brought to market by ensuring its public tenders reach a broad and diverse market for skilled trades.