



Hydro One Connection Process

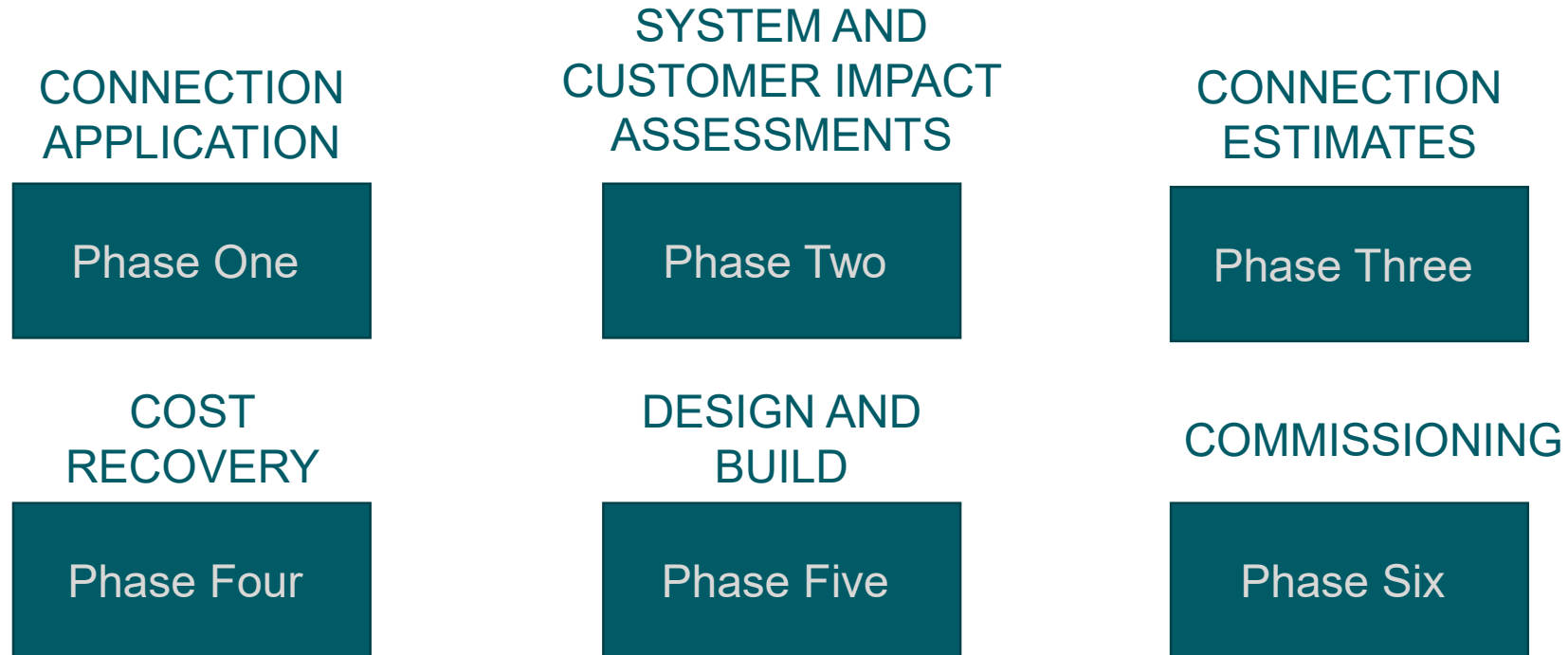
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TRANSMISSION GENERATION CONNECTION PROCESS



Process Overview



Phase 1 - Application



- ***Pre-Consultation:*** To help proponents discuss the project with Hydro One planning staff. This additional pre-consultation step is voluntary and includes a high level connection discussion with no specific solutions or cost details.
- ***Common Application with the IESO:***
See Link [Generation and Electricity Storage Facilities](#)
- ***Also Required:***
 - ✓ Single Line Diagram
 - ✓ Protection Philosophy
 - ✓ Operations Philosophy
 - ✓ Site layout
- ***Environmental Assessments:*** Recommend obtaining EA approvals for tapping structures for line and/or switching station

Phase 2 – SIA/CIA



- **General:**
 - Once the application is deemed complete – SIA/CIA starts
 - SIA study by IESO and CIA Study by Hydro One. CIA Study Agreement required
 - The CIA study looks at impact of project on other transmission customers in the area. Work is initiated after the draft SIA is published by the IESO. CIA draft is circulated for a 30-day period to all area customers for review and comments. Any mitigation measures necessary to address customers concerns are identified in the final CIA report.
- **Timing:**
 - Typically takes approximately 90 days to complete following the IESO issuance of the draft SIA. (This includes the 30-day customers' review period. Timeline may get extended if there is significant impact on other customers that needs to be addressed)
- **Specific to RFP:**
 - For power flow and short circuit modelling purposes, the CIA study will assume that all successful ELT1 RFP proponents' projects are connected.

Phase 3 – Connection Estimates



- **General:**
 - Provides cost estimates and financial contribution requirements
 - Connection Cost Estimate Agreement (CCEA) required
- **Preliminary Engineering**
 - May be required for complex projects
- **Agreement on schedule and scope**
 - NOTE – project connection date will only be determined based on scope and complexity

Phase 4 – Connection and Cost Recovery Agreement



- **General:**
 - The CCRA defines the project scope. It provides the scope of work chargeable to the Proponent, scope of work not chargeable to the Proponent, Generator connection work, estimated capital contribution, payment schedule, statement of engineering and construction costs, form of easement. Timeline for connection and date of in-service.
 - The CCRA covers recovery of Hydro One costs to connect the project.
 - This step is necessary for the work to start.
 - Other agreements may be required to be executed to place orders for material or to commence design engineering at an early date. |

Phase 5 – Design and Build

- **General:**
 - All approvals need to be in place prior to starting construction.
 - The IESO Notification of Conditional Approval for Connection
 - Any Regulatory, Provincial, Municipal approvals
 - Real Estate and Property Agreements or Land Acquisition Agreements in place
 - Environmental Assessments
 - Transfer of land rights required by us.
- ***Detailed Engineering and Project Design***
- ***Construction of Connection facilities***

Phase 6 – Commissioning



- ***Transmission Connection Agreement***
 - Finalize Agreement
 - Must be done before commissioning can begin
- ***Inspection and testing of the connection facilities ready to in-service***
 - Completion of the Facilities commissioning and Confirmation of Verification Evidence Report (COVER) – see Transmission COVER on Hydro One website.
- ***Customer submits final “As build” documents***
- ***CCRA updated. Costs True Up***

Timing Considerations

- ***Multiple existing and new projects in the same area at the same time:***
 - Major coordination for execution and especially outages is required
 - Equipment procurement – supply chain issues require procurement soon after application
 - Resources may be constrained at times if project scope is not clear
 - Timing may be affected if agreements and project scope is not finalized
- ***Complexity of projects:***
 - Not all projects are similar and the complexity and scope of the project will determine the solution, cost and timing. Projects may range from behind the meter, to single or dual line tap, to complex switching station or connection inside a major 230kV station.
- ***Average Timelines:***
 - Typical connection projects take approx. 18-36 months or longer to complete.
 - Hydro One will advise in-service date as part of the CCEA once project details are known.
 - To support the process, Hydro One has set up specific teams to focus on enabling an efficient connection process and will offer pre-consultation with proponents.
 - While Hydro One is focused to support the process. The Commercial Operation Date agreement reached with the IESO is not automatically a guaranteed in service date. Hydro One will not be responsible to meet this date without fully understanding the project scope and evaluating execution options.

Important Connection Principles



1. IESO and Hydro One have a **fundamental obligation to ensure reliability and support system expansion** as growth continues to materialize. In that spirit, proponents are asked to work very closely with Hydro One to establish a connection configuration that allows future connections and station expansion to materialize. Planning for an efficient connection and allocating sufficient space for lines entering and exiting the station will allow current and future projects to materialize. Failing to do so, could result in lack of access and blocking future opportunities for growth.
2. Given the regulation void regarding the **safe operation of BESS installations in Ontario**, Hydro One has been working diligently with a recognized consultant, to develop an industry minimum requirement document, to inform a uniform set of principles that should be considered for safe connection of BESS. We are funding this process and work is underway based on extensive industry application and standards. Before the final documentation is completed a stakeholdering engagement is planned for the industry. The timeframe is expected to be between the end of May and June.

Important Connection Considerations



- ***Considerations for execution and Hydro One Network expansion***
 - Hydro One will work with proponents to minimize grid impact
 - Consider expansion of rights-of-way
 - Consider layout to bring new circuits into stations
 - Need to maintain access and egress

- ***BESS Facilities Safety – no impact to customers and Hydro One Facilities***
 - Hydro One is working on developing industry recognized connection requirements and coordinating the next steps for consultation with Energy Storage Canada (ESC)
 - Part of this package, proponents would require reports in line with NFPA 855 and provide signoff that the proposed facility will not negatively impact Hydro One infrastructure and personnel
 - Industry expectations for developing Emergency Response Plans will be coordinated with local standards
 - Fire modelling consistent with NFP 855 will demonstrate that the BESS is not expected to impact nearby transmission infrastructure
 - Air dispersion study may be required in some areas, based on local standards

Recap



- ***Have all technical information***
- ***Ensure the Scope is finalized***
- ***Agreements signed – ensure the company has legal status***
- ***Approvals obtained***
- ***Funding ready when needed***
- ***Set up a pre-consultation with Hydro One to clarify next steps!***

Thank You!

Q & A