Transmission Asset End-of-Life: Asset Replacement Information Process

Webinar: Overview of Draft Recommended Process

November 19, 2018

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Introduction

- Webinar 1:00pm – 2:30pm
  - The IESO is seeking feedback from stakeholders on a draft process for collecting information on asset end-of-life, or expected service life from transmission asset owners. The draft process will also identify a set of criteria for determining if an asset replacement need may benefit from consideration in bulk or regional planning processes. For additional details, please visit the Transmission Assets End-of-Life Process engagement page.

IESO Engagement Principles and Process

- Stakeholder engagement is an essential part of the IESO decision-making process
- IESO Engagement Principles:
  - Analyze Opportunities for Engagement
  - Ensure Inclusive and Adequate Representation
  - Provide Effective Communication and Information
  - Promote Openness and Transparency
  - Provide Effective Facilitation
  - Communicate Outcomes
  - Measure Satisfaction

Overview

- Scope of Initiative
- Purpose of Discussion
- Context
- Current Approach
- Recommended Process
- Discussion Questions
- Next Steps

Scope of the Initiative

- The purpose of this initiative is to optimize necessary end-of-life transmission investments by maximizing ratepayer value over the long-term
- To accomplish this, the initiative aimed to improve and formalize the input of asset replacement information to the bulk and regional planning processes by achieving three objectives:

1. Develop a transparent, timely, and sustainable process for identifying and integrating asset replacement information (end-of-life investment decisions and the identification of assets' expected service life) into the bulk and regional planning processes
2. Extend the transmission asset owners' (TAO) planning horizon for asset replacement needs from the current 3-5 year period to at least a 10 year horizon
3. Develop a set of criteria for screening the identified asset replacement needs for opportunities to better align with forecast power system and market conditions through more comprehensive long-term planning

Purpose of Discussion

- To provide interested parties with an overview of the recommended draft Asset Replacement Information Process
- To receive feedback on the draft process before finalization
  - Do you see any gaps in the proposed process?
  - Do you see any additional opportunities beyond what has been identified?
  - Are their additional impacts of the proposed process that haven't been adequately assessed?

Context

- What is end of life?
- What is expected service life?
- Why are asset end of life needs important in long-term planning?
- Why is this a timely issue?

Key Terms

- Asset “End of Life” (EOL)
  - The likelihood of failure, or loss of an asset’s ability to provide the intended functionality, wherein the failure or loss of functionality would cause unacceptable consequences
- Asset “Expected Service Life” (ESL)
  - A general guideline to inform investment decisions; the ESL is defined as the average time duration in years that an asset can be expected to operate under normal system conditions and is determined by considering manufacturer guidelines and the transmitter’s historical asset retirement data

Intersection of Asset Replacement and Long-term Planning

- Asset replacement information can offer opportunities in long-term planning, this can vary based on the driver of the need
- For asset replacement driven needs:
  - A need to replace an asset in the near to mid term is identified
  - From a planning perspective, a non-like for like replacement offers additional system benefit (rate payer benefit)
  - The timing of the asset replacement is driven by its end of life but scope is influenced by system conditions
  - E.g., C28C, KW Hydro's transformer replacements, Hamilton station refurbishments (Gage TS, Kenilworth TS)
- For system capacity/reliability driven needs:
  - A need is identified for the system; replacing an existing old asset with a different configuration/asset is determined to be the preferred option
  - Asset could be at end of life, or just greatly depreciated or close to or exceeding expected service life or accounting life
  - Replacement is driven by timing of the system need not just the asset need
  - E.g., KW Hydro MTS #9, Barrie TS uprate, Midtown Project
- The information on asset replacement that forms an input to the planning process should allow for opportunities to be identified in both of these scenarios

Need for Improved Visibility of End of Life Needs

- Sustainment/asset replacement is becoming an increasingly large portion of utility expenditure as assets continue to age
  - Large number of assets exceeding their ESL over the next 10 years
- Relatively flat or declining load in many areas of the province, with pockets of load growth
- Trends toward demand side options which could challenge the assumption around “like-for-like” replacement
- Changing customer needs and system conditions since original assets came into service

CURRENT APPROACH

Existing Process

Identifying End of Life

- Equipment age is generally used as a proxy when TAOs begin the process of identifying assets for replacement; when equipment reaches its ESL or accounting book life, assessments to determine EOL are initiated which are informed by condition information
- Additional factors such as equipment performance, criticality, economics, utilization, environment, health and safety (EHS) risks/requirements, compliance, emerging issues, capacity needs and losses are used when screening for asset replacement needs
- A portfolio of potential investment candidates is created based on these considerations
- Risk assessment is performed, based on factors such as safety, environment, and reliability considerations, to prioritize equipment with the highest risk

Planning and Project Timelines

- EOL plans are normally communicated between various parties after the facility owner has determined EOL and some level of preliminary scoping has been done
- Consideration of EOL opportunities with other system needs is done preferably through the regional and bulk planning processes
- However, the existing processes present timing challenges:
  - There often isn't sufficient time to perform integrated planning for assets identified as EOL
  - Regional planning cycles are periodic and may not align
  - Rate applications cycles add further complexities

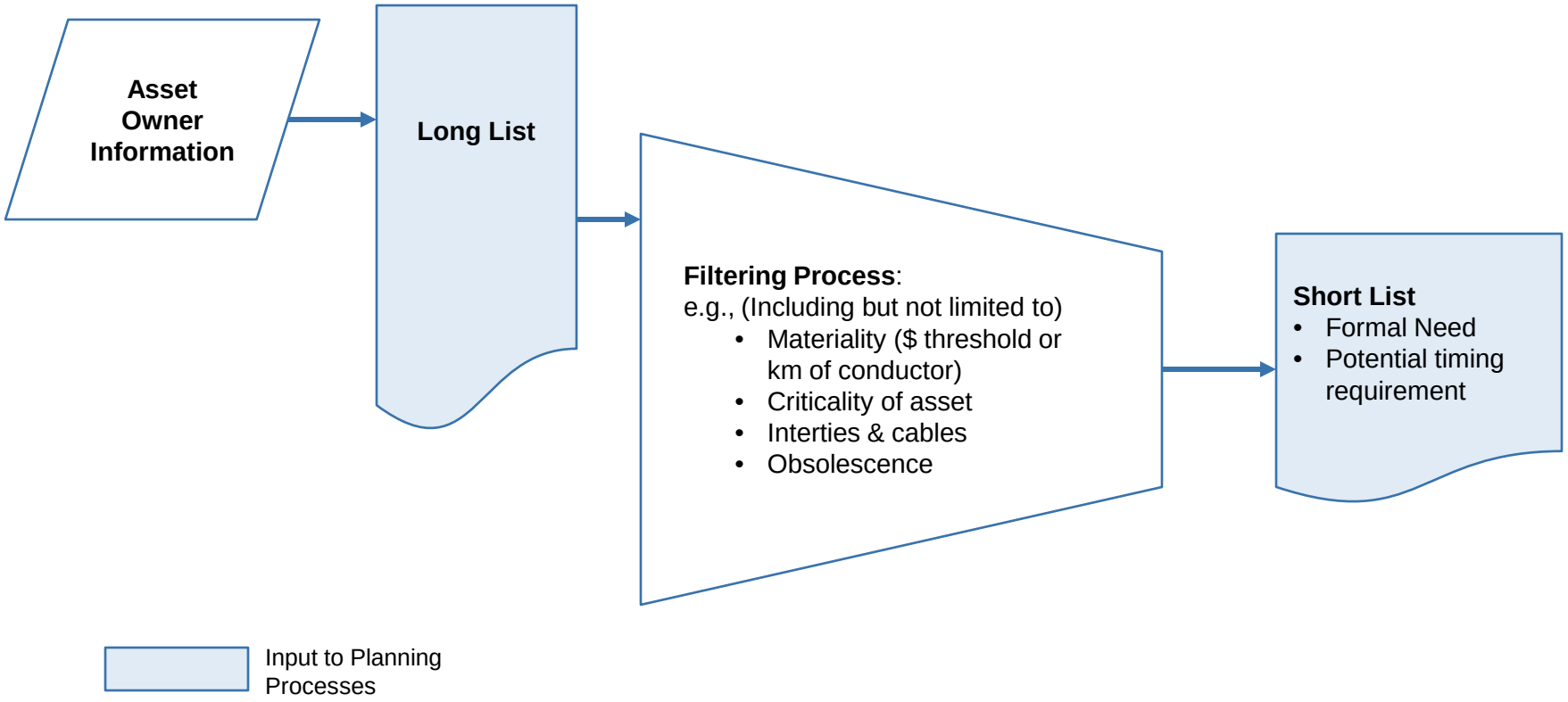
Analysis of Existing Information/Input Process

- Opportunity to improve transparency in existing need screening or filtering processes
- Projects which are identified in the regional planning process are often too far along their development for scope to be influenced
- Existing process/input data doesn't always look out far enough to do long-term planning for asset replacement
- Currently no formalized input to the bulk planning process (due in part to historical lack of a formal process)[1]

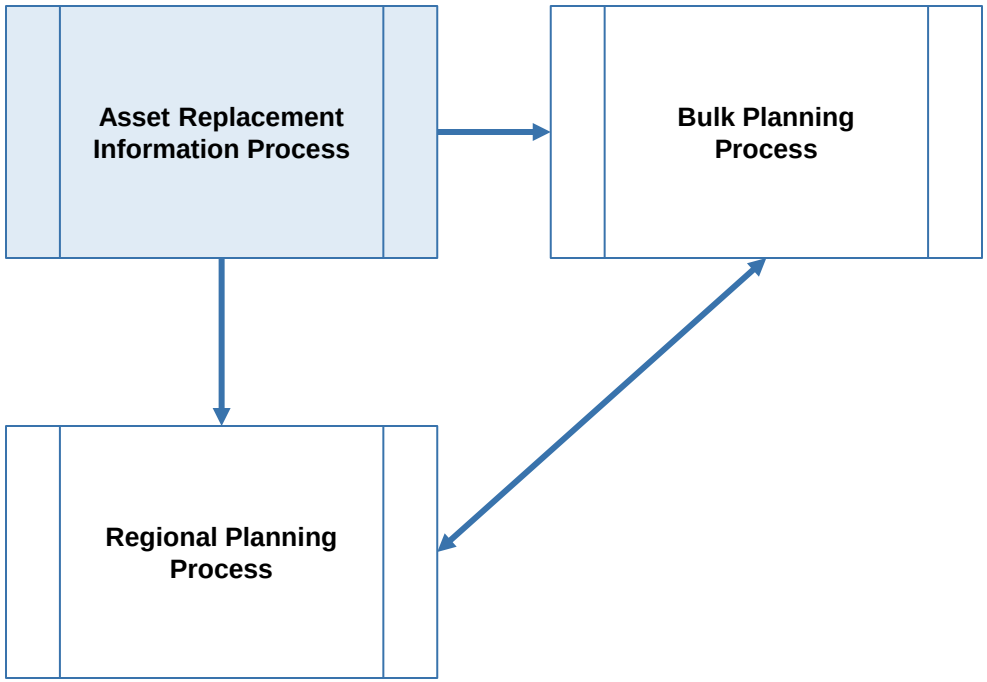
[1] There is an additional initiative underway focused on formalizing and updating the bulk planning process.

RECOMMENDED PROCESS

Overview of Asset Replacement Information Process



Relationship Between Processes



Development of the Long List

- On a yearly basis, TAOs (including applicable LDCs) will provide asset replacement information to the IESO indicating which assets may require consideration in the planning process over the next 10-15 years
- The preparation of the information for sharing with the IESO will be coordinated with timing of the TAO's business planning process
- Data will be provided for the following assets:
  - Conductors
  - Transformers supplied at transmission voltages
  - HV Breakers
  - LV Switchgear (Metalclad)
  - Cables

Development of the Long List

- The following data will be provided:
  - Asset age (or manufactured date)
  - ESL by asset type
  - Asset location (e.g. station name, to/from for conductor segments)
  - Any identified need/replacement dates (applies to assets at end of life already)
- This asset data would be considered the “long list” and would be an informative input to planning processes
- It will also form a basis for a filtering process, carried out by the TAO, to identify the “short list” of asset replacement needs which would benefit from specific and more timely consideration in the planning process

Filtering Process to Produce the Short List

- Working from the “long list”, the TAO will identify the “short list” of projects that:
  - Are likely to occur in the 5-10 year timeframe
  - Have significant scope, which pertains to a number of factors including (but not limited to):
    - The potential cost of the reinvestment
    - Criticality of the asset
    - Situations where the typical/standard replacement option may not be possible
    - Cables or intertie assets
    - Replacements of long sections of conductor
    - A number of replacement candidates located in the same geographic area
    - Obsolescence
  - May require timely input on scope to allow the TAO’s project development to continue
- While the “short list” will be provided on a yearly basis in addition to the “long list”, the TAO can also make additions to the “short list” on an ad-hoc basis to the IESO at their discretion

Treatment of Inputs in Regional and Bulk Planning

- Both the “long list” and the “short list” will form inputs to the regional and bulk planning processes
- The “short list” acts as an input of need (e.g., requires co-ordination by the Regional Planning Study Team, requires an action on the part of the IESO, and would result in a recommendation if it is included in the study scope)
- The “long list” is viewed as a data gathering activity which provides insight for long-term planning – not necessarily a formal need (i.e. how asset demographics are changing for a study area)
- The “long list” may inform mid to long-term planning studies (5-20 years) as potential capacity and reliability needs and related options may be identified (e.g., right-sizing or reconfiguration)

Treatment of Inputs in Regional and Bulk Planning

- *Bulk planning:*
  - Treatment of the “short list”
    - The IESO will determine for each bulk item on the short list, based on the potential for non-like for like options to be considered, whether a bulk planning project should be triggered or if the need can be included in an ongoing bulk planning activity that meets the TAO’s timelines
  - Treatment of the “long list”
    - The IESO will use the list as a general input to ongoing bulk planning activities

- *Regional planning:*
  - Treatment of the “short list”
    - The Regional Planning Study Team will review the information as an input to the regional planning process and determine the planning approach for each regional item on the short list (i.e. identify needs in the needs assessment and determine the planning approach as part of the scoping process)
  - Treatment of the “long list”
    - The Regional Planning Study Team will use the list as a general input to ongoing regional planning activities

Potential Benefits of the Asset Replacement Information Process

- Improved visibility of how a region's asset demographics are changing over the mid- to long- term
  - Can influence timing of regional planning, scope of a regional plan, potential options for regional needs
- Provides a longer lead time to study opportunities for non like-for-like replacements, particularly for significant bulk system assets
- Greater ability to coordinate timing of bulk and regional planning activities based on asset demographics and associated opportunities

Discussion Questions

- Do you see any gaps in the proposed process?
  - E.g., in scope, transparency
- Do you see any additional opportunities beyond what has been identified?
- Any other comments?

Next Steps

- Please send any feedback to engagement@ieso.ca by Dec 10, 2018
- The IESO will incorporate feedback and publish final recommendations in the Regional Planning Process Review interim report Q1 2019
- For additional details, please visit the Transmission Assets End-of-Life Process engagement page