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Small Hydro Program Design Feedback & Evolved Design

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Purpose

The purpose of this discussion is to inform the community on the evolved design of the Small Hydro Program by:

- Highlighting feedback from the hydroelectric community
- Presenting evolved design ideas
- Reviewing next steps

Refresher: Initial Design Concepts

Initial program design concepts were focused on the following areas:

- Capacity Payments
- Dispatchability
- Tranching
- Contract Length
- Investment

Key Themes from Discussions with Hydroelectric Community

Certainty

- Financial security for capital planning & financing
- Contract provides greater assurance than a program
- Interest in combined forward period and contract period providing an adequate planning horizon

Simplicity

- Preference to maintain status quo
- Straightforward contract and payment structure for ease of understanding and adoption
- Generalize typical investment requirements (avoid need to understand site by site requirements)

Site Limitations

- Limited control over water flow due to operating objectives outside the electricity system

IESO Response to Key Feedback Theme: Certainty

- Key objective of the program is to provide a reasonable revenue stream such that facilities can continue operations
  - This will be provided by total compensation, on average, comparable to Hydroelectric Contract Initiative (HCI) program
- Revenue certainty will be provided through:
  - Fixed capacity payment
  - Energy market risk mitigation
  - Adequate contract term length

IESO Response to Key Feedback Theme: Simplicity

- Simplicity, to the extent possible, will be incorporated
- There is a necessary level of complexity in any electricity supply agreement
- While simplicity is important, providing both a steady stream of revenue and a structure more reflective of system value is a higher priority for the program design
- Program will be generalized and simplified where possible and IESO will be responsive to inquiries

IESO Response to Key Feedback Theme: Site Limitations

- Most facilities have limited flexibility, some have ponding, some are dispatchable
- Program design accommodates a range of flexibility through energy payment structure
  - Resources with flexibility are able to capture higher energy market prices
  - Resources with limited flexibility continue to receive a steady revenue stream

Design Concept #1: Capacity Payments

Feedback	Takeaways	Evolved Design
- Preference to keep existing PPA structure - Openness to a capacity payment + energy component - Potential for capacity only payment to work if fixed revenue comparable to existing revenues with minimal risk - Nameplate or installed capacity generally accepted approach over a UCAP approach to determining capacity - Risk of capacity only payment leading to reduced participation in energy market	- Conceptually no barriers to a capacity style contract, as long as revenue is fixed with minimal risk - Reducing energy revenue risk should support overall acceptance of capacity payment	- Capacity payment with guaranteed energy floor, plus a ceiling - Capacity payment based on total expected revenue less energy payment - Minimum reasonable capacity factor to be achieved for full capacity payment - Under development: Energy floor / ceiling values, reference capacity factor

Design Concept #2: Dispatchability

Feedback	Takeaways	Evolved Design
- Majority of owners can not offer dispatchability - Electricity production from these facilities should be considered as baseload energy - A few facilities are capable of being dispatchable - On-peak/Off-peak incentives viewed as a feasible structure	- Dispatchability is not feasible at most sites	- Dispatchable resources able to benefit from higher energy market prices through contract structure - For facilities that have the potential and interest in becoming dispatchable, the program will support the investment required to become dispatchable - Under development: option to elevate ceiling for dispatchable facilities, revenue share above the ceiling or provide capacity payment adder

Design Concept #3: Tranching

Feedback	Takeaways	Evolved Design
- Many thought tranching could have merit, depending on what characteristics were used to group facilities - Tranching may lead to unnecessary complexity - < 1MW could be a tranche	- Distinguishing features between groups of facilities under 10MW were not clear - Lack of evidence for need or justification to tranche facilities	- Possibility that no tranches are required - Under development: recognizing there are economies of scale, considering adjustments to capacity payments depending on facility size

Design Concept #4: Contract Length

Feedback	Takeaways	Evolved Design
- For some facilities, a 10 year contract was adequate - For most facilities, a minimum of 15 or 20 years was required for financing security and investment certainty - Concerns around risk to program if contract is not signed until end of existing contract - Some support for program review after Market Renewal Implementation (if there is enough data to conduct a meaningful review) - Program review should not impact contracts in place	- Early contracting option needs to be provided - Contract longer than 10 years to be considered	- Owners can terminate existing contract anytime and sign on to new contract within program - Contract would end 20 years from program opening (i.e. May 2043) for all facilities, regardless of when they sign contract - Program review will not impact contracts that have already been signed

Design Concept #5: Investment

Feedback	Takeaways	Evolved Design
- Interest in being able to apply for upgrades through the contract - Concept of adders for Indigenous and Municipal Participation were generally well accepted - Some interest in the addition of batteries expressed, but financial viability unknown and site development and integration plans non-existent or in very early stages	- Facilities are at different stages of the capital asset management cycle - Contract payments need to support a base level of reinvestment/sustaining capital - Supporting battery investment through program is currently not justified	- Upgrades enabled if feasible within payment structure, provided facility capacity does not exceed 10 MW (no funding beyond contract payment) - Upgraded capacity incorporated into contract under existing terms - Expansions currently not included in program, however report back to government will include recommendation to develop approach for expansions - Adder for community ownership (including Conservation Authorities) - Adder for indigenous ownership - Under development: sliding scale or step scale for indigenous or community ownership

Summary of Evolved Design

- Payments: Fixed capacity payment + Energy market revenues
- Enhancements to payments being considered for dispatchability, indigenous and community ownership, economies of scale (exact mechanism to be discussed)
- Contract length up to twenty years if facility signs on at program opening
- Upgrades within payment structure enabled
- Expansions currently not enabled

Next Steps: Small Hydro Program Design

- Report back to Ministry by July 1, 2022
- After a directive is issued to the IESO to move forward with the program, next steps will be:
  - Detailed Design
  - Contract Development
- The detailed design and contract development will be done over several months in consultation with stakeholders

Appendix

Background: Small Hydro Program

SCOPE	• Existing facilities • Installed capacities of 10MW and below • Contracts with the IESO or OEFC expiring on or before December 31, 2030 (or have already expired) • Provide value for ratepayers and a reasonable revenue stream such that facilities can continue operating
DELIVERABLE	By July 1, 2022, the IESO shall provide a report to the Ministry of Energy that contains: • Final design, including term and price • Timeline for re-contracting small hydroelectric facilities • Summary of feedback received during consultation and steps taken to address the feedback
ELIGIBLE	• Approximately 30 companies, representing around 50 facilities