JULY 2023

Hydrogen Interruptible Rate Pilot Draft Options and Next Steps

For discussion with H2 producers/developers

IESO Staff

Meeting Agenda

The agenda of the focused engagement sessions is to:

- Share background and updates
- Discuss H2 IRP design options
- Present other support options
  - Bundling Clean Energy Credits (CECs)
  - Real-Time Emissions Tracking (RET)
- Outline a high-level plan for designing and implementing the H2 IRP

Apr 14, 2022 MOE Environmental Registry Posting

- Ministry of Energy (MOE) is, per the April 14, 2022 proposal on the Environmental Registry of Ontario (ERO), considering 3 options for reduced electricity rates for H2 producers

Option 1: Adjust Industrial Conservation Initiative (ICI) eligibility

- Expand ICI eligibility to H2 with peak demand above 50 kW
- Qualify H2 producers in ICI in their first operational year*

Option 2: Co-locate H2 production with generation

- Would allow separate business entities to make use of curtailed generation

Option 3: Dedicated IRP Stream for H2

- Would account for unique circumstances and importance of H2 sector

*Potentially with deemed Peak Demand Factor, after-the-fact reconciliation, and security deposit

Feb 9, 2023 Ministerial Directive on H2 IRP

- IESO has noted that hydrogen (H2) project developers have expressed interest and requested a program stream that offers long-term contracts
- IESO to report back by Sep. 15, 2023 on a plan to design and implement an interruptible rate pilot (H2 IRP) tailored for H2 producers in Ontario that employ electrolyzers
- The H2 IRP:
  - is for Global Adjustment (GA) charges
  - should build off the existing Interruptible Rate Pilot design
  - should consider the capabilities and needs of hydrogen production loads, e.g., longer term
- Engage with hydrogen production stakeholders/interested parties to seek feedback on pilot design features that would support participation and leverage the flexibility of hydrogen production facilities

Potential Benefits of an H2 IRP

The H2 IRP can be beneficial in minimizing uncertainty for large scale investments in hydrogen production facilities:

1. Advance notice from the IESO in H2 IRP can reduce risk of missing a peak event (e.g., as compared to ICI)
2. Longer-term contract provides certainty on opportunity to manage GA charges over life of the contract
3. Other support options could provide:
   - certainty on access to clean energy - annual basis (CEC)
   - data on system emission intensity - hourly basis (RET)

H2 IRP Design Draft Options Summary

Design Feature	Standard IRP	H2 Stakeholder Feedback	H2 IRP Options
1. Duration	3 years	Provide long term of 10 to 30 years	Up to 10 years
2. New build eligibility	No	Allow for new build H2 facility	Yes
3. Maximum size eligibility	50 MW of interruptible demand	H2 facilities may be 100 MW in size	50-100 MW of interruptible demand
4. Pilot MW cap	200 MW	MW cap in H2 IRP should be sizeable	200-300 MW
5. Minimum size eligibility	1 MW IESO market participant	Intent of H2 IRP is support for large production facilities	1 MW IESO market participant
6. GA charge amount	Consistent with ICI plus *minimum* fixed price bid (≥$500/MW per month)	H2 facilities should not pay more	Consistent with ICI plus fixed price bid (≥$0)
7. Number of events	15 events	H2 facilities can respond to more events	30 to 60 events
8. Notice timeframes	6 PM day ahead or 2.5 hours in advance	H2 facilities can respond with shorter notice	2.5 hours in advance
9. Project Selection	(a) fixed price bid, (b) load reduction plan, (c) NAICS, (d) electrical zone, (e) short-notice facility	Assess based on additional measures, e.g., Ontario's hydrogen strategy goals	(a) fixed price bid, (b) project maturity, (c) development plan (incl. in-service date), (d) load reduction plan

Considering Other Support Options

- To support low-carbon hydrogen production, proposed to consider additional options:
    a) Providing Clean Energy Credits (CECs)
    b) Real-Time Emissions Tracking (RET)

- These options increase clean energy data availability, help ensure access to clean energy, increase certainty of clean energy prices, and support certification of clean/green hydrogen

- Could be integrated with the H2 IRP or work in parallel to it, as discussed in coming slides

- H2 IRP may better support participation and garner more interest with these additional options

Clean Energy Credits (CECs)

- CECs can be used to demonstrate that clean (or renewable) energy has been generated then retired on behalf of a person or organization
- CECs could be bundled with electricity consumed by hydrogen facilities in the H2 IRP
  - offers long-term certainty of cost and availability of CECs
  - supports certification of low-carbon hydrogen production
- The value of CECs could be determined either through a fixed price bid by H2 IRP applicants or set by the IESO/MOE
- Would require setting aside a portion of IESO-held environmental attributes for the pilot
- CECs available in the H2 IRP would likely be limited to annual matching (not hourly)

Real-Time Emissions Tracking (RET)

- There is research and early implementation efforts for system operators to provide RET data
- RET involves continuous estimation and recording of forecasted and real-time emissions intensity of the electricity system
- Benefits of making RET data available:
  - Increases transparency on the environmental impact of electricity consumption
  - Guides hydrogen producers' decisions about when to consume electricity
  - Provides a more granular measure (i.e., hourly vs. annual) of clean energy/emissions
- The IESO could pilot making RET data available to H2 IRP participants to support their operations and low-carbon certification requirements

Potential H2 IRP Activities and Timelines

	Pilot Activities	Estimated Timelines
a.	IESO to draft, stakeholder, and finalize H2 IRP rules and contract	6-8 months
b.	Application period for H2 facility developers to prepare application	3 months
c.	IESO to conduct application review and contract execution	4-5 months
d.	Maximum timeframe for facility development and commissioning	2-4 years

- If the pilot design process starts by Q4 2023, H2 production facility projects participating in the H2 IRP could be selected by end of 2024 or early 2025
- It is expected that Ministerial direction will be required before the IESO can start implementation

Next Steps

- Please provide feedback using the feedback forms circulated as part of the meeting or on the H2 IRP engagement page and send to engagement@ieso.ca with the subject 'H2 IRP engagement' within one (1) week of this meeting
- IESO to continue to evaluate the feasibility of the additional options or supporting H2 production facilities (e.g., CECs, RET)
- IESO to hold a webinar to summarize how hydrogen stakeholder feedback is being captured in the report back to the Minister
- IESO to report back to the Minister by September 15, 2023

Thank You

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