



MAY 20, 2021

Northwest 2021 Integrated Regional Resource Plan (IRRP)

Engagement Webinar #1

Objectives of Today's Webinar

- To provide an overview of the regional planning process in order to prepare all interested parties for this engagement
- To seek feedback on:
 - The draft engagement plan
 - The electricity demand forecast and data gathering to inform the forecast of future mining projects
 - Additional needs that should be considered
- To outline next steps

Seeking Input

As you listen today, please consider the following items to help guide your feedback after today's webinar:

- What are some of your key developments, projects or initiatives that might be considered in developing the electricity demand forecast?
- Please tell us about any local concerns that you may be experiencing
- What information do you need to participate in this engagement?

**Please submit your written comments by email
to engagement@ieso.ca by June 9th**

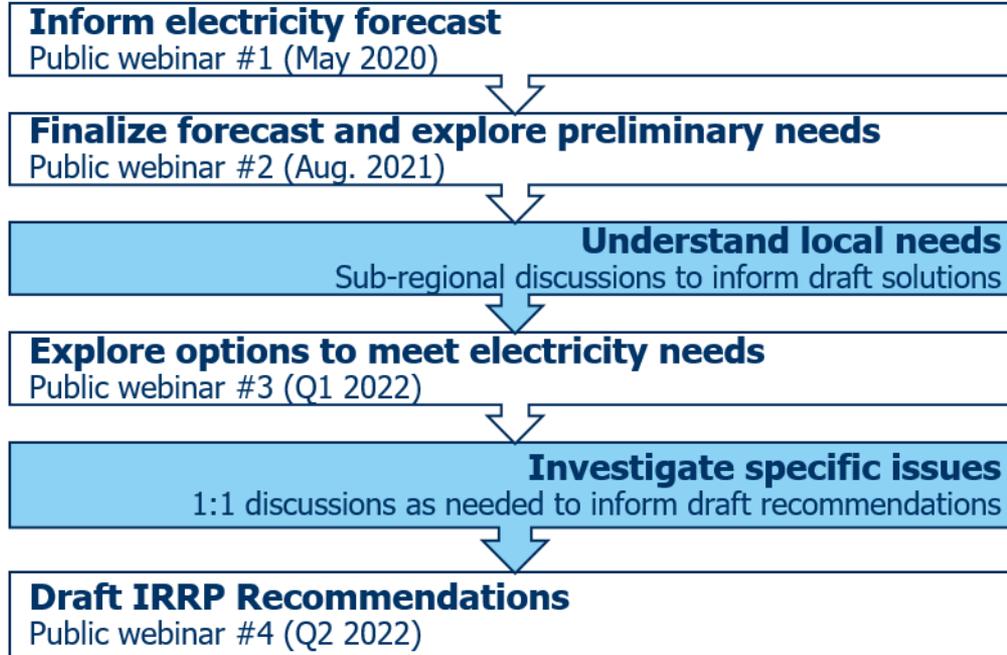


Engagement Plan

What we've heard so far

- Local energy needs/solutions are increasing as a result of
 - Community Energy Plans / Climate Action Plans
 - Economic development
 - Cost-saving measures
- Emerging industrial growth and development should be studied
- Value in having focused, local discussions due to the large geographic area
- The final IRRP should document the feedback received and how it was considered in the process

Characteristics of Engagement

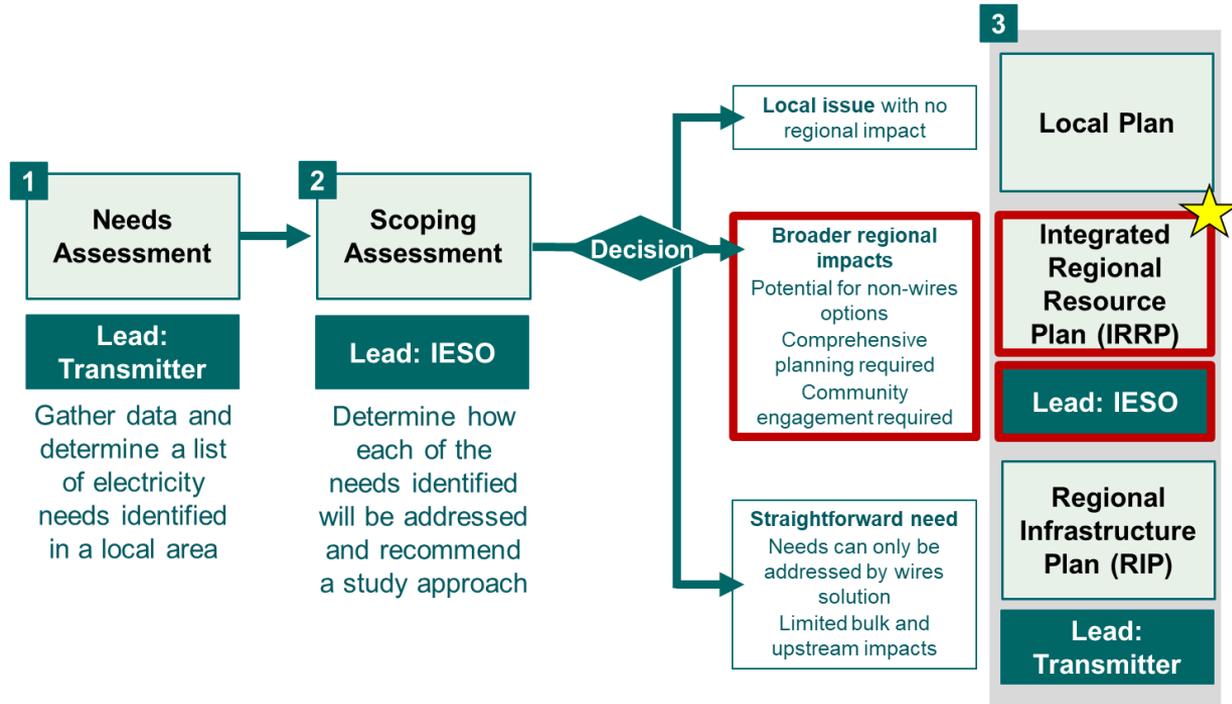


Insights from this engagement will inform electricity planning currently underway for the bulk electric system across the northern Ontario region



Regional Electricity Planning in the Northwest Region

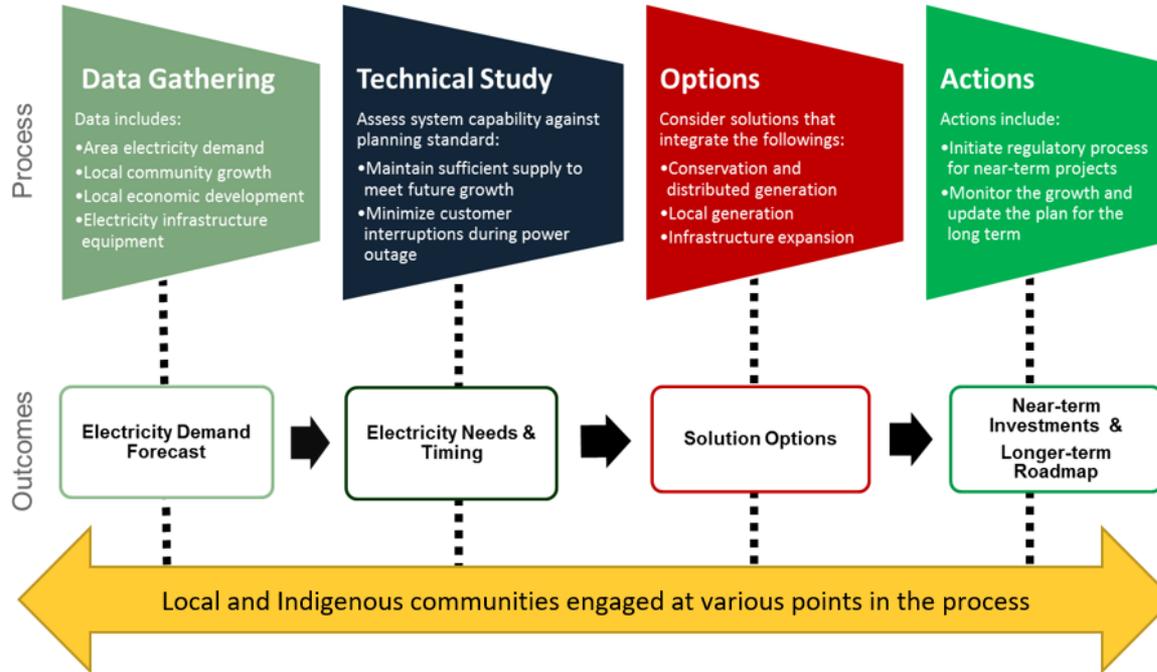
Regional Planning Process Steps



Activities to Date

- Engagement launched on the Northwest Scoping Assessment – Nov 12, 2020
- Draft Northwest Scoping Assessment Report posted for public comment – Dec 1, 2020
- Public webinar on Scoping Assessment - Dec 8, 2020
- Final Scoping Assessment Outcome Report posted with IESO responses to feedback received – Jan 13, 2021
- Outreach with targeted communities conducted to help inform IRRP engagement characteristics

IRRP Process Overview



IRRP Study Team (“Technical Working Group”)

Team Lead,
System Operator

- Independent Electricity System Operator

Lead Transmitter

- Hydro One Networks Inc. (Transmission)

Local
Distribution
Companies
(LDC)

- Hydro One Networks Inc. (Distribution)
- Atikokan Hydro Inc.
- Fort Frances Power Corporation
- Sioux Lookout Hydro Inc.
- Synergy North

Current Status – Northwest IRRP

- The draft electricity demand forecast for existing distributors/ transmission-connected customers has been completed and the future mining demand forecast is being developed
- Detailed technical studies to quantify electricity needs are underway

Q3 2020	Q4 2020	Q1 2021	...	Q2 2022	Q3 2022
Needs Assessment	Scoping Assessment and Engagement	IRRP Study and Engagement			IRRP Published



Electricity Demand Forecast & Data Gathering

Feedback– Demand Forecast

- As you listen today, are there additional factors that should be considered in developing the electricity demand forecast for this region, such as:
 - Key developments, projects or initiatives
 - Planned expansions or retirements of large customers/electricity users
 - Local industry trends or other local activities
 - Municipal policy decisions/plans

Electricity Demand Forecast

- The IRRP uses a 20-year forecast with three components:



Distribution-connected

Based on local distribution company forecasts



Transmission-connected

Informed by outreach to existing customers directly connected to the IESO-controlled Grid (ICG)



Future Mining Projects*

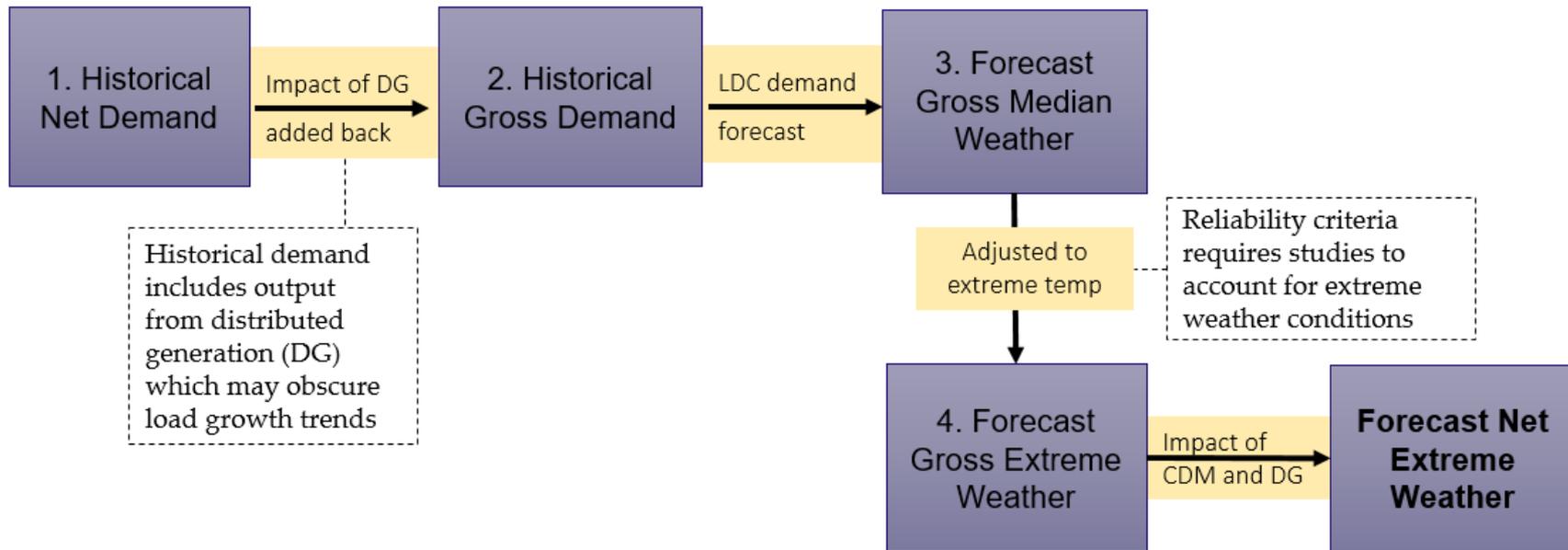
Informed by data from government, industry publications, and engagement with individual proponents

*The future mining forecast covers upcoming projects that have yet to connect to the grid. Expansion/retirement of existing customers are reflected in the distribution- and transmission- connected forecasts.

Distribution-connected Forecast: LDC Role

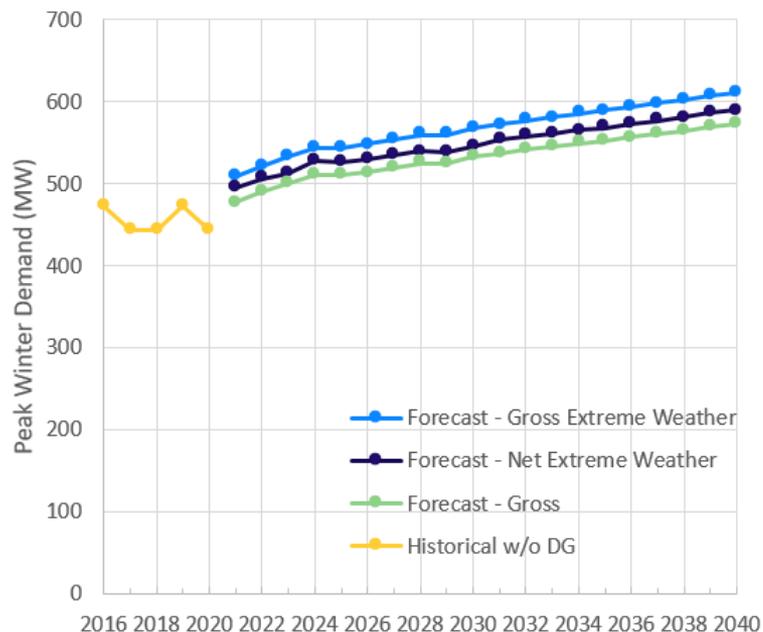
- The regional planning process relies on local distribution companies (LDCs) to provide an electricity demand forecast for their service territory
- LDCs play a crucial role translating municipal official plans, community energy plans, development proposals, and other data sources into annual peak demand forecasts for their service territory
- These forecasts are then aggregated and adjusted to account for extreme weather, distributed generation (DG), and conservation and demand management (CDM) programs

Distribution-connected Forecast: Development



Distribution-connected Forecast: Key Stats

- Distribution system loads have remained relatively flat over the past five years
- LDCs are forecasting moderate growth over the next 20 years
- The average annual growth rate is 0.9% which is relatively consistent with the forecast overall provincial growth rate

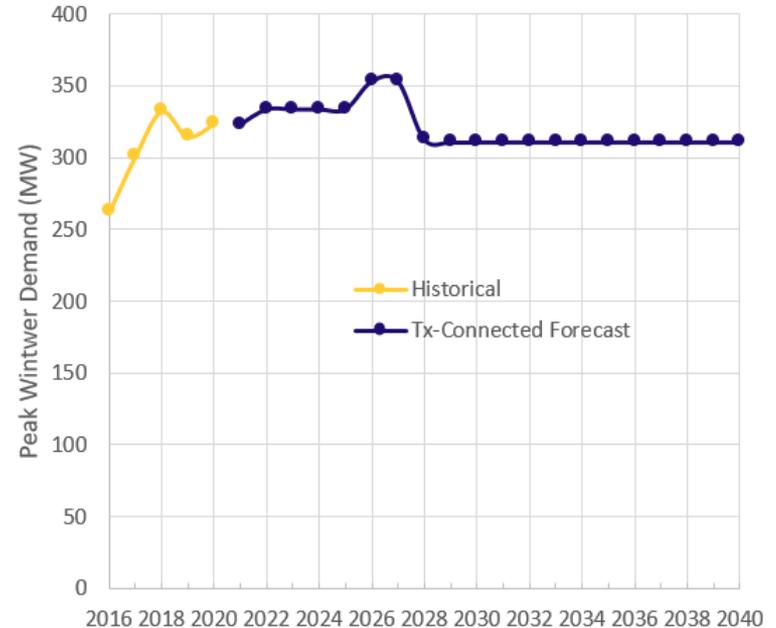


Transmission-connected Forecast

- The Northwest region has 14 customer transformer stations (CTS) that directly serve transmission-connected customers
- The IRRP relies on information from customers to inform the transmission-connected forecast
- Over the past few months, the IESO has conducted outreach to customers through their account representative and encourages customers to provide any additional information regarding their future electricity needs either through written comments after this webinar or at any point to their account representatives

Transmission-connected Forecast: Key Statistics

- CTS historical demand exhibits greater fluctuations compared to LDC demand
- Growth between today and the mid-2020's is primarily driven by mining expansions at existing sites
- The demand reduction in 2028 is the result of certain mines reaching end-of-life
- Note that this figure does not include future mining projects that have yet to connect



Future Mining Projects Forecast

- In addition to the distribution- and transmission-connected forecasts shown above, new mining projects connecting to the grid are expected to make up a significant portion of the overall electricity demand growth in the Northwest region
- The following slides outline how the mining forecast will be updated in this IRRP and how stakeholders can provide input and information

Mining Forecast Development

What is included?

- Information on mining exploration/projects collected from a variety of industry publications, utility companies, and government
- Full list projects we are currently aware of can be found in the Appendix

How do we account for uncertainty in future projects?

- Each project is assigned a “likelihood” factor that represents the probability of their electricity demand materializing and enables the creation of scenarios that represent different potential future outcomes
- These factors are informed by the reliability of data sources, project timing, permitting, among others
- The IESO seeks input from the Ministry of Energy, Northern Development and Mines on the forecast and likelihood factors

Feedback on Information Gathered So Far

The mining project list (Appendix) includes information on:

- Name and approximate location of the project
- Project start and end date, if available
- Indication if the IESO is currently aware of projected electricity demand
- Note that projects without a known operational start date and projected electricity demand will not be included in the forecast

As part of your written feedback, please tell us about:

- Any projects that we may have missed
- Inaccurate or outdated information
- Other project-specific information that should be considered (e.g. annual forecast, plans for self generation, or stage of development)
- The IESO will treat information submitted as confidential; please indicate if you have any confidentiality concerns

Why are we seeking project specific input?

- Aggregate forecast alone does not provide enough detail for industry stakeholders to see if their developments are accurately reflected
- However, the IESO does not publish individual project forecasts since they may be commercially sensitive and/or confidential information
- Providing a list of known projects that will be included in the mining forecast helps improve transparency and enables proponents to directly provide up to date information on their projects or inform us of any projects that may have been missed

What will we do with the information gathered?

- Once feedback from this webinar is compiled, aggregate mining forecast scenarios for growth pockets across the Northwest will be created
- Forecast scenarios will inform both regional and bulk system planning
- The forecasts will be presented at the next public engagement webinar

Mining Forecast Scenarios

- The IRRP must balance the need to enable growth and the risk of overbuilding infrastructure
- The IRRP will use low, reference, and high scenarios to reflect different possible futures with respect to materialization of mining demand
 - The reference scenario represents the most likely forecast while the low and high scenarios captures more pessimistic/optimistic sensitivities

How Scenarios Drive Recommendations

- IRRPs typically only make firm recommendations to address near- or mid-term needs associated with the reference scenario
- The IRRP may also document options to address:
 - Long-term needs that materialize later (10+) in the planning horizon
 - Incremental needs that only materialize under the high scenario
- The electricity demand growth will be monitored to determine if/when these options need to be triggered

Scope of Regional Planning Re: New Connections

What regional planning does:

- The purpose of regional planning is to identify and address grid reliability needs that require coordination between transmitters, distribution companies, and the IESO
- The mining forecast informs the regional and bulk infrastructure needs to support growth in the Northwest

What regional planning does not do:

- The IRRP will not specifically study the local connection requirements of any individual project unless there is an opportunity to align with broader regional needs
- Participation in the IRRP does not replace connection processes like a customer impact assessment (CIA) or system impact assessment (SIA)



Additional Needs for Consideration

Community Input: Local Concerns

- Work is currently underway to study electricity needs in the Northwest region
- As part of your written feedback, participants are encouraged to provide early input regarding concerns they feel should be considered in the IRRP
- For example, local customer reliability/performance has been a reoccurring topic of interest with stakeholders engaged thus far

Local Customer Reliability in the Northwest

- Northwest region has many stations supplied from radial single circuits
- While they do not violate load restoration/security criteria, outages have high socio-economic costs for impacted communities
- The IRRP will investigate opportunities for incremental improvements where there is the potential for integration with other system needs and where it is cost effective

Challenges:

- Since there are no criteria (minimum performance standard) violations, “need” is hard to define
- Performance issues may stem from the distribution system rather than the IESO-controlled grid and may be outside the scope of regional planning
- Infrastructure solutions such as building redundant supply may be cost prohibitive for the impacted customer/community

What can regional planning do?

- Provide information on which entity is best positioned to address concerns that do not fall within the scope of regional planning
- For performance issues that stem from the IESO-controlled grid, investigate the cause and document options to improve performance
 - Note that the IRRP will not make firm recommendations on options to improve performance beyond criteria – these improvements must be customer driven
- Where reinforcements are being considered for other system needs, look for opportunities to incrementally improve performance



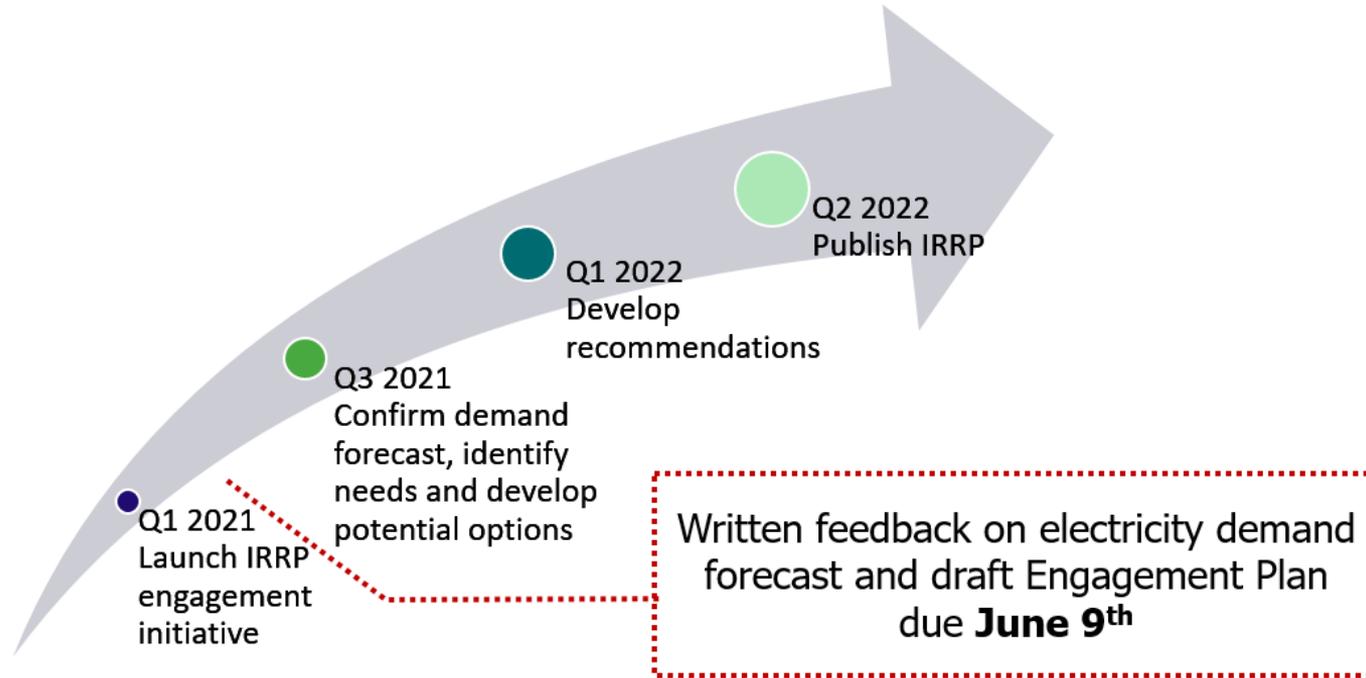
Engagement and Next Steps

Feedback on the Electricity Demand Forecast, Local Customer Reliability & Engagement

- What are some of your key developments, projects or initiatives that might be considered in developing the electricity demand forecast?
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- What information do you need to participate in this engagement?

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Next Steps



Keeping in Touch

- **Subscribe** to receive updates for Northwest regional planning on the IESO website – www.ieso.ca/subscribe; select 'Northwest'
- **Follow** the Northwest regional planning activities on the dedicated [engagement webpage](#)
- **Join** the Northwest Regional Electricity Network on [IESO Connects](#) - a platform for ongoing engagement on electricity issues

Questions?

Do you have any questions for clarification on the material presented today?

Submit questions via the web portal on the webinar window, or by email to engagement@ieso.ca

Seeking Input on the Webinar

- Tell us about today
- Was the material clear? Did it cover what you expected?
- Was there enough opportunity to ask questions?
- Is there any way to improve these gatherings, e.g., speakers, presentations or technology?

Chat section is open for comments

Thank You

ieso.ca

1.888.448.7777

customer.relations@ieso.ca

engagement@ieso.ca



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Appendix: Glossary

Term	Definition
Distribution Generation (DG)	Small-scale generation or storage technologies often connected to the distribution system
IESO-Controlled Grid (ICG)	Transmission systems over which the IESO has authority to direct operations; typically includes elements operated at greater than 50 kV
Load Security	The amount of load loss by rejection or configuration permitted after recognized contingencies
Load Restoration	Maximum times by which high voltage supply must be restored after recognized contingencies
Radial Supply	Supply via transmission lines that do not connect network stations and typically end at the customer station
Single-circuit Supply	Supply via one transmission line as opposed to two (“double” supply)



Appendix: Mining Project List

Existing Active Mines in the Northwest Region

Mine Name	Owner	Location	Peak Demand	End date	Information Source
Helmo Property Mines	Barrick Gold Cop	Marathon	Known	2029	MDNM, Generation Mining Data Online,
Musselwhite Mine	Newmont Goldcorp	Pickle Lake	Known	2030	Generation Mining Data Online
Rainy River Mine	New Gold	Fort Frances Nestor Falls	Known		
Red Lake Complex	Evolution Mining	Red Lake	Known	2033	Generation Mining Data Online, Company Web site
Lac Des Iles Palladium Mine	Impala Canada Limited	Thunderbay	Known	2030	Generation Mining Data Online
PureGold (Madsen) Gold Mine	Pure Gold Mining	Red Lake	Known	2031	Generation Mining Data Online
Sugar Zone Mine	Harte Gold	Marathon	Known	2033	Generation Mining Data Online, Company Web site

Future Mines and/or Mining Exploration in the Northwest Region

Project Name	Owner	Location	Peak Demand	i/s	o/s	Information Source
Greenstone Gold Mines Project	Orion Mine/Premier Gold Mines	Greenstone	Known	2021	2036	CVNW, OMED
Battle North (Bateman) Gold Project	Evolution Mining	Red Lake	Known	2021	2030	CVNW, OMED, Hydro One
Marathon PGM-CU Project	Generation Mining	Marathon	Known	2024	2040+	CVNW, OMED, Hydro One
Hammond Reef Gold Project	Agnico - Eagle	Atikokan	Known	2025	2036	CVNW, Hydro One
Springpole Gold Project	First Mining Finance	Cat Lake	Known	2025	2035	CVNW, OMED, Hydro One
Eagle's Nest	Noront	Ring of Fire	Known	2025	2035	CVNW, OMED
Black Bird	Noront	Ring of Fire	Known	2028	2037	CVNW
Goliath Gold Project	Treasure Metals	Dryden	Known	2024	2033	CVNW, OMED
PAK Lithium Project	Frontier Lithium	Red Lake	Known	2025	2040+	CVNW, OMED, Hydro One
Moss Lake Project	Wesdome Gold	Thunderbay	Known	2025	2034	CVNW
AMI Project	Ambershaw Metallics	Ignace	Known	2025	2040+	CVNW
Separation Rapids Project	Avalon Advanced Metals	Kenora	Known	2025	2040+	CVNW, OMED

...3/

Future Mines and/or Mining Exploration in the Northwest Region – cont'd.

Project Name	Owner	Location	Peak Demand	i/s	o/s	Information Source
Georgia Lake Project	Rock Tech Lithium	Thunderbay	Known	2026	2040+	CVNW
Cameron Gold Project	First Mining Finance	Nestor Falls	Known	2026	2040+	CVNW, OMED
Winston LK Project	CROPS	Marathon	Known	2026	2040+	CVNW, OMED, Hydro One
Thunder Bay North PGM Project	Clean Air Metals	Thunder Bay North	Known	2029	2040+	CVNW, OMED, Hydro One
Theirry Project	Cadillac Ventures	Pickle Lake	Known	?	?	OMED
Albany Project	Zen Graphene	Hearst	Known	?	?	CVNW, OMED
Eagle Island/St Joseph Project	Rockex Mining Corp	NoD	Known	?	?	CVNW
Griffith	Lithium Energy Products	NoD	Known	?	?	CVNW
Sturgeon Lake Project	Glencore/Odin/FQML	Ignace	?	?	?	Company's website
Dixie Project	Great Bear Resources	Red Lake	?	?	?	CVNW
Mt. Jamie North Gold Project	Stone Gold	Red Lake	?	?	?	Company's website
Sunday Lake Project	Transition Metals	Thunder Bay	?	?	?	CVNW
Rowan Mine Project	West Red Lake Gold	Red Lake	?	?	?	Company's website
Horseshoe Island Project	First mining Gold	Red Lake	?	?	?	Company's website
Kyle Lake (U2 Kimberlite) Project	Metalex Ventures	?	?	?	?	OMED