INTEGRATED RESOURCE PLANNING

2021 Annual Report

Enbridge Gas Inc.

May 31, 2022

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1. Introduction:

This inaugural Enbridge Gas Inc. ("Enbridge Gas") 2021 IRP Annual Report (the "Report") encompasses the period from July 22, 2021, through December 31, 2021.[1] Where appropriate, Enbridge Gas has included information on relevant IRP-related activities subsequent to the end of the 2021. This Report has been filed per the Ontario Energy Board's ("OEB") Integrated Resource Planning ("IRP") Decision and Order (dated July 22, 2021) establishing an IRP Framework for Enbridge Gas (the "Framework"), where the OEB directed:

> "Enbridge Gas shall file an Annual IRP Report with the OEB as part of its annual Non-Commodity Deferral Account Clearance and Earnings Sharing Mechanism application, the proceeding in which it may seek disposition of balances in the IRP Costs deferral accounts.
>
> The OEB does not intend to approve the annual IRP report, but it could impact the OEB's findings on the disposition of amounts in the IRP Costs deferral accounts or inform future proceedings.
>
> The annual IRP report and the report from the IRP Technical Working Group are to be filed for information regardless of whether Enbridge Gas is seeking approval to clear any balances in the IRP Costs deferral accounts. The annual IRP report should include the following information:
>
> - A summary of IRP stakeholdering activities from the past year
> - A summary of IRP engagement or consultation activities with Indigenous peoples
> - Updates on IRP pilot projects underway
> - Updates on incorporating IRP into asset management planning
> - Updates on status of potential IRP Plans
> - Updates on status of approved IRP Plans, including details of adjustments made by Enbridge Gas
> - Annual and cumulative summaries of actual peak demand reductions/energy savings generated by each IRP Plan to-date, including comparisons to the initial forecast reduction/energy savings and the actual amount of expenditure on each IRP Plan to-date
> - The most recent results of Enbridge Gas's IRP Assessment Process for system needs, including reporting on those system needs where a negative binary screening or technical/economic evaluation resulted in no further assessment of IRPAs
> - A summary of best available information on demand-side IRPAs, including types of IRPAs, estimates of cost, peak demand savings, status in Ontario, potential role and relevance to Enbridge Gas's system, and learnings from pilot projects and other jurisdictions
> - Efforts taken to explore the use of interruptible rates for meeting system needs, including how customers have been provided the opportunity to consider this option
> - Any other IRP-related matters established by the OEB."[2]

[1] Future IRP annual reports will include the full calendar year.
[2] EB-2020-0091, Decision and Order, Appendix A, p. 22

2. IRP Integration

The establishment of the Framework has allowed Enbridge Gas to commence formally integrating IRP into its existing planning practices. Accordingly, Enbridge Gas reviewed its distribution and transmission planning practices and implemented changes including, implementation of the OEB approved IRP assessment process, and stakeholder engagement activities. In addition, Enbridge Gas is expanding existing processes to enable the effective evaluation and implementation of IRP alternative[3] ("IRPA") pilot and non-pilot projects.

In support of these integration activities Enbridge Gas is guided by the Guiding Principles established by the OEB in the IRP Decision:

- "Reliability and safety – In considering IRPAs as part of system planning processes, Enbridge Gas's system design principles cannot be compromised, and the reliable and safe delivery of firm contracted peak period natural gas volumes to Enbridge Gas's customers must remain of paramount importance.
- Cost-effectiveness – IRPAs must be cost-effective (competitive) compared to traditional Facility Alternatives[4] and other IRPAs, including taking into account impacts on Enbridge Gas customers.
- Public policy – IRP will be considered in a manner to ensure that it is supportive of and aligned with public policy, and in particular the OEB's statutory objectives for the natural gas sector.
- Optimized scoping – Recognizing that reviewing IRPAs for every forecast infrastructure project would be extremely time intensive, binary screening should be undertaken, to confirm which forecast need(s) should undergo evaluation of IRPAs, and to ensure a focus at the outset on efficient and effective IRPA investment.
- Risk management – Economic risks associated with both Facility Alternatives and IRPAs in meeting system needs are evaluated and appropriately mitigated. Risks and rewards are allocated appropriately between Enbridge Gas and its customers."[5]

More detailed discussion of the steps towards IRP integration taken by Enbridge Gas follow:

Stakeholder Engagement

Stakeholder engagement activities are ongoing. Following the completion and filing of the Company's 2023-2032 Asset Management Plan ("AMP") in the fall of 2022, Enbridge Gas will commence IRP-related regional and geo-targeted stakeholder engagement. Stakeholder feedback received through these engagement activities will be reviewed and responded to (where appropriate) and will inform the Company's consideration and development of potential IRP projects as well as future AMPs. For

[3] The types of eligible alternatives are described in EB-2020-0091, Decision and Order, Section 7
[4] Per the IRP Framework (EB-2020-0091, Appendix A, p.4), Facility Alternative is "synonymous with a traditional or conventional facility project"
[5] EB-2020-0091, Decision and Order, p.27-28

a summation of the stakeholder engagement activities undertaken in 2021 see Section 4: Stakeholder and Indigenous Engagement Update.

Forecasting and Planning

Enbridge Gas regularly updates its long-term peak demand forecast and AMP (both comprehensive and limited updates depending upon timing and purpose). The objective of peak demand forecasting, and planning is to amass data, input, and insights to identify potential future system needs and constraints as well as their magnitude and timing. Early identification of future system needs and constraints is critical as the Company is obligated to reliably serve the firm contracted peak period demands of its customers.

A comprehensive discussion of Enbridge Gas' forecast and planning processes and any changes that have been made as a result of the establishment and implementation of the Framework will be filed in the Company's 2024 Rate Rebasing application in fall of 2022.

Need Identification

Following the completion of the forecasting process, Enbridge Gas compares the future forecast to the capacities of its existing facilities. A new system need/constraint is identified when Enbridge Gas determines that its current facilities cannot balance the new peak demand forecast with existing system facilities safely and reliably. When a constraint is initially identified, Enbridge Gas will verify its model with existing actual physical data, including pressure and temperature compensated consumption or flow, to ensure that the constraint is properly forecasted.

Baseline Facility Setting

Following the identification of a system need, Enbridge Gas develops the baseline facility that is required to meet the system need, absent any non-facility or IRPAs. It is necessary to understand this baseline facility as early as possible, as it provides a helpful point of comparison for other alternatives including IRPAs.

Binary Screening

Following the identification of a system need, Enbridge Gas will review the need relative to the Binary Screening Criteria established by the OEB in the Framework. If the system need passes Binary Screening, Enbridge Gas will then review and assess IRPAs or combinations of IRPAs that could meet the capacity requirements of the system need.

Binary Screening includes:

- **"Emergent Safety Issues**: If an identified system constraint/need is determined to require a facility project for Enbridge Gas to offer safe and reliable service or to meet an applicable law, an IRP evaluation is not required. An example of such a system constraint/need, and an emergent safety issue, would be if an existing pipeline sustained unanticipated damage and

needed to be replaced as quickly as possible to ensure the safety of local communities and Enbridge Gas's broader transmission and distribution systems. Longer-term safety related system constraints/needs may be appropriate for an IRP Plan and should be considered on a case-by-case basis.

- **Timing**: If an identified system constraint/need must be met in under three years, an IRP Plan could not likely be implemented and its ability to resolve the identified system constraint could not be verified in time. Therefore, an IRP evaluation is not required. Exceptions to this criterion could include consideration of supply-side IRPAs and bridging or market-based alternatives where such IRPAs can address a more imminent need.
- **Customer-Specific Builds**: If an identified system need has been underpinned by a specific customer's (or group of customers') clear request for a facility project and either the choice to pay a Contribution in Aid of Construction or to contract for long-term firm services delivered by such facilities, then an IRP evaluation is not required.
- **Community Expansion and Economic Development**: If a facility project has been driven by government legislation or policy with related funding explicitly aimed at delivering natural gas into communities, then an IRP evaluation is not required.
- **Pipeline Replacement and Relocation Projects**: If a facility project is being advanced for replacement or relocation of a pipeline and the cost is less than the minimum project cost that would necessitate a Leave to Construct approval [$2 million], then an IRP evaluation is not required."[6]

IRPA Technical Feasibility Assessment

For all system needs that pass Binary Screening, Enbridge Gas will assess which IRPAs could technically be used to defer, avoid or reduce the need/constraint relative to facility infrastructure. In other words, Enbridge Gas will ensure that the IRPA can serve the identified need prior to evaluating the IRPA on an economic basis.

Economic Evaluation

Enbridge Gas will test and compare the technical feasibility of both the baseline facility and any IRPAs on an economic basis using the OEB-approved DCF+ cost test. In the Decision, the OEB determined that Enbridge Gas has "some discretion in selecting an alternative to meet a system need that does not have the highest score on phase 1 of the DCF+ test, as there may be considerations or factors that are important in phase 2 and 3 or are difficult to quantify."[7] The IRPA, or combination of IRPAs, that can technically and economically meet the system need and satisfy the Framework's Guiding Principles, will be incorporated into the AMP for inclusion into its broader planning activities, stakeholder touchpoints and for implementation at the appropriate time.

[6] EB-2020-0091, Decision and Order, p.47-49
[7] IBID, p.56

Project Development

Following the identification of IRPAs and the inclusion in the AMP, Enbridge Gas will begin work to develop and subsequently file an IRP Plan application and supporting evidence with the OEB for approval (where appropriate). Enbridge Gas will ensure that all details related to IRPAs and the underlying system needs that they are intended to address will be fully refined in this step and will continue to monitor the need as part of its planning activities until such time that the project is implemented.

IRPA Project Implementation

Enbridge Gas' IRP Plan applications will:

- detail anticipated savings or peak period impacts (on an hourly basis for distribution system assets and on a daily basis for transmission and storage system assets) together with the costs and ownership/operationalization arrangements proposed for IRPA investments;
- seek approval to spend and subsequently recover costs associated with investing in an IRPA(s);
- include additional applicable details for IRPAs such as design, administration, implementation, monitoring and reporting.

As is the case with traditional applications to the OEB seeking an Order of the Board for Leave to Construct facilities LTC applications, Enbridge Gas intends to consult with impacted landowners (where applicable), municipal governments, First Nations, Indigenous groups, and other affected stakeholders prior to filing its IRP Plan application with the OEB.

Monitoring and Reporting

Following implementation of approved IRPAs, the Company will carefully monitor their effectiveness in meeting the identified system need to ensure system constraints are being sufficiently resolved. Enbridge Gas will provide an annual report of IRPA effectiveness to the OEB as part of either its annual Rates application or Non-Commodity Deferral Account Clearance and Earnings Sharing Mechanism application, or as otherwise directed by the OEB. If any IRPA is not meeting the identified system need for which it was implemented, Enbridge Gas will propose corrective action in its report which may include, but not be limited to, proposals to implement additional IRPAs or new facilities.

3. IRP Pilot Projects

The OEB Directed Enbridge Gas to "select and deploy"[8] two IRP pilot projects by the end of 2022.

[8] EB-2020-0091, Decision and Order, p.94

The concept of developing and implementing two IRP pilots received universal support during the IRP proceeding.[9] Parties recognized that these IRP pilots would be an effective approach to better understand and evaluate how IRP can be implemented to avoid, delay or reduce facility projects required to meet the identified need.

The Technical Working Group was created to, among other matters, provide input and insight into the selection and development of the IRP pilots.

At the time of writing this Report the specific pilot projects and associated IRPAs have not been determined.

Enbridge Gas plans to file the two IRP pilot applications by December 31, 2022 for OEB review and implementation based on the following schedule:

June – August 2022	Review potential IRP Pilot projects
September	Select two pilot projects
September - December 2022	Develop IRP pilot evidence and applications
January – April 2023	OEB Procedural process
May 2023	IRP pilot project implementation

4. IRP Stakeholder and Indigenous Engagement Update

As part of the Decision in the IRP Framework proceeding "the OEB has determined that the components of Enbridge Gas's proposed Stakeholder Engagement Process will provide valuable input into Enbridge Gas's IRP activities and shall be incorporated in the IRP Framework. The OEB also directs the establishment of a website by Enbridge Gas to facilitate the broad sharing of information on IRP stakeholdering efforts."[10]

IRP Website

In December 2021, an Enbridge Gas IRP website went live.[11] This is the initial phase of the website and allows for individuals to identify which regions are of interest and to register for any stakeholder engagement that will occur within the regions(s) of interest. Individuals are welcome to register for as many regional engagement activities as they feel appropriate. By registering their emails,

[9] EB-2020-0091, Decision and Order, p.90
[10] IBID, p. 66
[11] https://www.enbridgegas.com/sustainability/regional-planning-engagement

individuals give permission to receive emails from Enbridge Gas in the future thus meeting the requirements of Canada's Anti-Spam Legislation (CASL).

The next phase of the website design is underway. This next phase will be available when a pilot project or IRP Plan is developed, and it will include additional regional functionality. The next phase will also allow interested individuals to sign up for webinars, in-person engagements, and to receive information about any presentations and/or responses to stakeholder feedback that is posted. It is anticipated that the second phase of the website design will be available prior to the launch of the first pilot project or IRP Plan.

Enbridge Gas has also implemented an internal working group that includes representation from Enbridge Gas' Municipal, Stakeholder and Community Engagement Group, Community and Indigenous Engagement and the IRP group to ensure that the internal resourcing and IT infrastructure developed to conduct, gather, and respond to the ongoing stakeholder engagement efforts in support of IRP will be sufficient to inform future planning efforts. This internal working group brings extensive stakeholder engagement experience and insight to the future IRP Stakeholder engagement plans. Enbridge Gas' various stakeholder engagement groups support efficient project execution with engagement activities in the field with project-area residents, local governments, and local organizations, in support of project objectives and business goals. They also regularly engage with key partners, including local municipal officials, business leaders, key landowners, emergency responders, and non-government organizations. Enbridge Gas anticipates engagement with Indigenous groups to commence in 2022 as IRP Plans are developed.

5. IRP Plan Update

Enbridge Gas has not developed or filed any IRP Plans with the OEB that can be reported at this time. Please see Appendix B for a list of projects that Enbridge Gas has completed the binary screening process following the OEB's IRP Decision.

6. Asset Management Plan (AMP) Update

The IRP Decision indicated that "for this first-generation IRP Framework, the OEB finds the process proposed by Enbridge Gas to identify system constraints or needs is acceptable. Recording potential system needs/constraints up to ten years in the future in the AMP will allow time for a detailed examination of IRPAs. The OEB agrees with Enbridge Gas's proposal that the first version of the AMP reflecting this updated process be filed in Fall 2022."[12]

[12] EB-2020-0091, Decision and Order, p.42

Enbridge Gas will file the 2023-2032 AMP in Fall 2022 with the 2024 Rate Rebasing application. The AMP will include the binary screening results for all facility projects, greater than $2 million, as noted in the IRP Assessment process description above. In addition, the AMP will include IRP assessment information for the projects, including IRPAs, where possible.

7. Integrated Resource Planning Alternatives Update

Discussion during the IRP regulatory proceeding included the request by some parties to have available a listing or menu of IRPAs being considered by Enbridge Gas. The OEB concluded that a "document on best available information for demand-side alternatives would promote more timely development of IRP Plans and directs Enbridge Gas to include a listing in its annual IRP Report."[13]

Appendix C lists the preliminary IRPAs and includes information on these specific IRPAs as suggested by OEB Staff including "types of IRPAs, estimates of cost, peak demand savings, status in Ontario, potential role and relevance to Enbridge Gas's system, and learnings from pilot projects and other jurisdictions."[14] Enbridge Gas recognizes that this IRPA information is preliminary and will become more refined over time as the Company becomes more familiar with the actual impacts of these IRPAs on system peak demands and with the inclusion of more granular meter reading through an Automated Metering Infrastructure (AMI) application. Enbridge Gas also anticipates that the IRP pilot projects will provide further information allowing for the refinement and updating of the impacts of some of the IRPAs listed.

8. Technical Working Group Summary

The OEB's July 22, 2021, Decision further instructed the OEB to establish an IRP Technical Working Group (TWG) led by OEB staff, to provide input on IRP issues that will be of value to both Enbridge Gas in implementing IRP, and to the OEB in its oversight of the IRP Framework.

The inaugural meeting for the IRP TWG was held on Tuesday January 18, 2022. Any updates or summaries of IRP TWG meetings held in 2022 will be included in and reported on in the 2022 IRP Annual Report. All documents and presentations with respect to the IRP Technical working group can be found on the OEB web site under proceeding EB-2021-0246.[15]

The Report of the Technical Working Group is included as Appendix D.

[13] EB-2020-0091, Decision and Order, p.36
[14] IBID, p.34
[15] https://www.oeb.ca/consultations-and-projects/policy-initiatives-and-consultations/natural-gas-integrated-resource

9. Interruptible Rates Update

The use of interruptible rates as an IRPA was reviewed as part of the IRP Framework proceeding. The discussion centered around a few key issues: "Customers on interruptible rates pay a lower rate in exchange for the ability of Enbridge Gas to curtail delivery if capacity is not available on the system. Interruptible volumes are not included in Enbridge Gas's design day assumptions. Therefore, increased use of interruptible rates could potentially reduce the amount of firm peak demand Enbridge Gas is obligated to serve, helping address a system need. For this reason, Enbridge Gas indicated that it does consider interruptible rates to be a type of IRPA. Enbridge Gas already offers interruptible rates to its Contract Rate customers (larger commercial, institutional and industrial customers). However, Enbridge Gas noted that customers have been moving away from interruptible rates as they value certainty of supply over cost reduction."[16]

In response Enbridge Gas indicated that it would "investigate the drivers for recent declines in the use of interruptible services and could potentially file revised interruptible and firm seasonal services/rates to make them more attractive to customers as part of its 2024 rebasing application."[17]

The OEB determined that "the impact of interruptible rates to meet a system need/constraint should be considered in an IRP Plan in combination with demand-side or supply-side alternatives."[18]

Enbridge Gas will file an interruptible rates study as part of its Rate Rebasing application in fall of 2022.

10. DCF+ Review

As part of the IRP Framework Decision the OEB found that "the OEB accepts the categories of benefits and costs proposed by Enbridge Gas for the three phases of the DCF+ test (shown in Table 2) for the use of this test in the IRP Framework. The OEB recognizes that the DCF+ test could be improved to better identify and define the costs and benefits of Facility Alternatives and IRPAs and clarify how these costs and benefits should be considered within the DCF+ test. This could include expanding the inputs to recognize increasing carbon costs, the risk that a constraint remains unresolved, and impact on gas supply costs. The OEB directs Enbridge Gas to study improvements to the DCF+ test for IRP."[19]

The OEB further recognized that "this test could be improved to better list and define the costs and benefits of facility projects and IRP Alternatives and clarify how these costs and benefits should be considered within the test. Enbridge Gas is expected to study improvements to the Discounted Cash Flow-plus test for IRP, in consultation with the IRP Technical Working Group that will be established

[16] EB-2020-0091, Decision and Order, p,30
[17] IBID, p. 30-31
[18] IBID, p.35
[19] IBID, p.56-57

as part of the IRP Framework and using IRP pilot projects as a testing ground. Enbridge Gas shall file an enhanced Discounted Cash Flow-plus test for approval as part of the first non-pilot IRP Plan."[20]

Enbridge Gas has begun the process of reviewing the DCF+ test approved by the OEB. Enbridge Gas will consult with the Technical Working Group on any proposed enhancements to the DCF+ test prior to filing this cost benefit analysis with the first IRP non-pilot application.

[20] EB-2020-0091, Decision and Order, p. 5-6

Appendix A: OEB IRP Direction

The table below provides Enbridge Gas' progress with respect to meeting the Directions as ordered by the OEB in the IRP Decision.

Direction Item	Reference in the Decision	Direction	Status
Interruptible rates	Section 7 p.35	The OEB directs Enbridge Gas to study its interruptible rates to determine how they might be modified to increase customer adoption of this alternative service.	In progress – will be included with Enbridge Gas Rebasing Application (2023-2032)
Documentation of demand side IRPAs	Section 7 p.36	The OEB concludes that a document on best available information for demand-side alternatives would promote more timely development of IRP Plans and directs Enbridge Gas to include a listing in its annual IRP Report. The OEB agrees with Enbridge Gas that supply-side alternatives require case-by-case examination and therefore are not required to be included in the listing.	Completed – preliminary list
Asset Management Plan	Section 8 p.42	The OEB directs that the AMP include information about Enbridge Gas' system needs. This includes providing the status of consideration of IRP Plans in regard to meeting system needs, the result of the binary screening, and details on the evaluation.	In progress – will be filed with the Enbridge Gas Rebasing Application
DCF+ test enhancement	Section 8 p.56-57	The OEB directs Enbridge Gas to study improvements to the DCF+ test for IRP and, as applicable, file an enhanced DCF+ test for approval as part of the first non-pilot IRP Plan.	In progress
IRP Website	Section 10 p.66	The OEB also directs the establishment of a website by Enbridge Gas to facilitate the broad sharing of information on IRP stakeholder engagement efforts.	Phase 1 – Completed Phase 2 – In progress

Technical Working Group	Section 10 p.67	Establishment of a TWG with the OEB directing that membership should include Enbridge Gas, OEB staff, independent experts, and experienced non-utility stakeholders	Completed
IRP Deferral accounts	Section 15 p.87	The OEB directs Enbridge Gas to prepare a Draft Accounting Order for the two IRP Costs deferral accounts, consistent with the direction in this decision.	Completed

Appendix B: Binary Screening Results

Appendix B: Binary Screening Results for Projects Filed							
OEB Proceeding Docket	**Project Name**	**Customer Specific Build**	**Timing**	**Pipeline Replacement >$2M**	**Emergent Safety Issue**	**Community Expansion & Economic Development**	**Binary Pass or Fail**
EB-2022-0111	Bobcaygeon Community Expansion Project					Fail	Fail
EB-2022-0086	Dawn to Corunna Replacement Project		Fail				Fail
EB-2022-0088	Haldimand Shores Community Expansion Project					Fail	Fail
EB-2022-0003	NPS 20 Waterfront Relocation Project		Fail				Fail
EB-2020-0293	St. Laurent Ottawa North Replacement Project		Fail				Fail
EB-2021-0205	Greenstone Pipeline Project	Fail					Fail
EB-2021-0248	Coveny and Kimball-Colinville Well Drilling Project		Fail				Fail

Appendix C: Integrated Resource Planning Alternatives

Integrated Resource Planning Demand-Side Alternatives – Best Available Information

As per the IRP Decision, the IRP Annual Report is to include "a summary of best available information on demand-side IRPAs, including types of IRPAs, estimates of cost, peak demand savings, status in Ontario, potential role and relevance to Enbridge Gas's system, and learnings from pilot projects and other jurisdictions".[21]

Demand-side IRPAs

IRPA Name	Enhanced Targeted Energy Efficiency (ETEE)
ETEE IRPA Overview	
Enhanced targeted energy efficiency (ETEE) programs focus on achieving necessary reductions in a specific geographical area to reduce peak period system demands. The mix of offerings and measures utilized in an ETEE program is dependent upon the scope of the facility investment project under consideration, customer characteristics in the specific project service area, past demand side management DSM participation etc. ETEE programs could include refining existing broad-based DSM offerings through enhanced incentives and targeted marketing or introducing new geo-targeted programs not offered through broad-based DSM. Broad-based DSM programs have been delivered throughout the Enbridge Gas service areas since 1993. The 2023-2027 DSM Plan (EB-2021-0002) is currently under consideration of the OEB to guide broad-based DSM programming over that time frame. As defined by the Ontario Energy Board in their DSM Letter, the objective of broad-based DSM is "assisting customers in making their homes and businesses more efficient in order to help better manage their energy bills".[22] Separately, Enbridge Gas proposes to undertake IRP pilots to review and understand the potential impacts of energy efficiency programs on peak period system demands within a geo-targeted area, and whether the impacts are significant enough to be considered an infrastructure alternative. Potential ETEE measures include those space heating equipment, water heating equipment and building envelope upgrades that could impact peak.	

21 The IRP Alternatives do not include electricity-based alternatives per the OEB's EB-2020-0091 Decision where it stated "The OEB has concluded that as part of this first-generation IRP Framework, it is not appropriate to provide funding to Enbridge Gas for electricity IRP Alternatives." p.4

[22] EB-2019-0003, OEB Letter Post-2020 Natural Gas Demand Side Management Framework (December 1, 2020), p. 2.

IRPA Peak Impacts
Forecast peak impacts will be estimated on a case-by-case basis depending on the ETEE program. Enbridge Gas Inc. (EGI) worked with Posterity Group to build an end-use model of its service territory with the 2019 Achievable Potential Study (APS) being the starting point for the model creation. First, a mirror model of the APS was created and then several adjustments were made to better reflect EGI's knowledge and experience of the Ontario DSM market, EGI's current TRM assumptions and known changes to applicable standards. Then Posterity Group worked with EGI to develop peak factors which were added to the model so that enhanced targeted energy efficiency peak hour impacts estimates could be developed for each region, sector, segment and end use. Posterity Group and EGI plan to continue to evolve this model by refining assumptions and assessment methodologies to refine and improve forecasting of peak hourly flow reduction potential.
IRPA Cost Details
Costs will be determined on a case-by-case basis depending on the ETEE program. The Posterity model described above also included cost assumptions for ETEE programs. Posterity Group and EGI plan to continue to evolve this model by refining assumptions and assessment methodologies so it can be used to assess project specific costs for an ETEE program.
EGI Deployment Strategy
Which energy efficiency measures are chosen and what ETEE deployment strategy is undertaken will be dependent upon the scope of the facility investment project under consideration, customer characteristics in the specific project service area, past DSM participation etc. An IRP ETEE pilot project would provide insights that could guide the deployment strategy of a future IRP ETEE program, including to what degree Automated Metering Infrastructure (AMI) may be required to inform the objectives of the pilot.
Learnings from Pilot Projects/Other Jurisdictions
Enbridge Gas has engaged Guidehouse to undertake a jurisdictional review of ETEE (Enhanced Targeted Energy Efficiency) and DR (demand response) gas pilots implemented for the objective to defer or avoid infrastructure. Findings from the review are anticipated to inform potential pilots for natural gas IRP implementation. Enbridge Gas filed a Geo-Target Demand Side Management Case Study in EB-2020-0091 at Exhibit C, Appendix A. The objectives of the case study were:

1. Assessment of the impacts of geo-targeted DSM programs on reducing peak hour demand.
2. Assessment of the costs of geo-targeted DSM program implementation.

The results from this case study only illustrate the impacts geo-targeted DSM had on the town of Ingleside and although informative and directional, the results cannot be generally applied due to the specific nature of customer composition.

IRPA Name	Demand Response (DR)

IRPA Overview

Natural Gas Demand Response aims to reduce demand by natural gas customers during peak periods. For residential and commercial customers, this is usually in the form of heating demand reduction via thermostat control or water heater temperature settings. For contract customers, this can be done through leveraging Interruptible Rates.

IRPA Peak Impacts

Peak impacts will be determined on a case-by-case basis depending on the DR program.

IRPA Cost Details

DR IRPA costs will be determined on a case-by-case basis depending on the DR program.

EGI Deployment Strategy

The deployment strategy will be determined on a case-by-case basis depending on the DR program. An IRP Demand Response pilot project would provide insights that could guide the deployment strategy of a future Demand Response program, including to what degree Automated Metering Infrastructure (AMI) may be required to inform the objectives of the pilot.

Learnings from Pilot Projects/Other Jurisdictions

Enbridge Gas has engaged Guidehouse to undertake a jurisdictional review of ETEE (Enhanced Targeted Energy Efficiency) and DR (demand response) gas pilots implemented for the objective to defer or avoid infrastructure. Findings from the review are anticipated to inform potential pilots for natural gas IRP implementation.

Appendix D: Technical Working Group Report

Review of Enbridge Gas Inc. 2021 Integrated Resource Planning (IRP) Annual Report and Update on IRP Working Group Activities

From: Integrated Resource Planning
Technical Working Group

June 9, 2022

Contents

1. Introduction

An Integrated Resource Planning (IRP) Framework for Enbridge Gas was established by the OEB through its *July 22, 2021 Decision and Order* (the IRP Decision). The IRP Decision directed the OEB to establish an IRP Technical Working Group (Working Group) and required a report from the Working Group to the OEB (Working Group report) to be filed in the same proceeding in which Enbridge Gas's annual IRP report is filed. The IRP Decision indicated that the Working Group report should include any comments on Enbridge Gas's annual IRP report, including material concerns that remain unresolved within the Working Group, and may also describe other activities undertaken by the Working Group in the previous year.

This report has been prepared by OEB staff with input from all Working Group members, and approved by all Working Group members, as an accurate summary of the Working Group's activities.[1] Where views expressed in the report do not reflect the views of all members, this is clearly indicated.

2. Establishment and Initiation of Working Group

The IRP Decision instructed the OEB to establish a Working Group led by OEB staff, to provide input on IRP issues that will be of value to both Enbridge Gas in implementing IRP, and to the OEB in its oversight of the IRP Framework.

The IRP Decision further required the OEB to establish a terms of reference and select the membership for the Working Group. On October 19, 2021, the OEB issued a *letter* seeking nominations from individuals interested in participating on the Technical Working Group as non-utility members. The OEB selected seven non-utility members from the twenty nominations received, and announced the establishment and initial membership of the Working Group in a *letter* issued December 6, 2021. In addition to non-utility members, the Working Group includes

[1] The IRP Technical Working Group includes observers from the Independent Electricity System Operator and EPCOR Natural Gas LP. As noted in the Working Group's Terms of Reference, any materials authored by the IRP Working Group (including this report) should not be considered to represent the views of Working Group observers, or their organizations.

representatives from the OEB and Enbridge Gas, and observers from the Independent Electricity System Operator and EPCOR Natural Gas LP.

The current membership of the Working Group is shown below.

Table 1: IRP Working Group Membership

Name	Role
Michael Parkes	OEB staff representative (Working Group chair)
Stephanie Cheng	OEB staff representative
Chris Ripley	Enbridge Gas representative
Whitney Wong (replacing Amrit Kuner)	Enbridge Gas representative
Amber Crawford, Association of Municipalities of Ontario	Non-utility member
John Dikeos, ICF Consulting Canada Inc.	Non-utility member
Tamara Kuiken, DNV Inc.	Non-utility member
Cameron Leitch, EnWave Energy Corporation	Non-utility member
Chris Neme, Energy Futures Group	Non-utility member
Dwayne Quinn, DR Quinn & Associates Ltd.	Non-utility member
Jay Shepherd, Shepherd Rubenstein Professional Corporation	Non-utility member
Kenneth Poon, EPCOR Natural Gas LP	Observer
Steven Norrie, Independent Electricity System Operator	Observer

The inaugural meeting of the Working Group was held on January 18, 2022. Meetings have subsequently been held on a monthly basis, with five meetings completed as of the date of this report.

Meeting notes and meeting materials for IRP Working Group meetings are published on the OEB's website following meetings to allow stakeholders to follow the Working Group's

progress.[2] These materials can be found at: *https://www.oeb.ca/consultations-and-projects/policy-initiatives-and-consultations/natural-gas-integrated-resource.*

As required by the IRP Decision, a draft terms of reference for the Working Group was developed by OEB staff. Following review and input from Working Group members at the initial meeting, a final terms of reference was issued by the OEB on February 17, 2022.

[2] Meeting materials are typically posted online shortly after the meeting. Meeting notes are not typically posted until after the following meeting, to allow for members to review draft notes and identify any omissions or inaccuracies.

3. Review of Enbridge Gas's Annual IRP Report and Comments on Implementation of the IRP Framework

The IRP Decision notes that the Working Group is expected to review a draft of Enbridge Gas's annual IRP report, with the review coordinated by OEB staff, and that Enbridge Gas should provide a draft of the annual IRP report to the Working Group far enough in advance of its planned filing to the OEB to allow the Working Group time to review and comment. The IRP Decision also indicates that the Working Group report should include any comments on Enbridge Gas's annual IRP report, including material concerns that remain unresolved within the Working Group.

The Working Group's review took the following steps:

Enbridge Gas

Provided a draft of its 2021 annual IRP report to the Working Group for Review

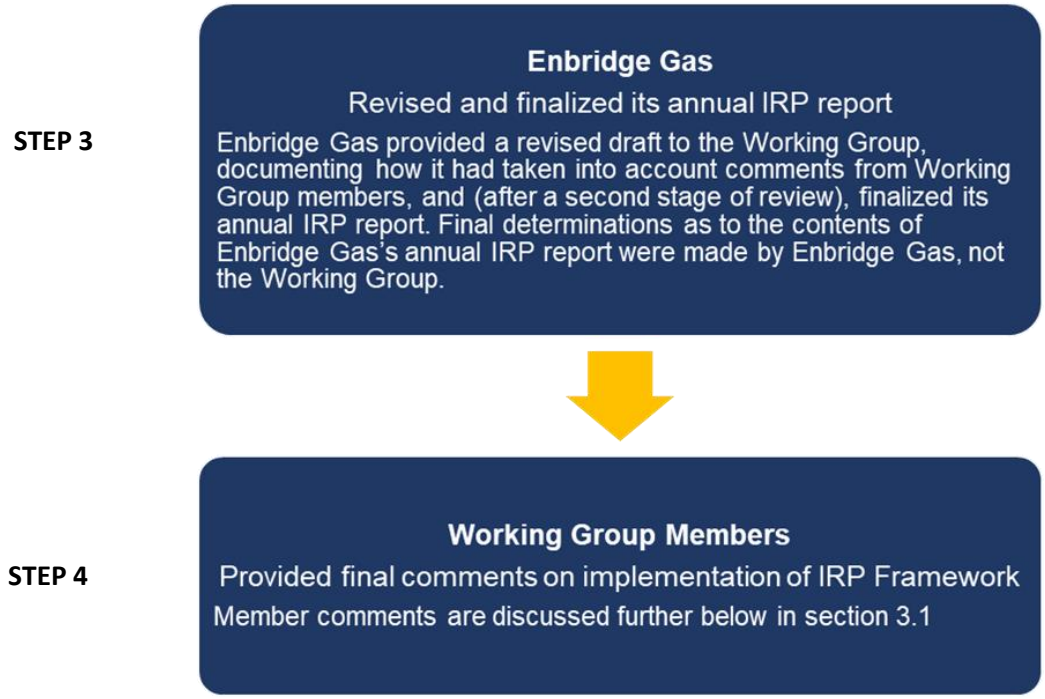
This draft included the appendix "Integrated Resource Planning Demand-Side Alternatives – Best Available Information of IRPAs".

STEP 2

Working Group Members

Provided suggested edits and comments/clarifying questions

Member comments were generally aimed at ensuring that Enbridge Gas's annual IRP report accurately describes what Enbridge Gas has done and is doing regarding IRP, and includes the information required by the IRP decision. Members also suggested opportunities to improve the usefulness of the contents of the annual IRP report.



3.1. Working Group Comments on Implementation of the IRP Framework

All Working Group members (with the exception of observers) were asked the following question:

Question: Having reviewed Enbridge Gas's final annual IRP report's description of Enbridge's IRP activities in the previous year and having also participated on the IRP Working Group, do you have any comments or concerns with the implementation of the IRP Framework to date?

To varying degrees, all non-Enbridge Gas Working Group members expressed some concerns. These concerns relate primarily to: (1) the pace of Enbridge Gas's efforts to implement the IRP Framework since the IRP Decision in July 2021; and (2) the ability of the Working Group to make progress on its identified priorities (discussed in chapter 4 of this report) and meaningfully contribute to Enbridge Gas's IRP implementation, due in part to Enbridge Gas's determinations regarding the topics and level of detail that it has brought forward to the Working Group to date. More specifics are provided in the comments from individual members in Table 2, and the comments of Enbridge Gas Working Group members follow in Table 3.

Several members (including Enbridge Gas representatives) noted that more frequent meetings or focused subgroups may help advance progress on IRP implementation. The Working Group has agreed to add a second monthly meeting, with a subgroup focusing on the discounted cash flow-plus (DCF+) test, beginning in July 2022.

Table 2: Individual Comments of IRP Working Group Members

Working Group Member	Comments (optional)
Amber Crawford (non-utility member)	Since the Decision and Order was published on July 22, 2021, Enbridge Gas and OEB jointly created the nomination for membership of the IRP Technical Working Group. There have been five meetings held in 2022, and the following observations can be made thus far: **Little Progress Made on IRP Pilot Projects:** According to the Decision and Order, "the OEB expects that the [two] IRP pilot projects will be selected and deployed by the end of 2022." (p.24). Meetings to date have discussed pilots at a very high-level, and have not yet seen substantive materials that would help the IRP Technical Working Group provide input on. While this may be in part due to Enbridge's Asset Management Plan being developed this year, the criteria and potential choices should be further along to meet Enbridge's deadline. **Lack of Transparency and Reliance on 2024 Rate Rebasing:** When asked to see data pertaining to pilots, the DCF+ test, binary screening results, best practices in other jurisdictions, or Enbridge's Asset Management Plan, it has often been denied or mentioned it will be part of the 2024 Rate Rebasing in the Fall. Enbridges view that these topics are better addressed through testing of the evidence within the rebasing application. If this group is to provide input and expertise, it is incumbent on Enbridge to provide those details as otherwise, the consultation will not be meaningful. **Minimal Information in Annual IRP Report:** As a function of the slow progress in 2021, the Annual IRP Report fails to include details on key sections that would have been helpful and set up the 2022 year better (e.g. Sections 2, 6, 9). The Working Group's review has been quite limited and question whether input to date has had a meaningful impact on Enbridge's annual IRP report.

John Dikeos (non-utility member)	I agree with many of the comments from other Working Group members that Enbridge's progress on identifying and screening potential IRPA pilots and updating its DCF+ cost-effectiveness approach has been relatively slow. There was very limited progress on these items in advance of the first Working Group meeting in January 2022 and progress since has been slow as well. To date, this has limited the Working Group's ability to provide more meaningful contributions to the future of IRPA planning in Ontario. I noted the following additional items based on my review of Enbridge's final 2021 IRP Annual Report: **Evolution of binary screening criteria:** Enbridge has included high-level details regarding its binary screening criteria for IRPAs. Although the criteria appear to be reasonable at this stage given the current knowledge and experience with IRPAs, Enbridge should be encouraged to revisit and evolve the criteria on an ongoing basis. For example, the Timing criteria should likely be condensed as Enbridge gains additional knowledge and experience with demand-side IRPAs. **Interruptible rates:** Enbridge notes that it is completing a study on interruptible rates, which will be filed as part of its rebasing application in fall 2022. As part of this study, Enbridge should investigate alternative and/or enhanced approaches to interruptible rates, such as the pilot projects that are being run by some utilities in New York (e.g., ConEd).
Tamara Kuiken (non-utility member)	I agree with many of the comments made by other reviewers, including those related to the lack of progress made on IRP pilots, the lack of progress made on improving the DCF+ test, communication about IRP elements delayed until the rebasing application, all initial IRPAs failing the binary test, and the perfunctory IRP Report. In my opinion, Enbridge shows little urgency toward advancing the IRP process, despite their commitment to deploy pilots before the end of 2022. The initial stated reason was a desire to engage with the TWG prior to making commitments; however, the lack of progress since the TWG was initiated suggests that other barriers exist.
Cameron Leitch (non-utility member)	From the definitions within the IRP Framework, this process is meant to address system needs by considering alternatives to conventional facility projects. At the core of this process is clarity on the determination of system needs, and without

	insight into this determination (outside of the future AMP submission), it is difficult for the Working Group to provide meaningful feedback. Comments by other members of the Working Group are insightful, and my repetition of them will not provide added value to the reader.
Chris Neme (non-utility member)	While there have been some good initial discussions, and the tone of those discussions has been appropriately congenial and open-minded, I have several concerns about the effectiveness of the working group (WG) thus far. The most important are as follows: 1. **Input on key IRP issues related to the Company's next Asset Management Plan (AMP) and rate-basing application has essentially been taken off the table**. Among those key issues are (A) the Company's approach to load forecasting in light of Canada's energy transition commitment, fast-increasing carbon taxes and the potential for the Company to partially control demand growth through limitations on new connections; (B) how binary screening criteria are to be assessed/applied, including the how the timing of needs is to be determined (given the binary screening criterion that says alternatives to traditional infrastructure investments should not be considered if the system need is within three years); and (C) how risks of stranded assets are to be addressed (e.g. if load grows in the near term but then declines as electrification takes hold). Had the Company been willing to engage on these issues prior to its filing in the Fall, some progress eliminating issues – or at least surfacing key issues and ensuring that the filing provided data/info likely to be important – could have been made, saving the Board time and making the filing a better product. These kind of collaborative working groups – speaking here to a groups addressing a range of topics, not just IRP – routinely provide such construction feedback in other jurisdictions. 2. **Little progress on pilots – and therefore likely failure to begin deploy IRPAs as part of pilots before the end of 2022**. This is particularly concerning given that it is essentially one of just two issues that the WG has effectively prioritized for 2022. While I appreciate that the Company may not have wanted to get too far in planning for the pilots until the

	WG had formed, it still could have done a lot of groundwork identifying potential projects/locations for pilots (e.g. maybe developing an initial short list of 10-12) so that we could have jumped right into selection once the WG had talked through priorities. 3. **No progress on the revisions to the DCF+ cost-effectiveness test**. This also has relevance to the Company's upcoming AMP and rate-basing application, so it would have been ideal to have worked through some issues in greater detail in the first half of 2022. 4. **Enbridge's first IRP Report is largely perfunctory, with little useful information**. This seems a function of two related things: (A) no IRPAs have been identified yet for deployment; and (B) the Company has decided that all planning related to IRPA consideration will be addressed in its AMP and rate-basing application. As stated above, the Company's decision to not bring its draft approach to applying the IRP framework to its AMP is an unfortunate missed opportunity. Hopefully next year's IRP report will be more substantive. Note that greater progress on the items above may have been hindered by having just one meeting a month among a dozen or more people. That might suggest the need for some sub-groups focused on particular topics (e.g. cost-effectiveness test) and perhaps with fewer people involved to meet more often. Those subgroups could then report back draft recommendations for the full WG to consider. This model is being used very effectively, for example, by the Illinois Stakeholder Advisory Group (SAG) for energy efficiency. They have full working group meetings quarterly (used to be monthly) but have numerous subcommittees (also with regular meetings) and working groups (more episodically meeting to address specific topics that have more time-sensitive needs). See www.ilsag.info.
Dwayne Quinn (non-utility member)	As the last non-utility member to comment, instead of "piling on" regarding the lack of opportunity for the IRP WG to understand the lack of progress by the utility or even the behind the scene processes, we will simply support contributions of each of the other non-utility members. I am concerned that the Enbridge comments seem to dismiss consensus comments by the group. I believe the reality lies in the fact that Enbridge has not advanced even one single

	concrete example of a potential pilot, which could have been used to allow input from the WG on process matters. The cumulative years of experience and aggregated intellectual capital of the committee is being wasted as we await something substantive to review and to initiate collaboration.
Jay Shepherd (non-utility member)	***Very Little Has Been Done To Date.*** This Report demonstrates that little was done from July 22 to December 31, 2021 to advance IRP in Ontario. The Report discloses that the following steps were taken in that 5+ month period: 1. A bare bones website was created (perhaps a day's work), in which the primary functionality is the ability of customers to indicate their interest in regional constraints and the related IRPAs. However, there are no regional constraints or IRPAs identified, and will not be until the end of 2022 at the earliest. Enbridge promises future enhancements to the website late in 2022 or early in 2023. 2. A committee of the stakeholder engagement folks at Enbridge has been created, but they will have nothing to do until late 2022, when constraints and potential IRPAs have been identified. Nothing else appears to have been done. No preliminary work was done on the pilots, or the DCF+ test, or best practices in other jurisdictions, etc. Or, if there was, none of it was brought to the attention of the IRP Working Group. ***Asset Management Plan – Refusal to Disclose.*** In parallel, Enbridge has moved forward with its 2024-2028 Asset Management Plan, but does not appear to have incorporated IRP into that process. Further, when asked to provide information to the IRP Working Group on the process of the AMP, and how it was influenced by IRP, Enbridge refused to do so. Members of the working group sought a draft of the AMP, which should be substantially finalized at this point, but that disclosure was refused. ***Load and Demand Forecast – Refusal to Disclose.*** Related to this, Enbridge has, in 2021 and 2022, been preparing its ten year load forecast for the AMP to be filed in the rebasing application, but has declined to share any information on that forecast with the IRP working group. It does not appear that Enbridge has taken any action so far to

	influence that forecast downward through, for example, longer term planning for, or forecasting of, IRPAs. ***Posterity Group Model – Refusal to Disclose.*** Another refusal from Enbridge was the request from the IRP working group to see the Posterity Group model that Enbridge plans to use to assess IRPAs. Enbridge will not provide that model unless compelled to do so by the OEB. ***Interruptible Rates Study – No Consultation with IRPWG.*** At the same time, Enbridge has proceeded (in 2022, not 2021) with an interruptible rates study as it relates to IRP, but has not brought any information on that study to the IRP working group, and apparently does not intend to do so. ***100% Fail Rate in Binary Screening.*** To date, Enbridge has used binary screening on seven projects, and all have failed, in most cases because of Enbridge's determination that the need must be met in under three years. One of these was the St. Laurent Phase 3 and 4 project, which the OEB determined in the EB-2020-0293 LTC application would not proceed at this time. It is not known yet whether the others that failed the screening can stand up to a similar independent review. No information on that binary screening has been provided to the IRP working group. ***Pilot Projects – Non-Compliance with OEB Direction.*** Enbridge also discloses in the attached Report that they will not comply with the OEB direction to "select and deploy" two IRP pilot projects by the end of 2022. They have unilaterally determined, without input from the IRP working group, that they will complete the "select" stage by the end of the year, but will not have the pilot projects "deployed" until the winter of 2023, rather than the winter of 2022. Against this contextual background, Enbridge has been adding to rate base at an average rate of $100 million of capital additions per month since the IRP Decision, and is continuing to do so. The inescapable conclusion from this Report, and from the actions of Enbridge to date, is that their strategy is a "slow walk" of IRP, consistent with their past resistance to the concept.

Mike Parkes/Stephanie Cheng (OEB staff representatives)	In OEB staff's view, Enbridge Gas is taking the initial steps (as documented in Enbridge's annual IRP report) to implement the IRP Framework in accordance with the OEB's direction. This includes participating in good faith on the IRP Working Group. Implementation of the IRP Framework is still at a preliminary stage. At this time, OEB staff provides additional comments on three topics: • **Slow start on IRP Pilots (section 3 of Enbridge Gas annual IRP report)**: The IRP Framework indicated that Enbridge Gas should develop and implement two IRP pilot projects, with the expectation that the pilot projects would be selected and deployed by the end of 2022. Based on the description in the annual IRP report and the information that has been shared with the Working Group, the amount of preparatory work done by Enbridge Gas in the months following the IRP decision in July 2020 to lay the groundwork for these pilots (in advance of seeking input from the IRP Working Group) was very limited. While OEB staff recognizes that this was in part because Enbridge Gas did not want to overly constrain pilot design prior to receiving input from the Working Group, the result is that it is unlikely that pilots will be deployed (if "deployed" is interpreted to include having received an OEB approval) by the end of 2022, which was the expectation of the IRP Decision. The consequence is that there will be a related delay in transferring learnings from the pilots into Enbridge Gas's system planning decisions. It will be important for Enbridge Gas to make use of learnings from the pilots while they are still in-flight, to inform Enbridge Gas's consideration of IRP alternatives in system planning. • **Insufficient information base to compare IRP Alternatives Versus Facility Projects (sections 2,7, appendix B of Enbridge Gas annual IRP report)**: Under the IRP Framework, Enbridge will use a four-step IRP Assessment Process to determine the best approach to meeting system needs. Where such system needs pass an initial binary screening, Enbridge Gas is required to assess the technical and economic feasibility of IRP Alternatives in comparison with traditional facility solutions.

	The level of detail in appendix B (*Integrated Resource Planning Demand-Side Alternatives – Best Available Information*) of Enbridge's initial annual IRP report regarding IRP Alternatives, including their cost and peak demand reduction potential, is generally insufficient to assist Enbridge Gas in completing this step of IRP assessment, and will need to be improved in future annual IRP reports. Information on IRP Alternatives will be informed and improved by the results of Enbridge Gas pilots. However, Enbridge Gas will need to conduct IRP assessments prior to completion of the pilots (e.g. for potential system needs identified in Enbridge's rebasing application). In OEB staff's view, Enbridge will need to supplement the information obtained from IRP pilots with other sources of information on the expected cost and peak demand reduction potential of IRP Alternatives (including results from other jurisdictions), to assist it in completing IRP Assessments (and to assist the OEB in reviewing Enbridge Gas's determinations). Otherwise, the risk is that no IRP Alternatives will advance past this stage of IRP Assessment for many years. • **Limited information and Working Group review of IRP elements of rebasing application (sections 2, 6, 9 of Enbridge Gas annual IRP report):** The OEB's review of Enbridge Gas's rebasing application (expected to be filed in November 2021) will have significant consequences for implementing the IRP Framework. Issues of particular importance noted briefly in the annual IRP report include: Enbridge Gas's updated asset management plan and its approach (and conclusions) regarding screening system needs for IRP alternatives and reporting on the status of such consideration (section 6), Enbridge Gas's approach to demand forecasting (section 2), and Enbridge Gas's approach to studying the potential for interruptible rates (section 9). In OEB staff's view, Enbridge Gas's approach to demand forecasting in light of the energy transition to lower-carbon energy sources will likely have significant implications for IRP and system planning, both regarding identification of system needs and the role of IRP Alternatives as potential solutions.

	These issues are only mentioned briefly in the annual IRP report, and the Working Group has not to date been provided with substantive details of how these topics will be addressed in Enbridge Gas's rebasing application, and has not commented on them. At this point in time, if any review by the Working Group occurs, it will likely be quite limited. Reasons for this include: these topics were not identified as a priority for the Working Group in the IRP Framework; Enbridge Gas's view that these topics are better addressed through testing of the evidence within the rebasing application; and views of some Working Group members that input at this stage is unlikely to have a meaningful impact on Enbridge Gas's application. The consequence is that these issues will be addressed in the rebasing application without significant prior input from the Working Group.

Table 3: Comments of Enbridge Gas IRP Working Group Members

Working Group Member	Comments (optional)
Chris Ripley/Whitney Wong (Enbridge Gas representatives)	Enbridge Gas has structured its comments to follow the Working Group Participant comments above. For context, Enbridge notes that the Working Group's focus, per the Terms of Reference and the OEB's IRP Decision, are three main issues: the IRP Annual Report, the DCF+ cost/benefit test and the IRP Pilots. Enbridge Gas does not agree with the negative tone of many of the Working Group Participant comments. Enbridge Gas has been working diligently on IRP implementation and engaging responsibly with the Working Group, in a manner consistent with the OEB's directions and expectations from the IRP Framework. As described below, Enbridge Gas expects that the pace of Working Group progress and activities will increase in the coming months. **Minimal Information in Annual IRP Report:** As noted above, the 2021 IRP Annual Report is reporting on 2021 activities and information. While progress has been made on the three main Working Group tasks; Annual Report, DCF+ and pilots the work has been largely completed in 2022 and will appear in the 2022 IRP Annual Report. In addition, in Enbridge's view there is a mismatch between the IRP Annual Report, which relates to 2021, before the Working Group held its first

	meeting, and the comments from the Working Group members on that Report, almost all of which relate to the experience of the Working Group in 2022. Over the next few months, the Working Group will discuss potential pilot projects and review Enbridge Gas' proposals for the DCF+ Test. **Little Progress Made on IRP Pilot Projects:** Enbridge does not agree with the Working Group comments suggesting Enbridge Gas made little effort on the IRP Pilots Projects. The OEB's IRP Decision stated "the OEB expects that the [two] IRP pilot projects will be selected and deployed by the end of 2022." (p.24). Enbridge acknowledges deployment by the end of 2022 is not possible, this is entirely due to the timing of Enbridge's demand forecast and planning processes being completed in Q2 of 2022. The 2023-2032 Asset Management Plan ("AMP"), generated in May 2022, identifies the needs on Enbridge's system. The pilot projects need to be, and will be, based on actual system needs that have been identified in Enbridge Gas' AMP. Enbridge Gas has included an updated IRP pilot schedule in its Annual Report. Enbridge Gas will bring 4-5 actual system needs for each of the two proposed IRP Pilots to the Working Group, including all relevant information to the need. Enbridge Gas will discuss the system needs brought forward with the Working Group, select two IRP Pilot projects and then prepare an application for the OEB's review and approval. In order to complete the IRP Pilot selection process quickly, Enbridge Gas proposed to increase the number of Working Group meetings from once per month to twice per month. **DCF+ Test:** Enbridge Gas engaged Guidehouse Consulting to conduct a review of the DCF+ test approved by the OEB in the IRP Decision. Enbridge Gas expects to receive the Guidehouse Final Report in June 2022 and will use the Guidehouse report in its review of the DCF+ test and in any proposed changes. Enbridge Gas will be communicating the Guidehouse Report and Enbridge Gas' proposed changes in the July IRP Working Group meeting. As discussed at the Working Group, a sub-group will be established to review the Guidehouse Report and Enbridge's associated proposed changes to the DCF+ Test. This review and discussion will happen prior to the cost test being applied to the IRP Pilot projects or an IRPA Plan.

	Lack of Transparency and Reliance on 2024 Rate Rebasing: Enbridge Gas is filing its 2024 Rebasing Application in Fall 2022 which will include a comprehensive review of Enbridge Gas' planning processes, the demand forecast and the Asset Management Plan. Enbridge Gas never understood the Working Group would provide input on the demand forecast process and the asset management requirements. The appropriate time to review Enbridge Gas' planning processes and the Asset Management Plan is in the Rebasing proceeding, not at the IRP Working Group. Enbridge Gas is holding a Rebasing Stakeholder meeting in June 2022 where Enbridge will provide information about the upcoming filing. Enbridge Gas notes there is no direction to review or provide the planning processes, demand forecast or the Asset Management Plan to the Working Group in the OEB's IRP decision or the IRP Working Group Terms of Reference **Posterity Model:** The Working Group have requested Enbridge Gas to provide the model used by Posterity Group to assess energy efficiency opportunities on Enbridge Gas' system. Enbridge Gas does not own the Posterity model and cannot provide it. Enbridge Gas will explain the model, how it is used and the inputs/outputs as it develops the IRP Pilots. **Interruptible Rates:** In its IRP Decision, the OEB ordered Enbridge Gas "to study its interruptible rates to determine how they might be modified to increase customer adoption of this alternative service. This initiative is expected to help reduce peak demand, and the study should be filed as part of the next rate rebasing application". (p.35). Enbridge is completing this direction and it will be filed in the Rebasing Application. Enbridge Gas notes there is no direction to review the Interruptible Rates study with the Working Group in the OEB's IRP decision or the IRP Working Group Terms of Reference.

4. Description of Other Key Activities to Date

The Working Group's Terms of Reference confirmed the following items noted in the IRP Decision as the highest initial priorities for the Working Group (in addition to the review of Enbridge Gas's annual IRP report):

- **Consideration of IRP pilot projects to better understand how IRP can be implemented to avoid, delay or reduce facility projects.**

    - The IRP Framework indicated that Enbridge Gas is expected to develop and implement two IRP pilot projects. The pilots are expected to be an effective approach to understand and evaluate how IRP can be implemented to avoid, delay or reduce facility projects. The IRP Framework indicated that the OEB expects that the IRP pilot projects will be selected and deployed by the end of 2022.

    - Working Group activities: The Working Group has had several discussions to provide input to Enbridge Gas on pilot design, focusing primarily on the pilot objectives, the criteria that will be used to select and prioritize pilots, and the types of IRP Alternatives should be a priority to test in the pilots. Enbridge Gas has proposed four potential pilots built on different types of IRP Alternatives: (1) enhanced targeted energy efficiency in combination with a bridging supply-side solution; (2) a peak shaving supply-side IRP Alternative using either compressed natural gas or liquefied natural gas; (3) a demand response program focused on general service customers' heating loads; and (4) a demand response/interruptible rates initiative focused on Enbridge Gas's larger contract customers. Enbridge Gas is also considering a geographical IRP pilot that may address multiple needs within a specific area and include a suite of IRP alternatives, potentially including demand-side and supply-side IRP alternatives, as well as considering enhanced inspection/integrity management measures. In the coming months, it is expected that Enbridge Gas will propose specific projects that match these potential pilots to real system needs identified in its Asset Management Plan, for Working Group review, prior to Enbridge Gas's final selection of pilots. Additional discussion and refinement of the pilot proposals will take place by the Working Group, prior to Enbridge Gas filing pilot applications to the

OEB for approval.

- **Enhancements or additional guidance in using the Discounted Cash Flow-plus economic evaluation methodology to assess and compare the costs and benefits of using either facility solutions or IRP alternatives to meet system needs.**

    - The IRP Framework established a three-phase discounted cash flow-plus (DCF+) test as the economic evaluation that will be used to compare the costs and benefits of different approaches to meeting system need (IRP alternatives, facility alternatives, or a combination). The OEB concluded that the DCF+ test could be improved to better identify and define the costs and benefits of Facility Alternatives and IRP Alternatives, and clarify how these costs and benefits should be considered within the DCF+ test. This could include expanding the inputs to recognize increasing carbon costs, the risk that a constraint remains unresolved, and impact on gas supply costs. Enbridge Gas was directed to study improvements to the DCF+ test, and encouraged to consult with the Working Group, and use the IRP pilot projects as a testing ground. Enbridge Gas was directed to file an enhanced DCF+ test for approval as part of the first non-pilot IRP Plan.

    - Working Group activities: The Working Group has had several preliminary discussions on this topic. This included an analysis and *presentation* by Working Group member and cost-effectiveness expert Chris Neme, which made several proposals to improve or refine the DCF+ test, while remaining consistent with the OEB's guidance on this topic in the IRP Decision. Enbridge Gas is also planning to propose several refinements to the DCF+ test, but these have not yet been discussed with the Working Group. In the coming months, the Working Group plans further discussion, with the goal of agreeing on a preliminary approach to cost-effectiveness that can be used for the IRP Pilot applications. Additional work will be done as needed to address issues that were not completely resolved at the time of filing the pilot applications, and may include development of a supporting guidance document regarding use of the DCF+ test.

The Working Group has also discussed whether to give any consideration to the IRP-related aspects of Enbridge Gas's rebasing application, which would likely be contingent on the degree

of information that Enbridge Gas will provide regarding its application. Enbridge Gas has recently indicated that it will bring forward information on one IRP issue that will be part of rebasing - Enbridge Gas's approach to interpreting the IRP Framework's criteria for screening system needs - for discussion at an upcoming Working Group meeting, and is considering whether other IRP-related aspects of the rebasing application, including the draft Asset Management Plan, can be discussed with the Working Group.

Other potential areas of work for the Working Group in the future may include addressing:

- Learnings from natural gas IRP in other jurisdictions
- Performance metrics for IRP
- Accounting treatment of IRP costs
- Treatment of stranded assets in system planning
- Other activities relevant to the IRP Framework, as identified by the Working Group or as directed by the OEB

The Working Group has not to date discussed these topics in any depth (with the exception of some consideration of IRP in other jurisdictions with regards to pilot proposals).

A draft Work Plan is maintained for the Working Group and updated on a regular basis, outlining workstreams and expected timing of key deliverables.