Annual Acquisition Report

July 2021

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Executive Summary

After more than a decade of strong supply, Ontario is now entering a period of emerging electricity system needs – most immediately and significantly in the system's ability to meet peak capacity needs and additionally in the system's ability to meet energy needs towards the end of the decade. These needs are driven by increasing demand, the retirement of the Pickering Nuclear Generating Station, the refurbishment of other nuclear generating units, as well as expiring contracts for existing facilities.

As Ontario's electricity system evolves to become more diverse and dynamic, the procurement process must evolve along with it. Currently, most of Ontario's grid-level supply is secured through rate regulation or a procurement process that was tailored to specific fuel types, with 20-year contracts. A move to shorter-term contracts procured through a robust competitive process would more effectively balance ratepayer and supplier risk in this changing environment.

The 2020 Annual Planning Outlook (APO) articulated system needs as well as uncertainties inherent in all planning processes. The APO also acknowledged further complexity and uncertainty as a result of the outbreak of COVID-19. As a result, the IESO is looking to secure supply for the needs it is most certain of, providing opportunities for the increasing number of supply options that are coming off-contract as well as new entrants arriving in the market, while transitioning to a more competitive procurement process.

Over the past year, the IESO has been working with stakeholders to develop a flexible and competitive approach to secure the electricity services needed to ensure resource adequacy in the system. The resulting Resource Adequacy Framework comprises a suite of mechanisms to procure a portfolio of reliable, competitive and cost-effective supply. Recognizing the transition required to shift Ontario's electricity sector to this new model, the IESO is planning to execute this framework in a phased manner.

This report, along with other activities such as transmission planning, helps form the evolving picture of what is required to meet Ontario's future reliability needs. It translates planning and operational information, such as the forecasts outlined in the APO and bulk and regional plans, into a series of procurement and market activities.

The Resource Adequacy Framework sets out a multi-pronged approach to cumulatively address needs over the three planning horizons: operations planning, near-term planning and long-term planning; as well as addressing circumstances where a competitive procurement is not feasible at a certain point in time or would not produce the best outcome.

The actions described in this report include:

- For the Capacity Auction conducted in December 2021 - setting a capacity target of 1000 MW for the 2022 summer obligation period and 500 MW for the 2022-23 winter obligation period.
- Establishing a minimum target threshold of 500 MW for future capacity auctions and, beginning with the 2022 Capacity Auction, using resources qualified on an Unforced Capacity (UCAP) basis.

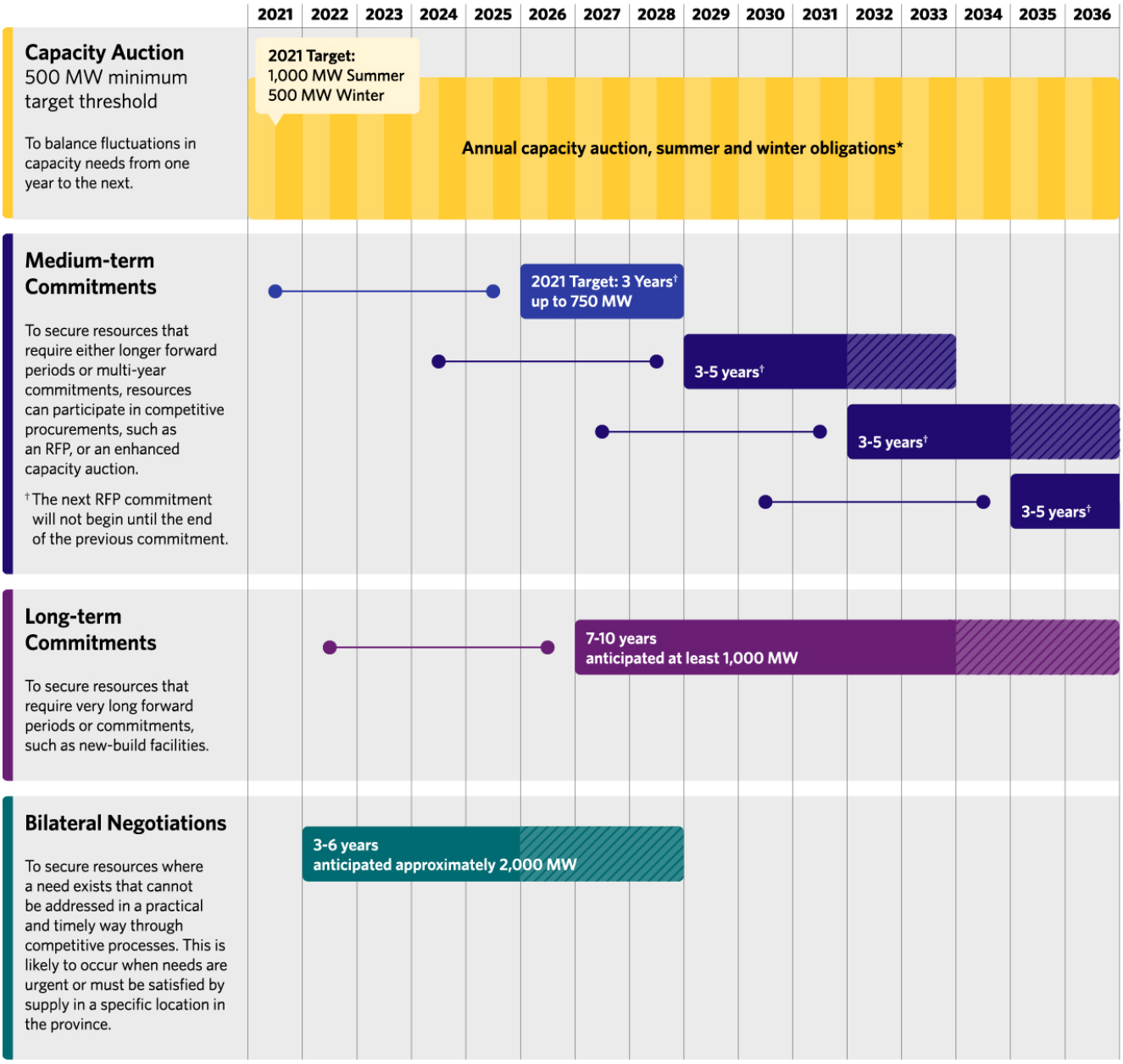
- Seeking to initiate an RFP for up to 750 MW in late 2021, using resources qualified on a UCAP basis, with a three-year commitment period beginning in 2026, to address both capacity adequacy and energy adequacy needs.
- Signaling the intent to launch an RFP for at least 1000 MW in fall 2022 for a commitment period of at least seven years to address multiple reliability needs.
- Incorporating potential government policy decisions that could impact the supply of energy and capacity.
- Pursuing specific bilateral arrangements as a transitionary approach where reliability needs, particularly in specific regions of the province, cannot be addressed in a timely manner through competitive processes.

The report also provides insight into the areas where needs are still uncertain, and where more detailed work is required before financial commitments are made. This reflects the core objective of the Resource Adequacy Framework – delivering stakeholder value by ensuring that the resources secured closely align with system needs.

It is also important to recognize that it will take time to build the mechanisms described in the Resource Adequacy Framework and for participants to adapt to changes in the procurement process and the ensuing contracts. The immediate next steps described in this report are designed to address needs that emerge mid-decade – with the understanding that it is neither necessary nor prudent to resolve every identified need immediately. With each annual iteration of both the APO and Annual Acquisition Report (AAR), there will be greater certainty on the magnitude of reliability needs on a go forward basis and the suite of resources, both conventional and emerging, available to competitively and reliably address future needs. As such, the development of this report has been informed by stakeholder input and is the first of what will become an annual process to put forward actions to address system needs.

Along with the yearly publication of the APO, this report is intended to provide the marketplace with annual sources of information so as to understand Ontario's forecasted needs, along with the proposed acquisition activities to satisfy those needs. With this information, existing and potential proponents will be better positioned to make decisions about assets and services they can bring to the market to address Ontario's reliability needs.

Resource Adequacy Framework



Commitment Period: When resource delivers services procured. The commitment periods are typically May – April.

Forward Period: the time from when resources are procured (i.e., through Capacity Auctions, Request for Proposals (RFPs), etc.) to when they must be available to meet power system needs (i.e., to the start of the respective commitment period).

*Capacity auction obligation period: summer is from May to October and winter is from November to April.

Procurement and Forward Period

Difference between minimum and maximum commitment length

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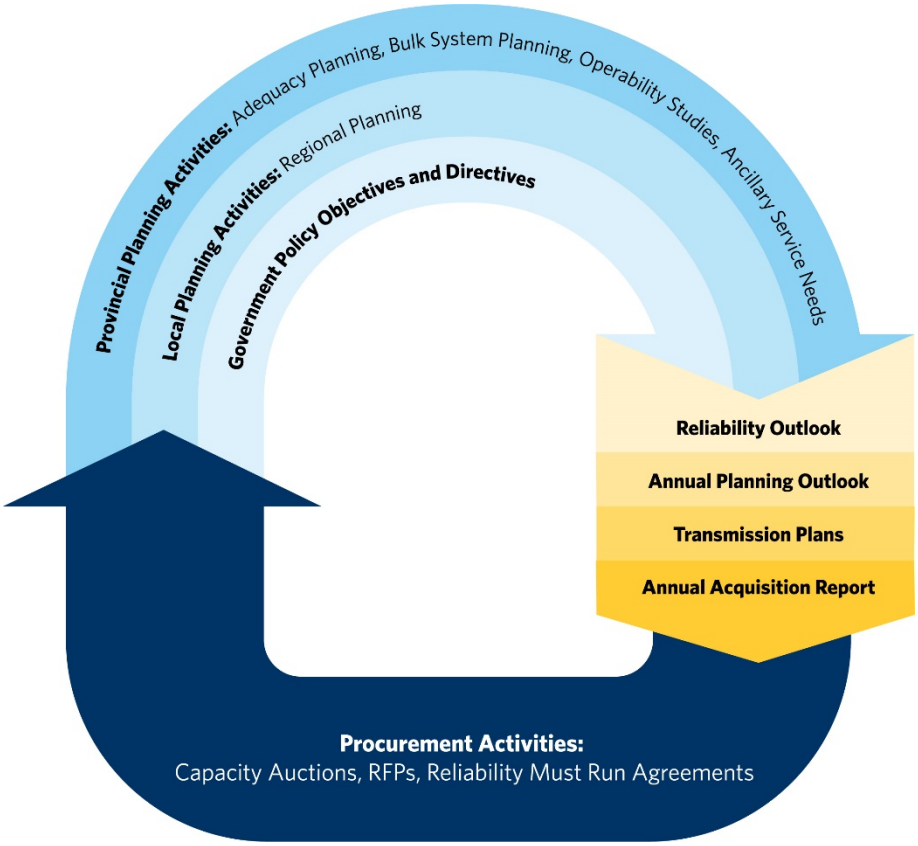
Understanding Ontario's Reliability Needs

The reliable operation of Ontario's electricity system requires the coordination of many participants providing a variety of services. To ensure that the right amount of electricity is available when and where it is needed, the IESO procures various electricity services, administers real-time electricity markets, forecasts and plans for future system needs, and recommends the development of transmission infrastructure.

Figure 1 | Activities Conducted to Ensure Reliability



Overview of Reliability Services

Ensuring a reliable power system consists of many factors, including having: adequate resources to meet demand during peak hours; transmission to move supply to load centres; sufficient resources and fuel to supply electricity all hours of the day to meet demand; and a suite of other capabilities, known as ancillary services, necessary to ensure and maintain the reliable operation of the IESO-controlled grid.

Primary among these requirements is resource adequacy, by having sufficient resources available to meet electricity demand. As a result, the APO and this first iteration of the AAR focus heavily on securing resources to meet emerging resource adequacy needs.

Planning a Reliable System: Capacity Adequacy, Energy Adequacy and Transmission Security

Capacity refers to a resource's maximum ability to provide energy or reduce load when required. To plan a reliable electricity system, the IESO must ensure that adequate capacity is available to supply the peak demand, taking into account scheduled and reasonably expected unscheduled outages of system components with sufficient margins in reserve.

In most jurisdictions, the forecasted revenues from energy markets alone are regarded as insufficient to ensure that adequate capacity is built and maintained. Consequently, most resources in Ontario, as in other jurisdictions, are also compensated for their capacity contributions.

Incremental capacity, beyond that met through contracted or rate-regulated assets, is currently secured in Ontario through an annual capacity auction. The auction allows various resource types to compete, including existing dispatchable generators, demand response provided by consumers, imports and energy storage.

Energy, from a reliability planning perspective, refers to a resource's ability to provide electricity over a specific period of time. The IESO works to ensure that resources are available to meet demand across all hours of the year, despite uncertainties related to fuel availability including the variable nature of wind and solar resources.

Transmission Infrastructure brings power from sources of supply to where it is needed in the province. The IESO is responsible for ensuring sufficient transmission infrastructure is planned to address forecasted electricity growth. Based on the bulk and regional planning process, the IESO makes transmission recommendations to be implemented by transmitters, which are responsible for seeking approvals, such as leave to construct, from the Ontario Energy Board.

Transmission Security refers to the system's ability to withstand sudden disturbances such as electric short circuits or loss of system components. In the planning time frame, transmission security assessments highlight where capacity may need to be sited within specific geographic areas to meet transmission planning standards, or where transmission infrastructure ought to be upgraded.

Adherence to Reliability Criteria

The actions proposed in this Annual Acquisition Report are based upon and subject to various provincial and North American standards and are intended to ensure Ontario's ongoing compliance with the applicable standards and criteria.

The recognized standards authorities, the North American Electric Reliability Corporation (NERC) and the Northeast Power Coordinating Council (NPCC), define the minimum reliability requirements for planning and operating within the interconnected North American bulk electric system. The IESO's Ontario Resource and Transmission Assessment Criteria lists the technical criteria used to assess the adequacy and security of the IESO-controlled grid and clarifies how the IESO applies relevant NPCC and NERC standards in Ontario.

Understanding Ontario's Resource Adequacy Needs

Each year, the APO provides the IESO's perspective on Ontario's longer-term supply needs, signaling whether new resources may be required to address emerging gaps. To better inform the marketplace of potential procurement activity, the 2020 APO outlined and assessed system needs without assuming any reacquisition of resources with expiring contracts. As a result, the 2020 APO needs appear somewhat greater than would have been forecast in previous reports.

The APO is a point-in-time assessment, so the 2020 APO does not reflect variables and activities that have subsequently changed some of the province's nearer-term needs. Updated information demonstrating the impact of active outage management in the next 18 months is available in the Reliability Outlook. In April 2021, the IESO concluded its Reliability Standards Review Engagement which determined that moving forward, forecasted needs would incorporate a non-firm import assumption, to reduce overall requirements and deliver ratepayer value. As a result, the year-round capacity needs have been reduced by 250 MW compared to those shown in the 2020 APO.

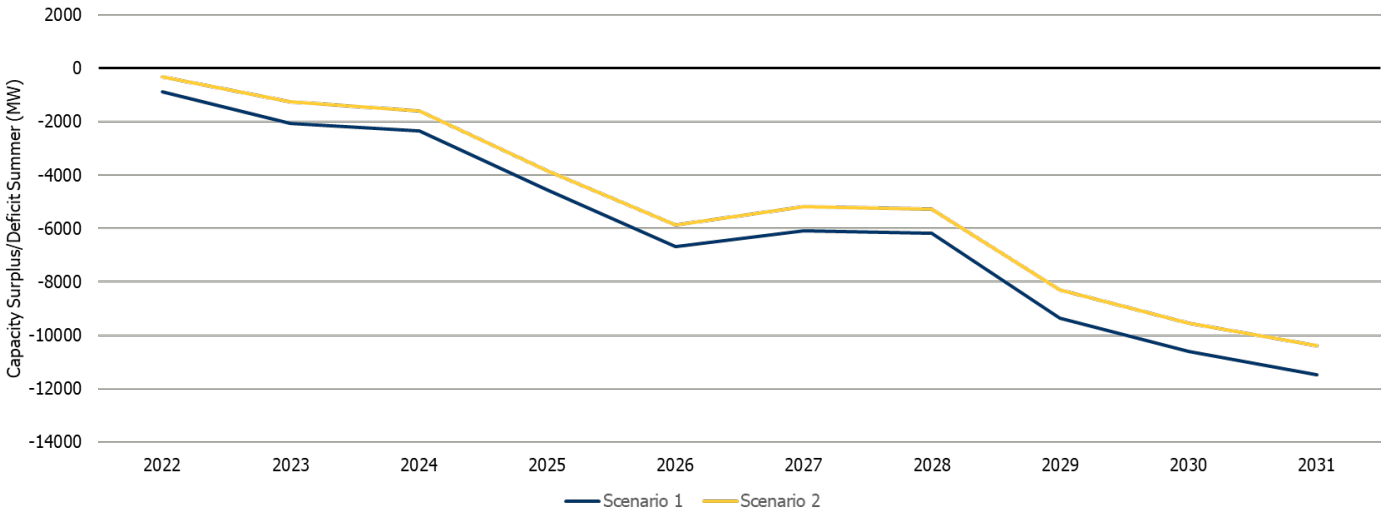
For new resources in particular, a key consideration is to start procurement processes sufficiently in advance, in order to allow project proponents enough time to develop their respective solutions. Future versions of the APO are expected to provide more information to better understand the uncertainties related to system needs, while future versions of the AAR are expected to provide more information about how those uncertainties have been factored into any subsequent market and procurement activities. Combined, this could influence the volume and timing of these longer-term needs as they come into clearer view.

Defining the Need

This report primarily follows the 2020 APO faster recovery scenario (Scenario 1), which assumes demand recovering to pre-pandemic levels by 2022 and then growing steadily, but at a faster rate than in previous forecasts. In this scenario, consumption in the commercial sector will decline over the near-term, while demand growth will be fuelled by increasing energy use in the residential, industrial and agricultural sectors. A slow but steady economic recovery accompanied by deglobalization will increase local industrial capability and production. 2020 APO Scenario 2, also shown below, assumes demand recovering to pre-pandemic levels at a slower pace.

As a result of these and other factors, in both scenarios, capacity needs start to emerge in 2022 and continue to grow through to 2026, as demand increases and available capacity decreases. Initially, capacity will be needed to meet summer peak needs and to ensure reliable service during extreme weather events or unexpected generation outages. Needs during winter peaks will depend on how demand continues to grow going forward. As shown in the diagram below, a step change occurs in 2029, where the capacity deficit increases mostly as a result of expiring contracts. Options to address needs at that time may include re-securing facilities that have not reached their end of life or securing new facilities.

Figure 2 | Summer Capacity Surplus/Deficit, without Continued Availability of Existing Resources (MW) – adapted from the 2020 APO



The APO also describes the capacity needs if existing resources remain available following the end of their contracts. While the capacity deficit decreases, the need stays relatively constant from 2027 to 2031. In both scenarios, there is a need for solutions beyond re-securing existing resources. Potential solutions include the continuation and growth of the capacity auction, additional imports, new supply resources in Ontario, and energy efficiency programs.

The APO also shows minimal unserved energy until 2026, demonstrating that in the first half of the decade the primary reliability need will be for additional capacity. Because Ontario's existing resource fleet includes resources that are not limited by fuel and can provide both capacity and energy, the potentially unserved energy is low should these resources remain available. However, some resources may operate and produce more energy per annum to satisfy energy adequacy needs. Without the availability of these resources, starting in 2026, there will be a need for resources to reduce potential unserved energy. Put more simply, resources to be acquired from 2026 onwards may have to operate for longer durations of time or more frequently in order to meet increasing energy needs.

Figure 3 | Summer Capacity Surplus/Deficit, with Continued Availability of Existing Resources (MW) – adapted from the 2020 APO

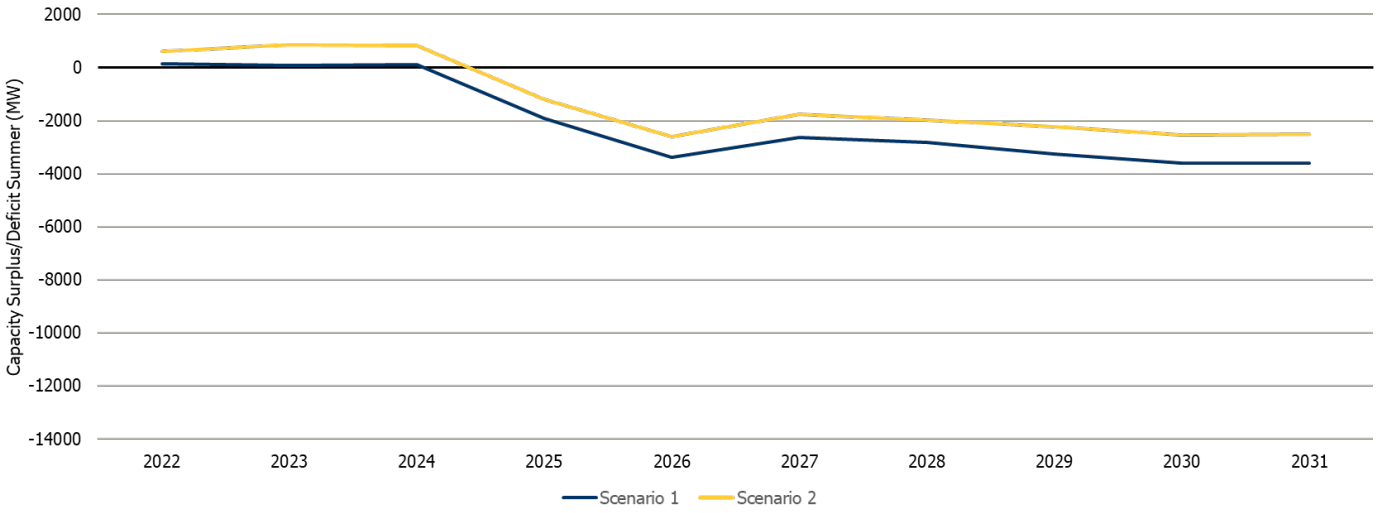


Figure 4 | Potentially Unserved Energy (TWh) – adapted from the 2020 APO

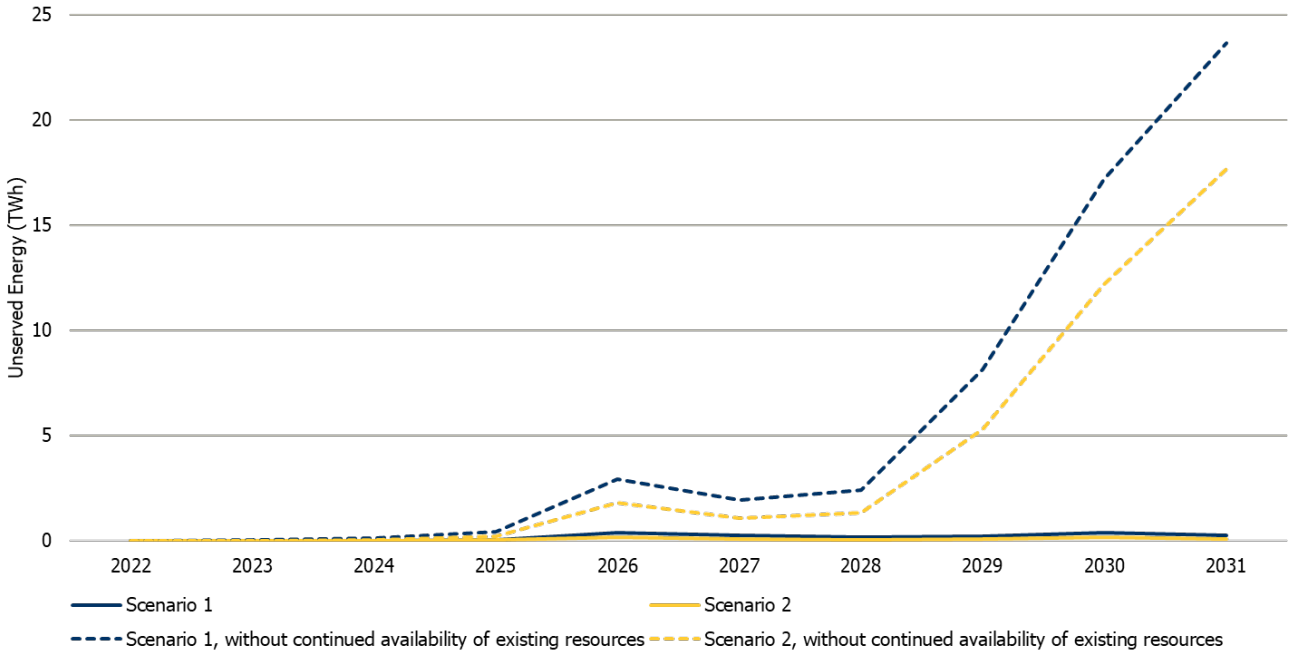
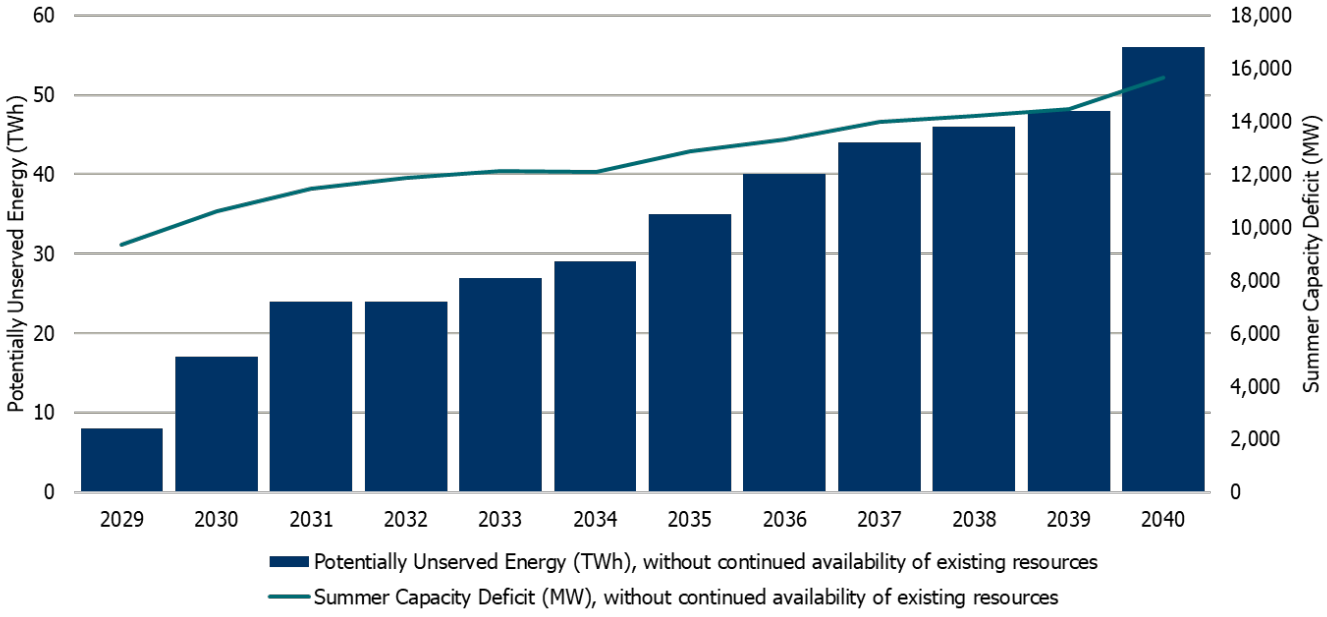


Figure 5 | Energy Needs Emerge in the Long Term, adapted from the 2020 APO



Translating Needs into Procurement Targets

Since the release of the 2020 APO, some of Ontario's supply needs have been further refined. In April, the IESO concluded its Reliability Standards Review Engagement which determined that moving forward, forecasted needs would incorporate a non-firm import assumption, to reduce overall requirements and deliver ratepayer value. As a result, the year-round capacity needs have been reduced by 250 MW compared to those shown in the 2020 APO.

There are, however, many variables on both the supply and demand side that could result in a range of outcomes. This is where the Resource Adequacy Framework will be critical in managing the risk of either over- or under-committing resources, by relying on flexible mechanisms such as the capacity auction, that secure capacity to satisfy needs in the operational planning horizon and the early part of the near-term planning horizon on an annual basis.

Demand Side Uncertainties

While energy consumption is forecasted to increase one per cent each year until 2040, there are many factors that could affect this projection. The pace of economic recovery, demographic changes, changes in government policy, future energy management initiatives and increasing electrification could significantly change provincial demand profiles.

Post-COVID-19 Economic Recovery

The emergence from the pandemic has impacted energy use in a number of ways. Analysis of aggregated smart meter data has shown that elevated residential load is expected to continue long after restrictions have been lifted, with many workers continuing to work, to some degree, from their homes.

Large industry is already rebounding and is expected to experience steady growth. Not surprisingly, the commercial sector presents the greatest amount of uncertainty. While this report contemplates a faster economic recovery from the effects of the pandemic, there remains the potential for a lag in energy needs should the recovery slow.

Energy Management

Existing energy management programs, such as the Industrial Conservation Initiative (ICI) and Save on Energy incentives, lower capacity needs. The IESO's most recent forecasts assume that the ICI program can provide 1300 MW of demand reduction, of which 70 per cent can be relied upon for reliability assessments. The IESO will be monitoring the return of the ICI in summer 2021 to determine whether participation returns to pre-pandemic levels.

Similarly, the IESO is assuming 2.8 TWh and 450 MW of energy and demand savings from the current 2021-2024 Conservation and Demand Management (CDM) Framework. This rate of savings is expected to continue beyond the end of the current framework with additional energy efficiency programs in place. The mid-term review of the CDM Framework will provide an opportunity to evaluate changes to CDM savings amounts and consider the need for changes to the programs and targets to align with updated system needs.

Customer Demand

The highest level of uncertainty rests with customer demand and how government policy or economic growth will drive electricity use. Rapid electrification of transportation, such as GO Transit, could have a significant impact on the system. The total impact of electrification across the province, as well as future carbon policies, will be examined in future APO forecasts.

Supply Side Uncertainties

Influences on the supply side could also impact overall capacity and energy needs.

Potential Government Policy Decisions

The IESO's Resource Adequacy Framework and AAR will continue to be informed by government policy. The Minister of Energy has asked the IESO to pursue discussions on the following efforts, which could impact the supply of energy and capacity:

- Oneida Battery Park: a 250 MW/1000 MWh battery storage project proposed through a partnership between NRStor and the Six Nations of the Grand River Development Corporation. The IESO has been asked to explore potential contract terms with the proponents and report back to the Ministry of Energy to inform future decision making as part of its unsolicited project assessment framework.
- Lake Erie Connector: a proposed 1000 MW high voltage bi-directional underwater transmission line that would provide the first direct link between Ontario and the PJM Interconnection. The IESO has been asked to report to the Ministry on potential contract terms with the proponent and a proposed cost-recovery approach, to inform future decision making as part of the unsolicited project assessment framework. If completed, the Lake Erie Connector could facilitate greater competition in the energy markets and capacity acquisition mechanisms.
- Calstock GS: a 35 MW biomass generating facility owned by Atlantic Power that is under contract with the Ontario Electricity Financial Corporation (OEFC) until December 31, 2021. The IESO has been asked to explore a potential five-year contract extension, to support the government's objective of a long-term transition plan for waste biomass. The existing agreement between Atlantic Power and the OEFC was previously extended to address the economic impact on the community of shutting down the facility.

As described above, these initiatives are in various stages of assessment by the government and the IESO. While at this time no contracts have been executed for any of the above projects, it is important to identify the potential contribution from these facilities as targets are established to maintain reliability (see Figures 11 and 12). This awareness also helps avoid over-procurement and any associated ratepayer impacts.

For the next AAR, the IESO will revisit the status of these potential initiatives, demonstrating the value of a flexible Resource Adequacy Framework that can make adjustments year-to-year as conditions change and uncertainties firm up.

The Resource Adequacy Framework

At its core, the Resource Adequacy Framework is a fundamental commitment to pursue competitive solutions wherever practicable, ensuring that system needs and the solutions to meet those needs are closely aligned.

The framework uses a multi-pronged approach to secure resources with varying commitment lengths. It allows the IESO to use multiple approaches to address system needs and initiate each mechanism when there is an appropriate level of clarity about system requirements. As a result, these mechanisms will often run in parallel.

A key element of the framework is to ensure flexibility as the Ontario electricity sector changes. This includes being able to adapt to and accommodate government policy and programs as they arise.

Short-Term Commitments

The existing capacity auction is well positioned to provide for needs in the operational planning timeframe (e.g. annual or seasonal needs). Within the Resource Adequacy Framework, the capacity auction is a tool to balance fluctuations in capacity needs from one year to the next.

The annual auction establishes seasonal obligations with relatively short forward periods, allowing for adjustments as forecasts evolve from one year to the next. As a result, eligibility to participate in any given auction will be largely determined by a resource's availability and its ability to become operational and provide a specific capacity product by the end of the capacity auction forward period. This would include demand response, uncontracted generators and storage.

The IESO's first capacity auction was held in December 2020, procuring approximately 992 MW from a diverse range of supply options. This auction was developed by expanding the Demand Response Auction, which acquired capacity from demand response resources over 5 auctions from 2015-19. Over the next couple of years, the IESO will work to design and implement enhancements to the auction with the objectives of growing the auction and improving the performance of participating resources.

Medium-Term Commitments

For resources that require either longer forward periods or multi-year commitments (three to five years), the Resource Adequacy Framework provides the option for proponents to participate in a competitive procurement such as an RFP, or an enhanced capacity auction. Should certain enhancements be introduced to the capacity auction over time, it could replace the role of a medium-term competitive procurement.

For medium-term commitments, the intent is that procurements will run on a cyclical basis, providing opportunities for existing resources, and allow additional opportunities for upgrades, uprates and new resources that can be deployed in the near-term planning horizon. For successful proponents, these medium-term commitments could line up as a sequence of procurements whose combined duration could be similar to a long-term commitment.

Long-Term Commitments

While there is still uncertainty today around the scope of system needs on the long-term planning horizon, the IESO anticipates that the development of new facilities will be required for later this decade and into the next. To support such investments, it is anticipated that commitments related to new facilities will be at least seven years long. Because these commitments will be made well in advance of when facilities will reach commercial operation, the target for such RFPs will be based on a higher level of certainty around system needs. Further, this approach allows for flexibility in meeting system needs, as it could facilitate the use of new technology to participate and meet those system needs more cost-effectively.

Bilateral Negotiations

To round out the tools for capacity procurement, the Resource Adequacy Framework also considers instances where a project or facility is needed as part of the transition to full implementation of competitive mechanisms. Bilateral negotiations come into play where a need exists that cannot be addressed in a practical and timely way through competitive processes. This is likely to occur when needs are urgent and/or must be satisfied by supply in a specific location in the province. These contracts would be expected to have end-dates that coincide with the start of a medium-term commitment period or to coincide with transmission enhancements that eliminate transmission constraints, in order to allow energy to move more freely around the province, allowing for future competitive options to step in later on.

Putting the Acquisitions Together

In accordance with industry practice, the IESO organizes its planning activities into three time horizons:

- Operations Planning for activities looking out less than one year;
- Near-Term Planning for activities between one to five years ahead; and
- Long-Term Planning for activities six years to over 10 years.

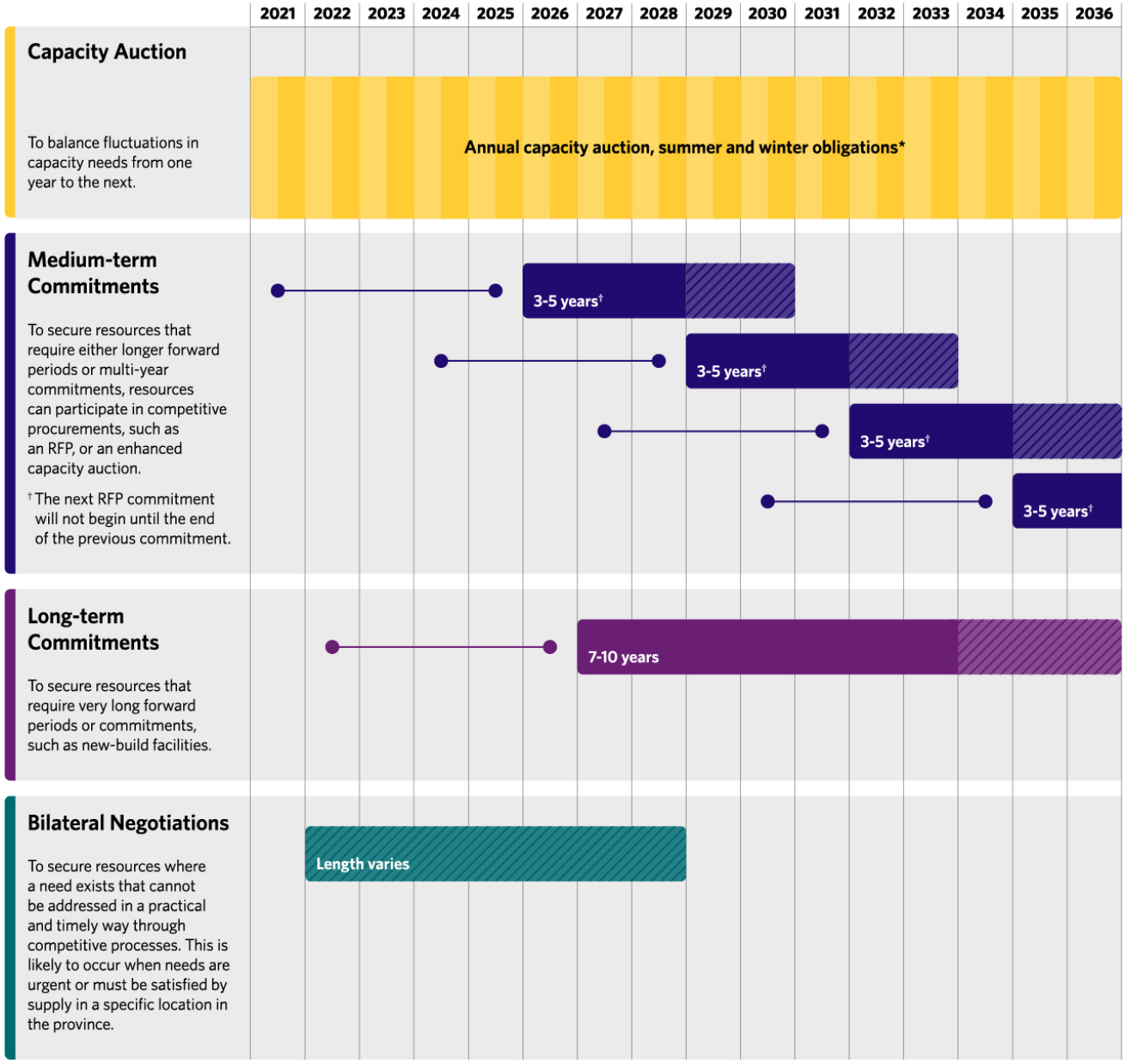
A key consideration for procurement activities is that commitment periods and forward periods for a procurement or market may not exactly match the planning horizons. In recognition of this challenge, the Resource Adequacy Framework provides multiple procurement mechanisms to address needs that may emerge or continue across multiple planning time frames.

For needs in the operations planning horizon, the IESO will rely on the capacity auction to secure obligations to address resource adequacy needs in addition to operational tools like outage management and other operating procedures.

For needs in the near-term planning horizon, the IESO intends to rely on both the capacity auction and RFPs with medium-term commitments. At times, the IESO may rely on a long-term commitment RFP to satisfy needs, recognizing the time it takes for new build resources to reach commercial operation and operate in a reliable manner.

Looking into the longer-term planning horizon, it is important to note that not all long-term needs will be met by long-term commitments. Capacity auctions will be conducted each year and RFPs will be executed on regular 3-5 year intervals – so proponents can look to the ongoing availability of short-term or medium-term commitments as they plan their operations over the long-term. The key for these proponents will be to remain competitive from cycle to cycle.

Figure 6 | Resource Adequacy Framework



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*Capacity auction obligation period: summer is from May to October and winter is from November to April.

Procurement and Forward Period

Difference between minimum and maximum commitment length

Defining Capacity

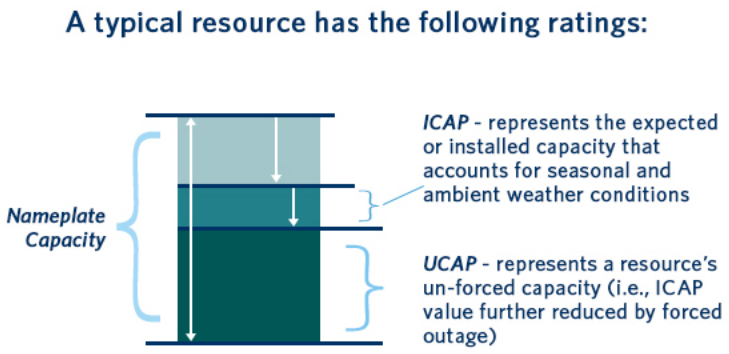
The ability to supply electricity is influenced by a variety of factors, including season, maintenance history, fuel availability (including weather for some variable renewable generating facilities) and location, each influencing the total amount of energy that can be expected to be available during peak hours. As the IESO moves to address emerging capacity needs, it is important to look at how capacity will be defined in the upcoming procurement processes.

The IESO's planning assessments consider the effective capacity of each resource – a value which reflects the capacity contribution of a resource, taking into account allowances for outages and transmission constraints of a system - as a means to identify the resource adequacy needs of the system.

To better align with this approach, starting with the 2022 Capacity Auction, the IESO plans to adopt an Unforced Capacity, or UCAP, rating to qualify capacity for resources participating in procurement or capacity auction processes. This is one way to provide a fair and uniform approach to evaluating just how much a resource can reliably be expected to meet capacity needs during peak periods. UCAP defines a consistent capacity service, supporting fair competition amongst all resource types by equalizing the contribution of each megawatt of capacity to the system's resource adequacy.

It also signals to suppliers the maximum amount of capacity that a resource can offer into the capacity auction or competitive procurement process – and sets out how their performance during a commitment period will impact the amount of qualified capacity in future procurements. As a result, suppliers are compensated for capacity relative to their resource's expected reliability value, which incents and rewards reliability improvements in their portfolio. This is an important concept as the IESO transforms from a resource-centric to a system-centric perspective – where the IESO identifies the needs to support a reliable power system and signals the need for suppliers to deliver services that better match system needs.

Figure 7 | Typical Resource Ratings



The Decision-Making Process

As Ontario's reliability needs continue to evolve, decisions about how the system can best meet those needs take place in the presence of ongoing uncertainty. With this in mind, in this section, the IESO is proposing a series of principles to inform decisions to produce best outcomes for Ontario ratepayers. These principles reflect the IESO's commitment to transparency, efficiency and competition as well as ensuring that the chosen mechanisms are feasible at that point in time.

As part of this decision-making process, the IESO will continue to ensure ratepayer value while acknowledging the stated requirements of suppliers – which has been a key driver behind the development of the Resource Adequacy Framework. In general, shorter-term commitments allow the sector to respond to rapid changes – through technological innovation, declining equipment costs, or changes in policy, such as evolving emissions obligations. This approach also counter balances a tendency to over procure when facing uncertainty – especially for years further out.

On the other side of the equation, supplier costs have the potential to be lower with longer commitments, as fuel arrangements, financing costs and investments in significant maintenance efforts can be lower if applied over multiple years. Key to this is understanding all of the costs that go into the reliable operation of the electricity system, beyond just the production cost from various types of supply resources.

Central to the procurement will be the determination of the required reliability services (capacity, energy, operability, etc.) and specifying the magnitude of that need, based on a high likelihood of that need materializing. As described earlier, this AAR is focusing on capacity and energy, but future AARs may focus on other services or a combination of reliability services.

The IESO will consider whether there is a sufficient pool of participants for robust competition. If a need is urgent or localized, a bilateral negotiation may actually provide the greatest ratepayer value. In these cases, the IESO will clearly articulate the reasons for this approach and will look to use medium-term bilateral negotiations to allow for future competitive procurements.

If a need can be addressed with resources providing peaking capacity only[1], the IESO would first consider whether the annual capacity auction would be the best approach. In doing so, the IESO will assess the availability of readily deployable resources that would be available in the capacity auction using history from past auctions and/or market sounding exercises. If the need is for multiple years or for multiple services and the resources available require multi-year commitments, then the IESO may then consider an RFP as an alternative to the capacity auction.

Looking at the opportunity from a broader perspective – the IESO will also consider whether a resolution for the need must be made immediately or could be deferred to allow for more competition or for greater certainty around the needs. Similarly, each specific target will be aligned with all other activities being pursued.

Throughout this process, proposed procurement approaches will be reviewed with stakeholders for implementation concerns. Using this feedback, further iterations and considerations will be taken to ensure that the mechanism is feasible and works to achieve its objectives.

[1] 'Peaking capacity' – capacity expected to be needed to provide energy on peak days only. Peaking resources would be expected to be called upon to deliver energy for only a handful of instances each year and for a limited amount of time.

Decision-Making Principles

These principles, developed with stakeholders for use in the Market Renewal Program, are similarly applicable to inform decisions related to acquisitions. As the AAR evolves, the IESO will work with stakeholders to further develop the decision-making process, using the following principles and questions as a starting point.

Efficiency

- Is the approach reasonably likely to lead to an efficient outcome?
- Is the action required to ensure that reliability is maintained?
- Is the action justified by an analysis that it creates market efficiencies that could ultimately reduce system costs?
- Does the length of the commitment provide ratepayer value by spreading costs over time?

Competition

- Is there an opportunity for a robust competition and will it increase chances for a positive outcome?
- If competition is not possible, then have the reasons for a non-competitive approach been clearly articulated?

Implementability

- Can the IESO and stakeholders feasibly execute this mechanism?
- Can the procurement method be executed quickly enough to address the need?
- Are the administrative costs of this procurement method justified?
- Can proponents develop solutions in time to address the need?

Certainty

- Can a stable, enduring mechanism send clear, efficient signals to the market?
- What actions can be initiated with the information available, cognizant that needs will evolve over time?
- Once decisions have been made, do stakeholders have sufficient confidence to take actions based on those decisions?

Transparency

- Will this approach provide accurate, timely and relevant information, accessible to market participants to enable their effective participation?
- Has the need been made transparent to all stakeholders through the publication of planning assessments or other related reports?
- Has the rationale for selecting an acquisition method and its corresponding target been shared with stakeholders?
- When adjustments are made, has the IESO provided information in a timely manner?

Planned Actions: Ensuring Adequacy over Different Timeframes

This initial publication of the AAR sets out the first of what will be multiple iterations of acquisition targets, each addressing reliability needs in the operational planning, near-term and long-term planning horizons. With each APO and AAR, the needs in a given year will naturally become more certain. Similarly, the targets and timing for each acquisition approach become more certain as the specific commitment period approaches. The AAR is not intended to provide the details of each procurement activity. Rather, it provides guidance and boundaries for procurement activities and future contract design. In the case of the capacity auction, the AAR does not replace the publication of a pre-auction report.

Bilateral Negotiations as a Transition Towards Competitive Procurements

In accordance with the Resource Adequacy Framework, the bilateral negotiations discussed below are intended to act as a bridge until sufficient competition, such as new resources, can deliver similar services, and are available to compete to satisfy reliability needs.

The APO's transmission security assessments describes two significant and urgent reliability needs over and above the requirement to maintain resource adequacy. While the primary intent of the needs and corresponding bilateral negotiations is to ensure the security of the system, the proposed contracts discussed below also have a positive impact on the overall provincial resource adequacy needs.

Transmission Security Needs

As described in the APO's Transmission Security Outlook Methodology, reliability consists of two pillars: adequacy and security. Therefore, to ensure reliability of the grid, this report describes actions the IESO is taking to secure resources to satisfy both pillars of reliability. The IESO's assessments identify two immediate needs to support transmission security.

Flow East Towards Toronto (FETT)

This transmission interface – located just west of Toronto – delivers power from western Ontario to central and eastern Ontario. Over the next few years, supply capacity east of the FETT interface is expected to decline due to nuclear retirements and nuclear refurbishments, and could potentially decline further towards the end of the decade as contracts for generation facilities reach the end of their terms.

With the limited capacity of the FETT interface[2], the need for additional supply east of FETT emerges as early as 2023. In order to address the significantly greater needs expected in 2026 and beyond, the IESO has recommended that Hydro One proceed with upgrading the transmission line between North Oakville (Trafalgar TS) and Pearson Airport (Richview TS) by 2026. This would increase FETT transfer capability, reducing the need to acquire capacity specifically for the area east of FETT by about 2000 MW. However, prior to completion of these upgrades, and for several years thereafter, significant generation in eastern Ontario will be required.

Figure 8 | FETT Security Outlook, adapted from the 2020 APO

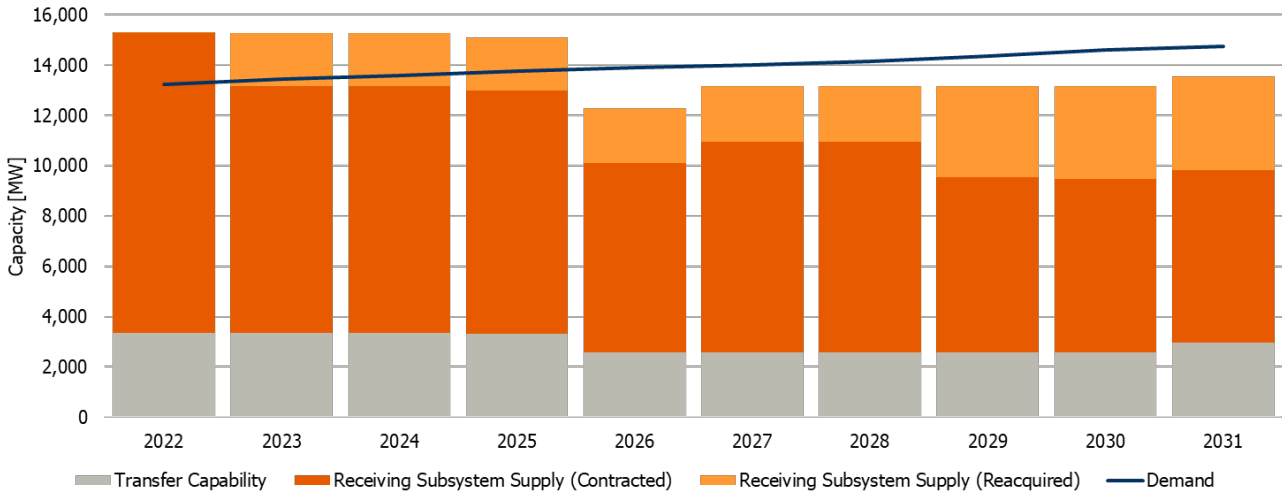
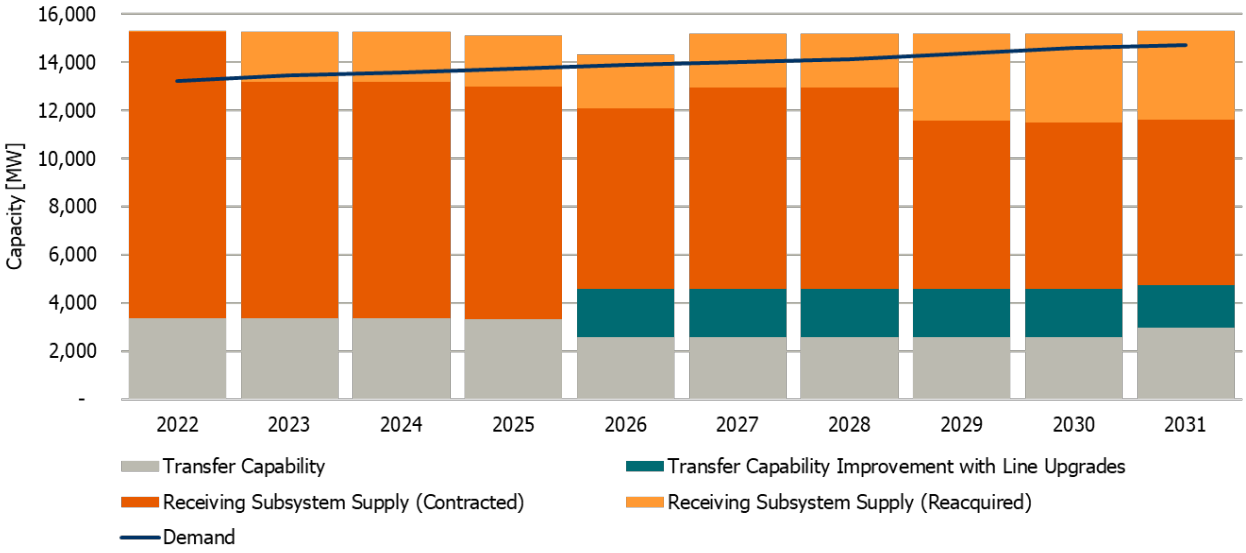


Figure 9 | FETT Security Outlook following Line Upgrade, adapted from the 2020 APO



[2] The figures below describe the outlook for the system east of the FETT interface with respect to transmission security requirements. To illustrate the need for local capacity, peak demand in the zones/subsystem that receive power from the interface under study is shown; this peak demand is compared to the amount of generation in the zones/subsystem and/or electricity transferred by the interface. The local supply need is the difference and is referred to as the transmission security requirement.

Acquisition solution

To meet this need, the IESO is proceeding to negotiate a transitional contract in respect of Lennox Generating Station that ends in April 2029, making it potentially available to compete in the second medium-term RFP cycle. Located in eastern Ontario, Lennox GS offers large-scale and flexible supply from its dual gas and oil generation facility. Its location plays a critical role in ensuring the security of the bulk system by balancing electricity flows across the province.

Here, Lennox GS represents the only facility in place with the requisite scale to address this immediate need, offering 1600 MW of unforced capacity to support Ontario's adequacy needs, as well as quick-ramping supply and other reliability services such as operating reserve.

Pursuing a bilateral negotiation provides a practical solution for Ontario ratepayers – namely, reacquiring a large facility in an area of the province with large and growing supply needs. The bilateral contract will provide certainty that supply has been secured, given that this facility is in place with no other viable options of this scale. Limiting this bilateral contract to 2029, however, sets an expectation that conditions will be in place to allow this and other facilities to compete in the second iteration of the medium-term mechanism.

West of London

Electricity demand in Windsor-Essex and the surrounding Chatham-Kent area is growing at a rapid pace, driven by strong indoor agricultural growth, in vegetable greenhouses as well as cannabis. This agricultural electricity demand is expected to grow from roughly 500 MW to 2300 MW from now to 2035.

In response to this growing demand, the IESO has adopted a multi-pronged approach using a combination of transmission reinforcements and targeted energy efficiency programs. The IESO has recently recommended the development of further new transmission infrastructure to support ongoing growth in the area (new circuits from Lambton to Chatham and Chatham to Lakeshore)[3]. Until this infrastructure is built, existing resources in the area are required to address projected supply gaps until 2028.

A full report with specific details about needs in the area will be provided shortly through the IESO's West of London Bulk Report planned for release later this summer.

Acquisition Solution

While significant transmission reinforcements are proposed in the area, they are not expected to be in full service until 2028. Before the transmission solution is in service, Brighton Beach Generating Station, an existing facility supporting the area's needs, will come to the end of its contract. This 588 MW natural gas-fuelled generator would address the clearly identified local need while transmission

[3] In 2019, the IESO published a bulk transmission study for the area, Need for Bulk Transmission Reinforcement in the Windsor-Essex Region, which recommended transmission upgrades to supply this increased electricity demand in the region. More specifically, the upgrades addressed bulk transmission system limitations west of Chatham, between Chatham SS and the Kingsville-Leamington area. These included a new switching station at Leamington Junction (Lakeshore SS) and a new 230 kV double-circuit line from Chatham SS to the new Lakeshore SS. At that time, transmission system constraints east of Chatham were also identified, but additional assessments were required before further recommendations could be made.

reinforcements are being constructed. Like Lennox GS, it is the only facility with the size and location to be able to address this immediate need.

As demand in the area continues to grow over the next decade, it is likely that competitive mechanisms will help address this growth, offering an opportunity for a wider range of suppliers to contribute through a medium-term or long-term mechanism.

Enhancing the IESO Capacity Auction as a Balancing Mechanism

Annual capacity auctions secure the capacity needed to meet peak demands, with a diverse range of resources competing to be available for summer and/or winter obligation periods.

In an important milestone for Ontario's electricity sector, the IESO secured 992.1 MW of capacity from a broad range of eligible resources in the December 2020 province-wide Capacity Auction. Successful participants for the May to October 2021 period include industrial and commercial consumers providing demand response, imports from jurisdictions outside Ontario, generation and energy storage.

Competition to provide capacity was very strong, with more than 1700 MW of resources enrolled to participate. The final Ontario-wide clearing price for this year's auction was $197.58/MW-day, a decrease of roughly 26 per cent from the last Demand Response Auction (summer Ontario-wide clearing price) in 2019.

This most recent auction demonstrated the capability of the marketplace to supply capacity using a mechanism with a six-month obligation period and short forward period. It also showed its potential to address needs in the operational planning time frame and it will be relied on increasingly in the years ahead as our system needs grow. Annual capacity auctions will be the primary acquisition mechanism to meet needs prior to 2026.

Beginning with this AAR, the IESO aims to provide three levels of forward guidance for the capacity auction, each informed by the level of certainty about needs going forward and the importance of maintaining stability in the capacity auction. The first component is setting the capacity auction target for the upcoming auction. The second component is the prescription of a minimum target threshold for the auction two years out. For future capacity auctions further out, the IESO is providing guidance on the range of potential target capacities.

2021 Capacity Auction

The following section prescribes actions to be taken for the capacity auction that will be administered in December 2021 for a commitment period beginning May 1, 2022.

The June 2021 Reliability Outlook demonstrates that the need for incremental capacity in the summer of 2022 will increase compared to previous years. It shows that while there are sufficient reserves under normal weather conditions with firm resources, under extreme weather conditions the reserve is lower than the requirement for eight weeks in the spring and summer of 2022, as well as three weeks in the fall of 2022. Under the current outage schedule, the reserve above requirement is below the -2,000 MW threshold used for approving outages for one week in June, five weeks in July, two weeks in August, two weeks in October, and one week of November of 2022.

This potential shortfall is partially attributable to planned generator outages scheduled for those weeks and to the fact that the forecast does not take into consideration capacity that could be acquired in the 2021 Capacity Auction. In addition to increasing the target capacity for the next capacity auction, the IESO may reject some generator maintenance outage requests to ensure that Ontario demand is met during the summer peak periods under extreme conditions.

To address the need in the summer months, the next capacity auction will be held in December 2021 with a target capacity of 1000 MW for the summer 2022 obligation period. In determining the target capacity, the IESO considered the following factors:

- **Competition/Liquidity**: More than 1700 MW of resources enrolled to participate in the 2020 Capacity Auction, demonstrating that it is likely that competition will be maintained with a greater target capacity.[4]
- **Efficiency**: While the June 2021 Reliability Outlook identified a need greater than 1000 MW, this incremental need will also be addressed through regular outage management activities. In addition, the downward sloping nature of the demand curve allows the capacity auction to secure more than the target capacity when economic, and historic data from the previous demand response auctions shows that the IESO tends to procure more than the target capacity each year. The cumulative impact of these actions are likely to address the total capacity need during an extreme weather scenario. By setting the target capacity slightly below the need identified in the extreme weather scenario, the IESO aims to balance the need to procure enough to satisfy planning requirements (especially given that it is there is no incremental capacity need required under normal weather conditions), while also procuring sufficient resources for the system to be resilient during extreme weather events.
- **Implementability**: The increase in target capacity is a modest increase from the 2020 Capacity Auction that is well below the amount of capacity enrolled in previous demand response and capacity auctions, demonstrating suppliers' ability to meet or even exceed this target.

The capacity auction has separate target capacities for each obligation period. The target capacity for the winter 2022-2023 obligation period will be 500 MW, aligning with the minimum target threshold discussed in the next section. Setting the target at 500 MW, along with ongoing outage management activities and the capacity made available through the bilateral contract with Lennox will ensure Ontario is resource adequate during the winter obligation period.

Forward Guidance for Future Capacity Auctions

Having considered stakeholder feedback in this regard, the IESO is introducing a minimum target threshold until 2026 to provide more certainty for participants in the years ahead. The IESO will set the target capacity for each obligation period at a quantity no less than 500 MW until at least 2026.

The introduction of a minimum target capacity helps ensure predictability. Minimum targets help participants plan their operations and provides some assurance about the potential revenue that will

[4] Enrolled capacity means a quantity in megawatts representing the maximum capacity auction offer that a capacity auction resource is willing to provide for an applicable obligation period, and which corresponds to an amount submitted to the IESO by the capacity auction participant during the enrollment period of a relevant capacity auction and if applicable, satisfies any qualification criteria that may be set out in the applicable market manual.

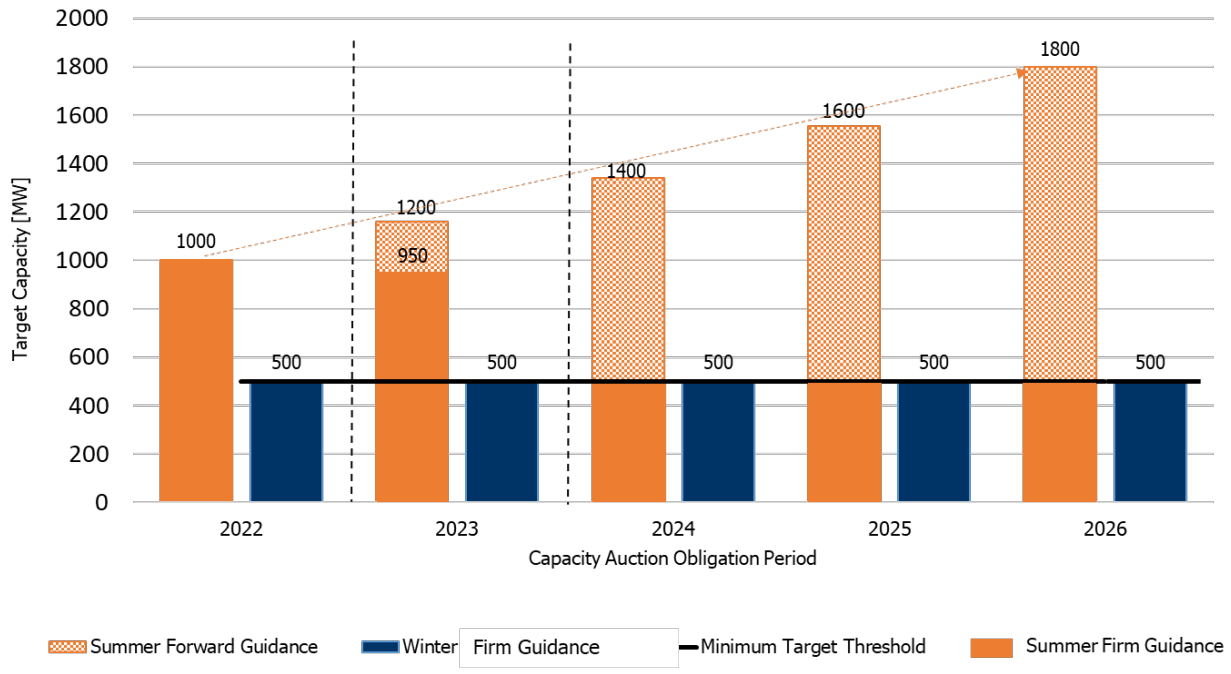
be available for resources that are successful in the auction. The value of this predictability is to provide a stable marketplace for capacity suppliers, building confidence and leading to lower costs.

Although this approach may, in a single given year, secure more capacity than required, the increased liquidity and competition from a stable, predictable marketplace is anticipated to lower costs across multiple years. It also provides the IESO assurance that it will have the resources needed to maintain reliability, by integrating a minimum fixed value into its assessments.

This threshold will apply to both summer and winter obligation periods – giving both capacity auction participants and the IESO certainty in the auction process. Furthermore, the certainty that there will be a robust market for capacity prior to 2026 will help bridge some resources that could secure commitments through the intended medium-term RFP.

Looking at the capacity auction to be held in December 2022, there is a greater degree of confidence in expected system conditions. Furthermore, while there is a potential for system conditions to change such that the needs change from one year to the next, in order to foster long-term competition in future capacity auctions, it is also important to cushion the market from large step changes year-to-year. As shown in the figure below, the IESO is prescribing a higher firm minimum target threshold for the summer 2023 obligation period to balance between the need to respond to system conditions and market stability.

Figure 10 | Capacity Auction Forward Guidance



Specific targets will be determined each year and be based on system needs, with the flexibility to adapt to changing system conditions. The targets will be no less than the firm guidance amounts described in the figure above. Targets will also consider uncertainties over each commitment period to ensure Ontario's electricity system is able to manage potential situations that could impact the supply and demand outlook post-auction. Considering the range of needs described in the APO and

all the actions described in this report, the target capacity for 2026 is not anticipated to exceed 1800 MW.

Enhancements to Enable Greater Competition in Future Capacity Auctions

In the coming years, the IESO will continue to explore auction enhancements and enable additional resources to compete, such as resource-backed imports. Any such enhancements will widen the pool of participants and continue to increase competition in the capacity auction, even when the target capacity is likely to grow over the next several years. An important enhancement enabling greater competition will be to qualify capacity on a UCAP basis starting with the December 2022 Capacity Auction. To prepare, the IESO has begun an engagement with stakeholders on capacity qualification.

Leveraging Competitive Procurements for Near-Term Planning

With needs approaching mid-decade, the Resource Adequacy Framework offers two principal avenues for securing capacity: RFPs and enhancements in the capacity auction.

To effectively and swiftly address Ontario's resource adequacy needs, the IESO intends to move ahead in the fall of 2021 with the first of a series of medium-term RFPs. This RFP mechanism is intended to facilitate resources coming off contract, with the potential to provide opportunities to leverage uprates, expansions and emerging technologies that can be readily deployed.

This first medium-term RFP will seek to retain much of the capacity available from resources with contracts that are expired or are expiring before May 1, 2026, and value those attributes, such as energy production, that could be lost once existing contracts expire. Given that there is a sufficiently large pool of potential participants for a competitive RFP process, this first medium-term RFP will work to ensure that a diverse set of resources can compete. The eligibility criteria in this RFP should be sufficiently broad to allow for many existing resources to participate in the procurement, recognizing that some resources will require additional time to adapt to operating in a way that better aligns with system needs.

Over the longer term, the enduring medium-term process will evolve while ensuring alignment with the other mechanisms in the Resource Adequacy Framework. It will secure reliability services on a repeated cycle with medium length commitment periods. Future iterations may enable additional opportunities for new build supply or expansions, allowing the necessary time for participants to adapt to evolving medium-term mechanisms. The IESO anticipates that competition and the size of the needs will continue to grow, as more contracts for large-scale facilities come to an end, which will set the stage for a broader pool of participants and a higher target for a second planned medium-term RFP with a commitment period commencing in 2029.

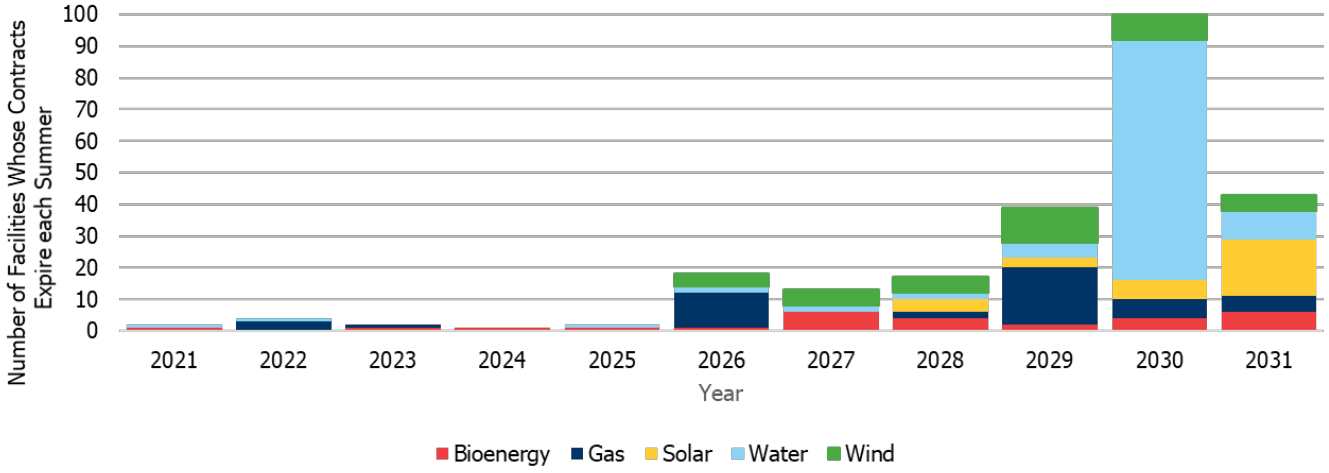
IESO Medium-Term RFP – 2026-2029

The capacity adequacy outlook in the 2020 APO indicates that capacity adequacy needs increase in the late 2020s and continue through the 2030s, driven largely by summer demand. It also finds that there will be a need to increase focus on ensuring energy adequacy in the late 2020s and early 2030s.

Commitment Length

The IESO is seeking to initiate the first in a series of cadenced medium-term RFPs in 2021, with a three-year commitment starting in 2026. While the Resource Adequacy Framework suggests that medium-term commitments can be as long as five years, the initial RFP commitment period is designed to end in 2029, when an even larger number of contracts will have expired. This will allow more competition in the second RFP.

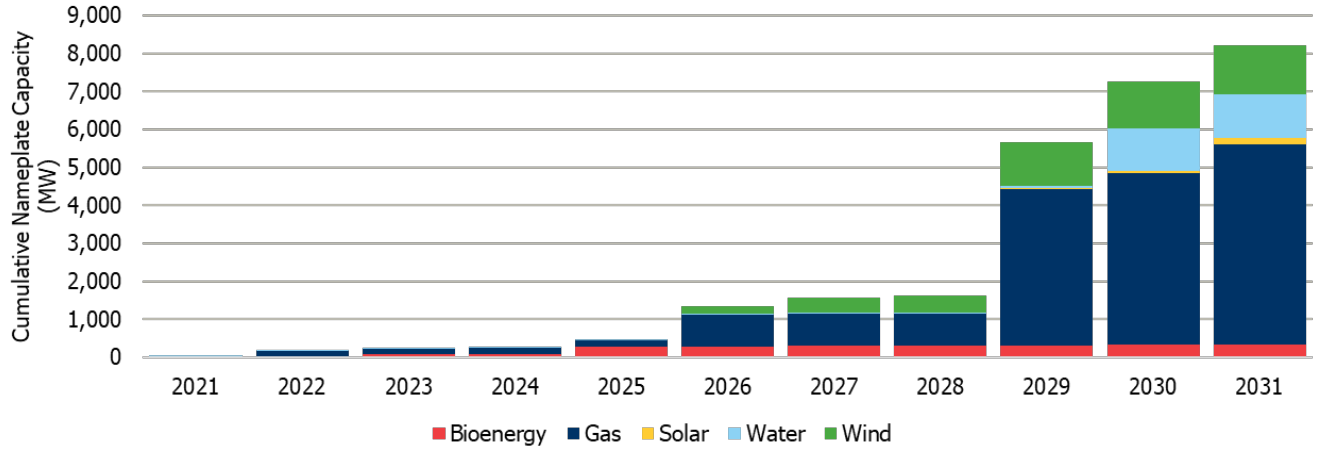
Figure 11 | Number of Facilities Whose Contracts Expire by Each Summer Period, excluding those with bilateral negotiations



RFP Size

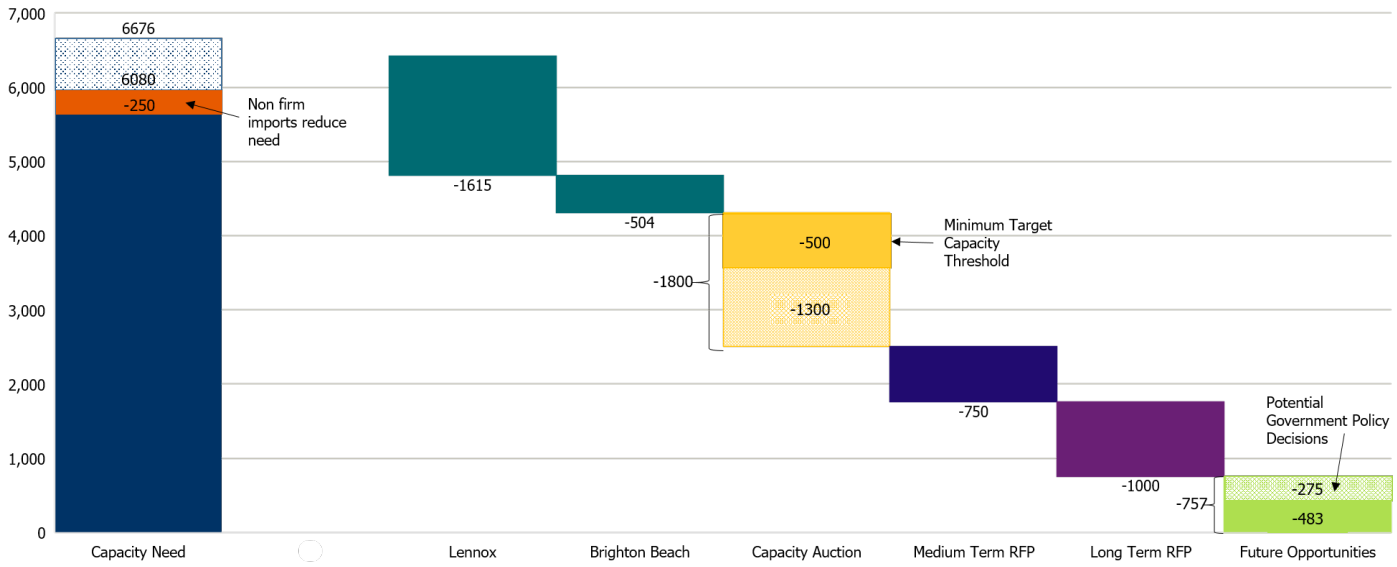
The IESO anticipates seeking up to 750 MW, qualified on a UCAP basis, through this first medium-term RFP. The section below describes the consideration of the capacity needs from 2026 to 2029, given both supply and demand uncertainties. There is at least 1000 MW of existing nameplate capacity available from resources whose contracts expire prior to summer 2026, along with additional capacity that may become available as a result of uprates, that may be eligible to participate in this RFP.

Figure 12 | Cumulative Nameplate Capacity From Resources with Expired Contracts, excluding those with bilateral negotiations



As shown in Figure 13, based on Scenario 1 (faster recovery from COVID-19) described in the 2020 APO, the range of capacity the IESO would need to secure between 2026 and 2029 varies from 6080 MW to 6676 MW. Assuming a capacity auction target of 1800 MW is set and achieved for 2026, the planned actions described in this report could total up to 5919 MW. In this scenario, there would be up to 757 MW of additional opportunities to address in the future, less any capacity contributions resulting from potential government policy decisions (assuming capacity need of 6676 MW).

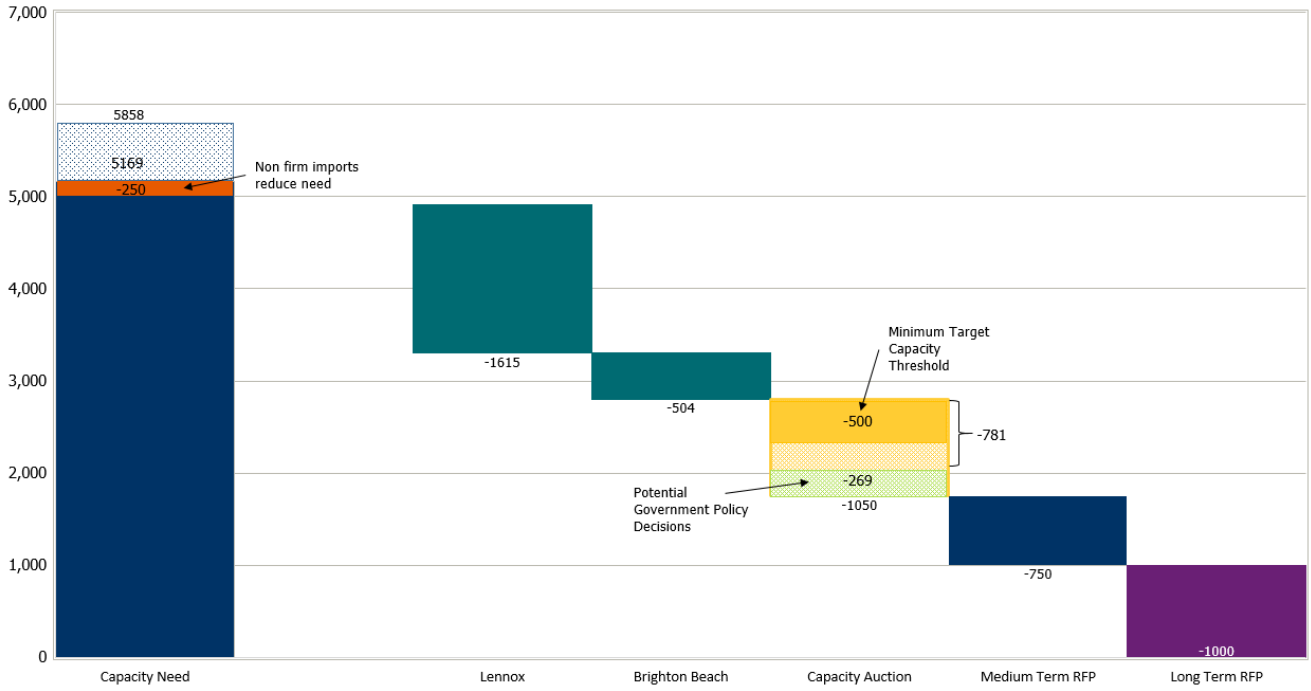
Figure 13 | Scenario 1 Acquisition Strategy: Summer Delivery Between 2026-2029



As planning uncertainties naturally change over time, the IESO is cognizant that it is not always prudent to resolve all planning needs immediately. As such up to 757 MW of potential need is not addressed in this report and may be addressed, if required, in subsequent iterations. Potential options to address this gap include increasing the long-term RFP procurement target beyond 1000 MW, or through other approaches (such as outage management or increased reliance on imports), or various combinations of these or other solutions.

Taking into account the uncertainties described in the APO's demand forecast based on Scenario 2, the capacity need from 2026 to 2029 varies from 5169 MW and 5858 MW. In this scenario, the planned actions described in this report would be sufficient to address the full capacity need. To adjust to the lower overall need, the capacity auction's target capacity would be decreased to 1050 MW, demonstrating its ability to function as a balancing mechanism. Any capacity contributions resulting from potential government policy decisions would further decrease the target capacity, until the minimum target capacity value was reached.

Figure 14 | Scenario 2 Acquisition Strategy: Summer Delivery Between 2026-2029



RFP Design Considerations

Most of Ontario's non-regulated electricity supply was previously secured using resource-targeted procurements, with each supplier building and operating a specific resource type. Some of the contracts encourage alignment with market signals through various mechanisms, including deemed dispatch constructs within the contract.[5] Many, however, are power purchase agreements (PPAs), that simply pay for the energy injected.

The medium-term RFP for 2021 would be focused primarily on securing capacity. In order to account for the varying abilities, beyond their capacity contribution, of the different resources eligible to participate, the medium-term RFP should aim to assign value to resource attributes that help ensure efficient and reliable operation of the grid. When designing this competitive procurement, the IESO will consider creating a process that takes into account attributes that provide system value, such as energy production at times when it is needed, along with operability characteristics such as visibility, dispatchability, and ramping.

The 2021 medium-term RFP would be the first of a series of expected and regularly scheduled procurement activities launched as the Resource Adequacy Framework is operationalized. While the goal of the mechanism is to deliver lower overall system costs over time, by shifting the procurement approach towards operational and system needs, the IESO recognizes that existing resources will need time to fully adapt to this model, and the first RFP should look to strike a balance between meeting system needs and resource capability. In this time period, there are over 1000 MW of

[5] Deemed dispatch contracts provide a capacity type payment reduced by "deemed" market net revenues from efficient participation in the IESO energy market. The deemed net revenues are determined by comparing actual energy market prices with the market price for natural gas and certain predetermined contract parameters.

contracts expiring that may be eligible to participate. In order to foster competition and drive value for ratepayers, a target amount that is lower than the amount of supply available is prudent. As described above, a target of up to 750 MW supports competition.

As this procurement moves forward in 2021, more explicit information about eligibility criteria, evaluation methodology and contractual provisions will be shared with stakeholders to ensure a common understanding of what will be required.

Providing Greater Clarity around Ontario's Long-Term Needs

Long-term commitments between seven and 10 years provide investors with a higher level of certainty for the purpose of planning and funding the construction of new facilities. The magnitude of these needs and the best solutions to address them, however, are impacted by refinements to demand forecasts, changing policy objectives and technological advances. When considering the accumulation of multiple reliability services (not only capacity and energy, but also ramping, frequency response, regulation and others), these refinements can create significant changes in long-term forecasts.

For the system, the overall resource adequacy need will ultimately be impacted by trends in resource availability (e.g. increased failure rates) or choices to shut down operations. These impacts could have an upward impact on future resource adequacy needs. Further, longer-term procurement mechanisms must contemplate what support or interventions would be required for aging facilities to maintain operations, while also facilitating the entry of new and/or more cost-effective facilities to augment the reliability of the grid.

The 2020 APO also shows that over the longer-term, Ontario will need additional unforced capacity, likely greater than 1000 MW, that could be satisfied using a wide range of both conventional and emerging resources.

Beyond capacity needs, it is also likely that the system will require resources that can provide attributes beyond peaking capacity – such as ramping or responding to dispatch, having increased fuel security, or the ability to deliver energy for longer durations and/or more often, all with a view of government policy drivers. Planning Outlooks will continue to evolve to assess changes in system needs, and these changes will be incorporated into future acquisitions.

A long-term RFP would provide a significant opportunity for new supply, allowing for longer lead times for resource development. To facilitate competition, a long forward period would be advantageous – with a long-term mechanism potentially initiated in fall 2022, looking for commitments as early as 2026/2027. This would give sufficient lead time to make new build, upgrades and uprates feasible.

The IESO has the opportunity to engage stakeholders about many details of a long-term procurement process, acknowledging that subsequent APO and AARs will help further define specific system needs. Above all, it is important that the amount 'locked in' to a long-term mechanism is the firmest need – while deviations from IESO outlooks can be addressed by medium-term RFPs or capacity auctions. For this reason, the specific magnitude and criteria will be determined in the next AAR, which will follow the release of the 2021 APO.

Additional Options to Address Changes Over Time

Recognizing that forecasts can change and such changes may not align perfectly with the lead times/forward periods required for procurement activities, it is common practice for system operators to rely on other tools to balance supply and demand.

The IESO works with its market participants and external jurisdictions to ensure such tools are available should they be required. A combination of one-time and enduring options available to the IESO include:

- Quebec Capacity Sharing Agreement: The IESO currently has a firm import agreement with Quebec, with 500 MW of summer capacity to be delivered by Quebec to Ontario when requested by the IESO in any one summer before 2030. This capacity can benefit the system's global adequacy needs and locational requirements in eastern Ontario, particularly if there are delays to the transmission reinforcements discussed earlier in this report. Further information on this agreement is available on the IESO website.
- Outage Management: The IESO's quarterly Reliability Outlook allows the Ontario electricity sector to identify opportunities to take outages to maintain and upgrade their facilities on an ongoing basis while minimizing the impact on system reliability. It also provides insights on activities that the IESO may take to alleviate stress on the system, including rejecting planned outages or working with participants to reschedule planned outages. Recognizing that the nuclear refurbishment outages are significant, the IESO is proactively working alongside nuclear generation operators to coordinate refurbishment schedules, which could offer the potential to alter the timing of some capacity needs.
- As shown in the figure below, there are opportunities for short-term actions, like those discussed above, to be taken in 2025 or 2026. The needs grow in 2029, demonstrating the value of sequential medium-term RFPs and the potential for the long-term RFP to target greater than 1,000 MW of capacity.

Figure 15 | Summary of Planned Actions to Address Resource Adequacy Needs

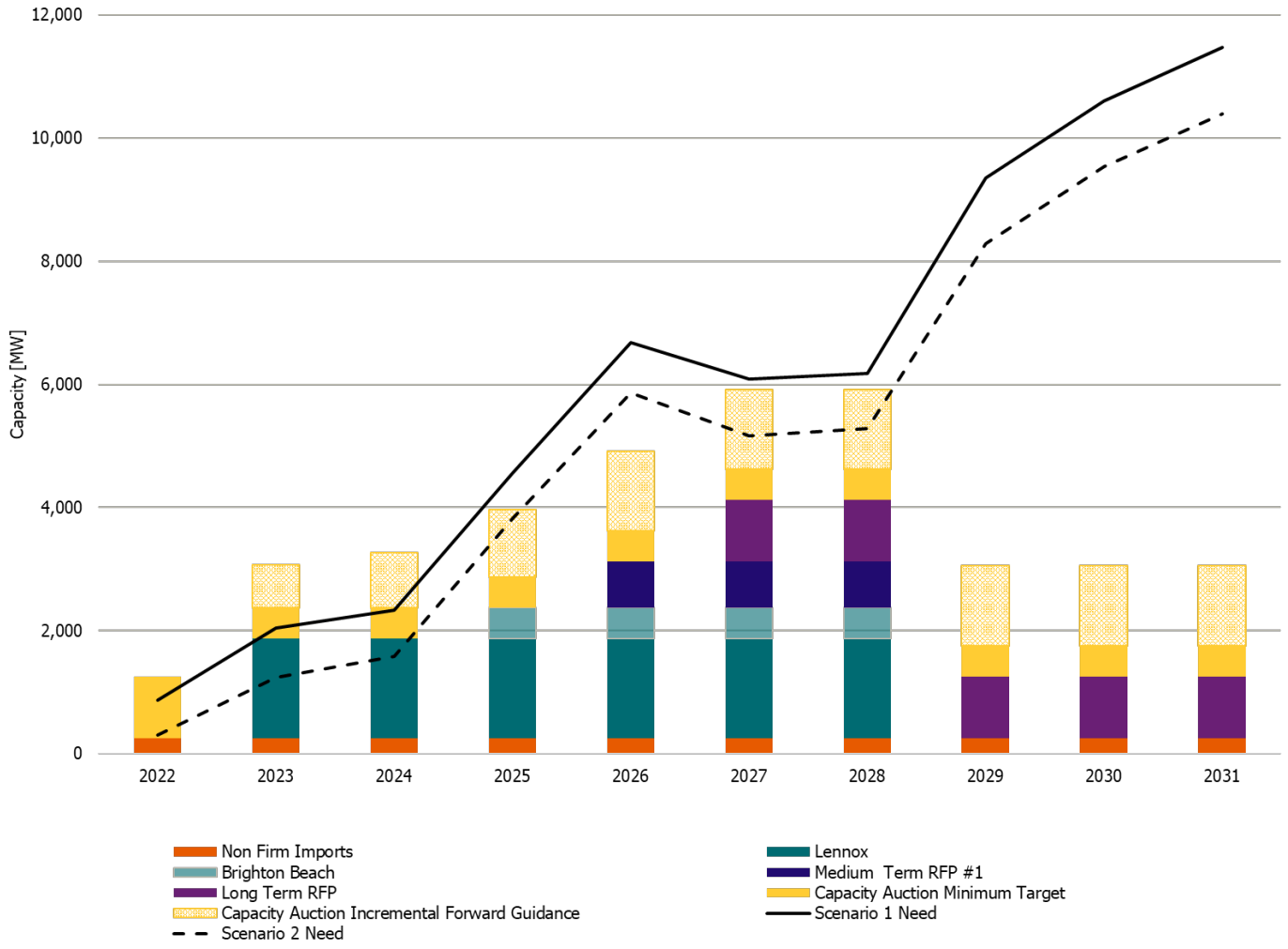


Table 1 | Summary of Planned Actions (Relative to 2020 APO Scenario 1 Summer Needs)

Actions	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
2020 APO Scenario 1 Needs	875	2,045	2,326	4,552	6,676	6,080	6,178	9,349	10,605	11,477
Non-Firm Imports	250	250	250	250	250	250	250	250	250	250
Bilateral Negotiations	-	1,615	1,615	2,119	2,119	2,119	2,119	-	-	-
Medium-Term RFP #1	-	-	-	-	750	750	750	-	-	-
Long-Term RFP	-	-	-	-	-*	1,000	1,000	1,000	1,000	1,000
Capacity Auction Range	1,000	500-1,200	500-1,400	500-1,600	500-1,800	500-1,800	500-1,800	TBD	TBD	TBD
Total Actions Taken in AAR	1250	2,365-3,065	2,365-3,265	2,869-3,969	2,869-4,919	2,869-5,919	2,869-5,919	1,250	1,250	1,250
Allowance for Potential Government Policy	31	31	31	31	269	238	238	238	238	238
Potential Need Not Addressed	0	0	0	552	1,488	0	0	7,861	9,117	9,989

* Potential for Early Commercial Operation

Table 2 | Summary of Planned Actions (Relative to 2020 APO Scenario 2 Summer Needs)

Actions	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
2020 APO Scenario 2 Needs	308	1,243	1,579	3,824	5,858	5,169	5,279	8,288	9,537	10,394
Non-Firm Imports	250	250	250	250	250	250	250	250	250	250
Bilateral Negotiations	-	1,615	1,615	2,119	2,119	2,119	2,119	-	-	-
Medium-Term RFP #1	-	-	-	-	750	750	750	-	-	-
Long-Term RFP	-	-	-	-	-*	1,000	1,000	1,000	1,000	1,000
Capacity Auction Range	1,000	500-1,200	500-1,400	500-1,600	500-1,800	500-1,800	500-1,800	TBD	TBD	TBD
Total Actions Taken in AAR	1250	2,365-3,065	2,365-3,265	2,869-3,969	2,869-4,919	2,869-5,919	2,869-5,919	1,250	1,250	1,250
Allowance for Potential Government Policy	31	31	31	31	269	238	238	238	238	238
Potential Need Not Addressed	0	0	0	0	670	0	0	6,800	8,049	8,906

* Potential for Early Commercial Operation

Engaging Stakeholders and Evolving the AAR

Capacity Auction Engagement

The IESO will continue to engage with stakeholders on activities to enhance the capacity auction, focusing in particular on the transition to qualifying capacity on a UCAP basis.

Medium-Term RFP Engagement

Beginning in Q3 2021, the IESO expects to seek stakeholder input on the draft RFP and contract documents for the medium-term RFP.

Evolving the AAR

Looking ahead to the next planning cycle, discussions will continue regarding a move toward adopting Unforced Capacity as a rating factor for resources, and this fall the IESO will begin engaging with stakeholders on the next Annual Planning Outlook. The next APO will provide an update on Ontario's long-term forecasts, taking into account what is known about a post-COVID-19 recovery as well as taking a deeper look at the electrification of transportation. In order to align approaches between the APO and the AAR, this fall the IESO will also begin to gather stakeholder perspectives on opportunities to improve future iterations of the AAR.

In parallel, various regional and bulk electricity system planning engagements are underway across the province. As the plans that result from these engagement activities are finalized, the IESO will consider the recommendations for new resources within the context of the next AAR, starting with the West of London Bulk Report planned to be released later this summer.

Conclusions and Planned Actions

After a period of strong supply, Ontario is now entering a period of emerging incremental system needs - most significantly in the system's ability to meet peak capacity needs. This report describes a number of planned actions that are anticipated to be initiated in 2021, and guidance on actions to be taken beyond 2021 to assure the reliability of Ontario's electricity grid.

The annual capacity auction will continue to foster competition and provide a flexible platform to balance supply and demand each year. The 2021 Capacity Auction will have a target capacity of 1000 MW for the summer obligation period and 500 MW for the winter obligation. The capacity auction will be an enduring mechanism, with its target growing to respond to system needs to as much as 1800 MW in 2026. In addition, the IESO will engage stakeholders on capacity auction enhancements, including the transition to UCAP as a means of qualifying capacity and enabling new resources to participate.

Targeted bilateral negotiations will address specific locational adequacy needs until transmission reinforcements are in place and competition can more fully be enabled.

The IESO also intends to issue a medium-term RFP later this year for up to 750 MW, qualified using a UCAP methodology, with a three-year commitment beginning in 2026, to contribute to meeting capacity and energy adequacy needs. Further, the IESO intends to issue a long-term RFP in 2022 for at least 1000 MW, with a seven- to 10-year commitment.

List of Acronyms

Acronym	Definition
AAR	Annual Acquisition Report
APO	Annual Planning Outlook
CDM	Conservation and Demand Management
FETT	Flow East Toward Toronto
GS	Generating Station
ICAP	Installed Capacity
ICI	Industrial Conservation Initiative
IESO	Independent Electricity System Operator
MW	Megawatt(s)
MWh	Megawatt-hour(s)
OEFC	Ontario Electricity Financial Corporation
RFP	Request for Proposal
SS	Switching Station
TS	Transmission/Transformer Station
TWh	Terawatt-hour(s)
UCAP	Unforced Capacity

Independent Electricity System Operator
1600-120 Adelaide Street West
Toronto, Ontario M5H 1T1

Phone: 905.403.6900
Toll-free: 1.888.448.7777
E-mail: customer.relations@ieso.ca

ieso.ca

@IESO_Tweets
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