



---

# 2026 Annual Planning Outlook

Demand Forecast Module

March 2026



# Table of Contents

<b>1. Introduction</b>	<b>3</b>
<b>2. Demand Forecast Summary</b>	<b>4</b>
2.1 Forecast Drivers: Reference Scenario	6
2.1.1 Residential Sector	6
2.1.2 Commercial Sector	7
2.1.2.1 Commercial Sector – Data Centre Sub-Sector	7
2.1.3 Industrial Sector	8
2.1.4 Agricultural Sector	9
2.1.5 Transportation Sector	9
2.1.5.1 Transportation Sector – Electric Vehicles	9
2.1.5.2 Transportation Sector – Rail Transit	10
2.1.6 Other Electricity Demand	11
2.1.7 Demand-Side Management	11
2.1.7.1 Demand-Side Management Programs	11
2.1.7.2 Demand-Side Management Regulations	13
2.1.8 Load Modifiers and Demand Measures	13
2.1.8.1 Industrial Conservation Initiative	14
2.1.8.2 Peak Perks	14
2.1.8.3 Commercial Heating Ventilation Air Conditioning Demand Response	15
2.2 Forecast Drivers: High-Demand Scenario	15
<b>Figure 2: Net Annual Energy Demand by Sector, High-Demand Scenario</b>	<b>16</b>
2.2.1 Residential Sector	16
2.2.2 Commercial Sector	16
2.2.2.1 Commercial Sector – Data Centre Sub-Sector	17
2.2.3 Industrial Sector	17
2.2.4 Agricultural Sector	17

2.2.5 Transportation Sector	17
2.2.6 Other Electricity Demand	18
2.2.7 Demand-Side Management	18
2.2.7.1 Demand-Side Management Programs	18
2.2.7.2 Demand-Side Management Regulations	18
2.2.8 Load Modifiers and Demand Measures	18
2.2.8.1 Industrial Conservation Initiative	19
2.2.8.2 Peak Perks	19
2.2.8.3 Commercial Heating Ventilation Air Conditioning Demand Response	19
2.3 Forecast Drivers: Low-Demand Scenario	20
2.3.1 Residential Sector	20
2.3.2 Commercial Sector	21
2.3.2.1 Commercial Sector - Data Centre Sub-Sector	21
2.3.3 Industrial Sector	21
2.3.4 Agricultural Sector	22
2.3.5 Transportation Sector	22
2.3.6 Other Electricity Demand	22
2.3.7 Demand-Side Management	23
2.3.7.1 Demand-Side Management Programs	23
2.3.7.2 Demand-Side Management Regulations	23
2.3.8 Load Modifiers and Demand Measures	23
2.3.8.1 Industrial Conservation Initiative	23
2.3.8.2 Peak Perks	24
2.3.8.3 Commercial Heating Ventilation Air Conditioning Demand Response	24
<b>3. Growth Margin</b>	<b>25</b>
3.1 Reference Scenario	25
3.2 High-Demand Scenario	26
3.3 Low-Demand Scenario	27
3.4 Growth Margin Composition	29



# 1. Introduction

The Independent Electricity System Operator (IESO) conducts long-term power system planning for the province on an annual basis. The electricity demand forecast establishes the context for integrated planning, resource adequacy and transmission security assessments, and resource acquisition, as it determines the amount of electricity that must be served. Electricity is used every day by Ontarians to provide a wide range of services. Electricity demand forecasting attempts to anticipate future requirements for the services that electricity provides and is required due to the long multi-year process required to plan, site, build or refurbish energy resources to meet system needs. Updates to the electricity demand forecast provide context for updated integrated plans, energy efficiency program planning and supply procurement decisions.

Electricity requirements are affected by many factors, including consumer behaviour and choice of energy form, technology and equipment purchasing decisions, demographics, population, the economy, energy prices, transportation policy and electricity demand-side management and, more recently, large step loads including data centres. The IESO monitors and interprets these and other factors on an ongoing basis to develop outlooks against which system planning can take place.

This module provides more context on the changes in the demand forecast in the IESO's 2026 Annual Planning Outlook (APO), and provides a detailed assessment of electricity demand assumptions on a sector-level basis. It includes the IESO's latest interpretation of societal trends and preferences that are shifting toward fuel switching and electrification, resulting in potentially much higher electricity demand in the future. The Forecast considers expected public sector policies, private sector projects, current underlying fuel rate forecasts and economics, and the rapidly growing large step loads anticipated in Ontario.

## 2. Demand Forecast Summary

Ensuring Ontarians have a reliable and cost-effective electricity system is at the heart of the IESO's mandate. The long-term demand forecast sets the context for the APO, its resource adequacy, transmission security, operability and integrated needs assessments, and the bulk power system planning process at large. The demand forecast which anticipates future needs that informs system reliability and investment decisions, is by definition inexact. The demand forecast is influenced by many inherent uncertain factors, including the state of the economy, population, demographics, technology, energy prices, input fuel choices, customer preferences, equipment purchasing decisions, consumer behaviour, policy, conservation and other considerations. Uncertainties associated with any forecast will naturally increase over the course of the outlook period and reflect the interdependencies of underlying assumptions.

The 2026 APO has a reporting horizon, or outlook period, of 24 whole years from Jan. 1, 2027 to Dec. 31, 2050. The long-term demand forecast has a forecast period of 25 whole years, from Jan. 1, 2026 to Dec. 31, 2050, with year 2026 representing the reference year, or year zero, of the outlook period. The long-term demand forecast is produced on both: 1) granular bottom-up; and 2) top-down hourly zonal calibration; which together consider individual end-uses, building or business types, load profiles and analysis of seven different market sectors and is presented on a weather-normalized basis and at the net level, as opposed to actual weather-affected and grid or gross level. Gross-level demand is the total demand for electricity services in Ontario prior to the impact of conservation programs but including the effects of naturally occurring conservation. Net-level demand is gross-level demand minus the impact of conservation. Grid-level demand is net-level demand minus the demand met by embedded resources. It is equal to the energy supplied by the bulk power system to wholesale customers and local distribution companies.

The IESO's 2026 APO study will include three demand scenarios, as per the Ontario Minister of Energy and Mine's [Directive](#) to the IESO on June 11, 2025 regarding Integrated Energy Plan Implementation. The Directive indicates that for the purposes of planning for growth and electrification, the IESO shall incorporate in the APO multiple modelled electricity demand scenarios, including:

- 1) Reference Scenario that reflects current trends and policies in electrification, transportation, space heating, industry and other areas that impact electricity;
  - 2) High-Demand Scenario that reflects a reasonable incremental increase in foregoing trends; and a
  - 3) Low-Demand Scenario that reflects a reasonable incremental decrease in foregoing trends;
- with appropriate and substantiated assumptions associated with these scenarios.

For the 2026 APO, distinct assumptions have been assessed for each of the three scenarios in terms of future projections in general outlook, investor confidence, trade environment, population levels, economic trends, climate, fuel rates, building electrification policies, transportation electrification, hydrogen economy, electricity demand-side management, agriculture sector, commercial data centre sub-sector, industrial mineral extraction and processing sub-sector, as well as others.

In addition to the advent of scenario planning, the demand forecast will be reported in terms of the following three components:

- 1) **Reference Year Demand** which is the forecasted annual energy demand in the year 2026 (i.e., year zero of the outlook period). It acts as an essential character in the forecast story — a stable backdrop that allows the true dynamics of future demand to be expressed clearly and comparably across all scenarios.
- 2) The reference year is informed by the medium-term demand forecast in the June 2025 Reliability Outlook (RO), which was available at the time of APO forecast development.

The RO demand forecast is developed through the assessment of economic and demographic projections, conservation impacts, the effect of embedded generation<sup>1</sup> and business intelligence surrounding large step loads. These factors inform the development of the reference year demand forecast. Additional impacts such as the Industrial Conservation Initiative, Time-of-Use rates and demand response are also accounted for in the Forecast. Although, the APO long-term demand forecast and RO medium term demand forecast methodologies and processes are unique, they are aligned in terms of information and data inputs.

- 3) **Baseline Growth** represents forecasted future changes in electricity demand modelled in the residential, commercial, industrial, agricultural and other sectors independently that have underpinned past demand forecasts and is based on relatively steady, and readily available assumptions and projections such as population, household, commercial floorspace, economic output, income and employment, fuel rate levels and other demand forecast influencers such as trends in consumer preferences, sector structures, economic and policy trends, and IESO Regional Planning.
- 4) **Growth Margin** represents forecasted future changes in electricity demand based on volatile assumptions, projections, in terms of trends and planned projects and is categorized as:
  - a) Economic Development, including the following sub-sectors:
    - i) Commercial data centres;
    - ii) Industrial mineral extraction and processing;
    - iii) Industrial automobile and transportation machinery manufacturing;
    - iv) Industrial chemical production; and
    - v) Industrial other manufacturing;

---

<sup>1</sup> Non-market participant resources.

b) Societal Electrification, including:

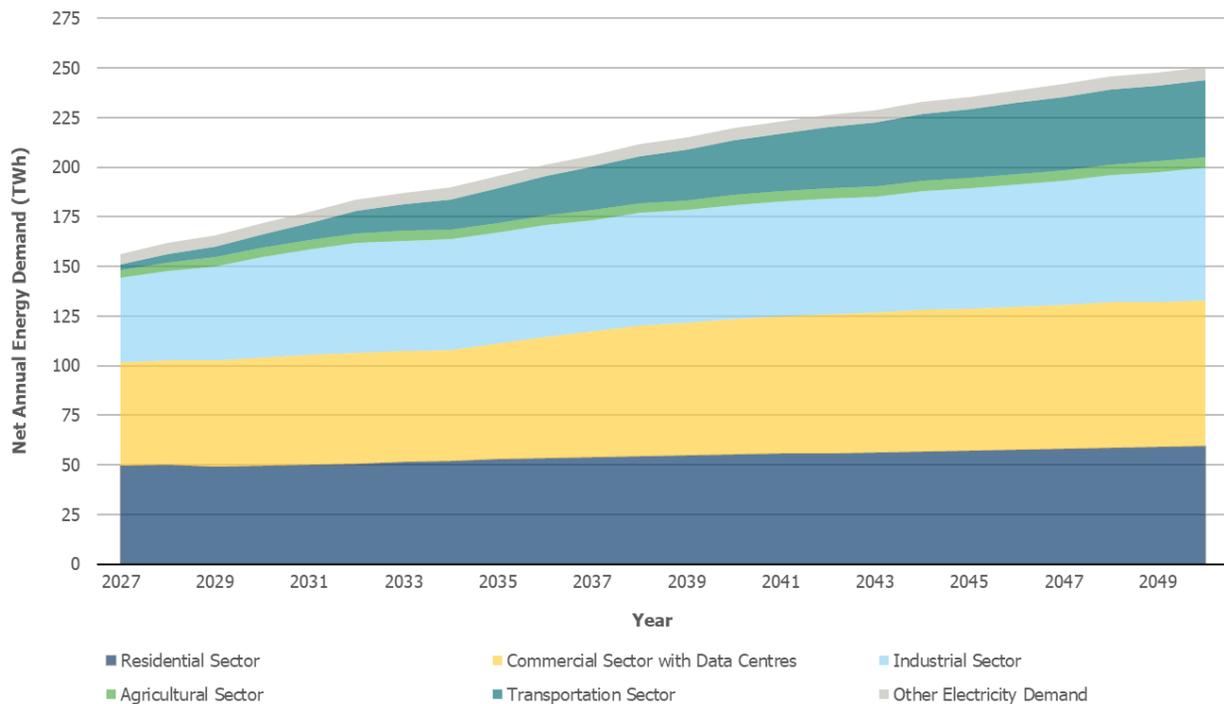
- i) Building decarbonization including in the residential and commercial sectors;
- ii) Industrial decarbonization including the mineral extraction and processing, primary metals manufacturing and other manufacturing sub-sectors; and
- iii) Transportation sector decarbonization;

In terms of reporting for clarity and conciseness in this report, the demand forecast will be discussed in terms of the three componen

## 2.1 Forecast Drivers: Reference Scenario

The reference scenario provides the IESO's view of the most likely trajectory of electricity demand that will develop over the planning horizon, given current energy market trends, the assumed macroeconomic outlook, assumed energy prices, the existing suite of government programs, and recent emerging instances of large step loads.

**Figure 1: Net Annual Energy Demand by Sector, Reference Scenario**



### 2.1.1 Residential Sector

The IESO forecasts demand from the residential sector to show steady growth over the outlook period based on current housing supply policies; however, the pace of growth is projected to be slower compared to the 2025 APO demand forecast. Several factors drive this trend, including:

- Updated federal immigration policies to slow population growth that significantly impact Ontario with the reduction in non-permanent residents over the next several years;
- Weaker residential activity creating lag in household formation;

- Aggregate housing starts that are anticipated to decrease to about half of the 2023 peak (the lowest level since 2009) and take time to recover;

Demand growth in the near term is mitigated by factors that include increasing cost of living trends and the current economic climate.

Other updates to the residential sector forecast include: updated household count forecasts that further indicate increased home concentration in urban areas, such as the Toronto and Ottawa zones; calibrated residential building type shares; and calibrated current and forecasted electric space heating/heat pump installation counts, accounting for concluded programs such as the Canada Greener Homes Grant and the Ontario Clean Home Heating Initiative.

Policy and economic factors impacting the residential sector electricity demand forecast reflect the best available information at the time of forecast finalization but are constantly evolving; changes to assumptions that impact the Forecast will be reflected in the next APO.

Overall, in the reference scenario, residential sector level net annual energy demand is projected to grow from 50 terawatt-hours (TWh) in 2027 to 59 TWh in 2050 — an increase of almost 10 TWh, 20 per cent or a compound annual growth rate of 0.8 per cent.

### **2.1.2 Commercial Sector**

The IESO expects commercial sector demand excluding data centres to increase slightly compared to the 2025 APO demand forecast.

Economic conditions and electricity demand forecasts are mostly aligned with the 2025 APO, with a continued general societal shift to the digital economy (e.g., hybrid work models, online shopping, meal delivery) affecting commercial retail, hospitality and office sub-sectors, and increasing demand for institutional services (e.g., health care, education).

Overall, in the reference scenario, total commercial sector level net annual energy demand is projected to grow from 52 TWh in 2027 to 74 TWh in 2050 — an increase of 22 TWh, 41 per cent or a compound annual growth rate of 1.5 per cent.

#### **2.1.2.1 Commercial Sector – Data Centre Sub-Sector**

An emerging trend observed globally is a sudden rise in interest to construct, connect, and operate large and electricity-intensive commercial data centre facilities to power artificial intelligence and cloud computing applications. This is an uncertain area of electricity demand growth, in terms of the number of projects, expected locations, operation dates, demand levels and consumption profiles. Several data centre projects in Ontario either have active IESO System Impact Assessments (SIA) underway or began construction in 2024.

In 2025, the IESO saw more interest from data centres in Ontario than in 2024. The IESO is actively monitoring this rapidly changing environment and participating in multiple forums across North America to better understand the sector, which includes assessing active and prospective projects under development, each project's probability of successful implementation and overall impacts on electricity demand. More information on data centres and the associated uncertainty is discussed in Section 7.1 of the [2026 APO](#) and in an IESO technical paper released in July 2025.

Overall, in the reference scenario, commercial data centre sub-sector level specific net annual energy demand is projected to grow from 4.5 TWh in 2027 to 22.6 TWh in 2050 — an increase of 17 TWh, 382 per cent or a compound annual growth rate of 7.1 per cent.

### **2.1.3 Industrial Sector**

The IESO anticipates that growth in the industrial sector will proceed at a slower pace than previously projected. This revised outlook is influenced by several factors, including the impact of tariffs and delays in the development of large-scale industrial projects.

Other incremental potential projects accounted for in the demand forecast (which are adjusted for uncertainty) include incremental expansion in the primary metals sub-sector, which includes multiple steel producer new electric arc furnace projects, and other economic expansion projects in the chemical production sub-sector.

The automotive industry in Ontario is experiencing a period of adjustment marked by strategic shifts and operational realignments. Production of certain electric vehicle (EV) models is being discontinued, creating uncertainty for some manufacturing facilities. Large-scale investments in the sector are also being delayed, signaling caution around future growth. At the same time, manufacturers are reducing shifts and implementing temporary shutdowns, reflecting efforts to balance capacity with evolving market demand. These developments suggest a broader trend of recalibration as automakers navigate economic pressures, changing consumer preferences, and the transition toward electrification. The impacts of tariff threats and the uncertainty surrounding short-term demand for EVs may affect investment decisions that extend far into the future. While firms continue to produce parts for current models, they may opt for more American content in the future to offset potential tariffs.

In the mining sub-sector in northern Ontario, the IESO expects the adoption of industrial process electrification in existing and future mines to improve operational economic efficiencies and reduce greenhouse gas (GHG) emissions. The IESO also expects a resumption of a long-term growth cycle starting in the 2040s, requiring development of new extraction and processing facility projects of currently unidentified mineral deposits.

The newly identified projects for the latest Forecast, in addition to previously identified projects in prior forecasts, represent a small number of projects with high levels of certainty in terms of annual levels of energy and peak demand, daily and seasonal load profiles, implementation timelines, and project realization. Due to the number of unknowns, the industrial sector continues to possess the highest levels of forecast uncertainty compared to other sectors. With each year's Forecast — and as each project's implementation milestone nears — levels of forecasted risk decrease as these details become more certain. Expectations continue for slow growth in all other sectors (e.g., petroleum, plastic, rubber, paper, etc.).

Overall, in the reference scenario, industrial sector level net annual energy demand is projected to grow from 42 TWh in 2027 to 66 TWh in 2050 — an increase of 24 TWh, 57 per cent or a compound annual growth rate of 2 per cent.

### **2.1.4 Agricultural Sector**

Electricity demand from Ontario’s agricultural sector continues to rise, particularly in the region west of London, driven by the expansion of greenhouse operations and increased use of supplemental lighting for crops such as fruits, vegetables, flowers and cannabis. This sector’s energy consumption is notably higher in winter than in summer, contributing to seasonal shifts in system peak demand patterns.

Overall, in the reference scenario, agricultural sector level net annual energy demand is projected to grow from 4 TWh in 2027 to 5 TWh in 2050 — an increase of 1.4 TWh, 34 per cent or a compound annual growth rate of 1.3 per cent.

### **2.1.5 Transportation Sector**

EV and rail transit projects are the two categories of transportation electrification assessed in this APO. In 2022, the Government of Canada introduced the 2030 Emissions Reduction Plan that focused on a shift to cleaner fuels for vehicles to decarbonize the transportation sector. Additionally, several rail transit electrification projects are underway or planned across Ontario. EV and rail transit projects are the two categories of transportation electrification assessed in this APO.

Overall, in the reference scenario, annual electricity energy demand from the transportation sector is projected to grow from 2.7 TWh in 2027 to 39.6 TWh in 2050 — a difference of 36.8 TWh, 1,453 per cent or a compound annual growth rate of 12.3 per cent.

#### **2.1.5.1 Transportation Sector – Electric Vehicles**

By the third quarter of 2025, there were nearly 244,000 EVs registered in Ontario, representing about 2.6 per cent of all vehicles in the province. As the federal government rolls out initiatives and plans involving decarbonizing the transportation sector, it is projected that there will be significantly more EVs on the road in Ontario by mid-century<sup>2</sup>.

The Government of Canada published regulations in December 2023 that require manufacturers and importers to meet annual zero-emission sales targets for new light-duty vehicles (weighing less than or equal to 4,536 kilograms): at least 20 per cent in 2026, increasing to at least 60 per cent in 2030 and 100 per cent in 2035. Subsequent to the finalization of the APO demand forecast, in September 2025, the federal government paused the 2026 zero-emission vehicle (ZEV) sales target while conducting a review of its EV policy. The decision was influenced by a slowdown in EV sales; input from the auto industry; and a changing global trade and policy environment. In February 2026, the federal government announced a new automotive strategy that included the repeal of the Electric Vehicle Availability Standards and shift towards a vehicle emissions standards-based approach expected to result in EVs representing 75 per cent of new sales by 2035 and 90 per cent by 2040. The evolving market conditions and policy environment in the EV world, especially geopolitical issues and trade conflicts since the publication of the 2025 APO, demonstrates high uncertainty in the EV forecast.

---

<sup>2</sup> In February 2026, the federal government announced the repeal of the Electric Vehicle Availability Standard and its annual sales targets, and policy shift to vehicle emissions standards. The government has stated that it expects the emissions standards to result in EVs representing 75% of new sales in 2035 and 90% in 2040 (from 100% in 2035). These changes will be fully reflected in the 2027 APO.

Three scenarios of EV forecast were developed for this APO, starting with adoption assumptions. A stock and flow model was then utilized to convert EV adoption to EV population. Together with factors like fuel efficiency and driving distance, electricity charging demands were estimated. Light duty EV was analyzed first, representing the majority of the EV population. Medium and heavy-duty vehicles (weighing more than 4,546 kilograms) represent a very small portion of total vehicles in the province. Their electrification opportunities are very different from light duty vehicles.

The reference scenario reflects continued considerable growth in EV adoption but below federal ZEV targets; achievement of the 100 per cent light duty EV sales targets is assumed to be delayed to 2043. It is projected that the number of light-duty EVs in Ontario will increase from nearly 300,000 in 2025 to 10.6 million in 2050, with annual EV charging demand forecasted to be 34.2 TWh by 2050.

Currently, medium and heavy-duty vehicles combined represent less than 3 per cent of total vehicles in the province. The small population comes together with a wide range of unique usage patterns and requirements, some of which make electrification more challenging. For those suitable for electrification, various competing technologies continue to progress. There is high uncertainty around future market shares of catenary, battery-electric, hydrogen fuel cell, bio-based diesel, and other technologies in the medium and heavy-duty vehicles segment. This APO focuses on battery-powered medium and heavy-duty EVs, which draw power directly from the grid; this category is assumed to lag light-duty EVs.

Three scenarios were analyzed where reference and low scenarios are kept the same. All scenarios assume that close to 100 per cent of school buses and transit buses will be powered by batteries over the coming years. For medium- and heavy-duty vehicles other than buses, the reference scenario assumes that a small portion will be powered by battery. Overall, it is estimated that there will be 53,000 battery-powered medium and heavy-duty EVs in 2050, with an annual charging demand of 3 TWh.

#### **2.1.5.2 Transportation Sector – Rail Transit**

Mass rail transit electrification is also underway across southern Ontario. GO Transit rail corridor electrification projects, local light-rail transit projects and subway projects are at various stages of planning, construction and operation. Some projects continue experiencing delays, carrying high uncertainty of in-service dates. Their electricity demands are high-level estimates and will continue to be refined and updated in future outlooks as more information becomes available. The same rail transit electrification demand forecast is considered under all three scenarios.

Following the finalization of the 2026 APO demand forecast, the federal government made a series of announcements confirming support for proceeding with the Alto High Speed Rail project (previously VIA High Frequency Rail) and significantly accelerating planned construction timelines. With these developments, the IESO is working to incorporate the Alto project into the demand forecast for future APOs.

### **2.1.6 Other Electricity Demand**

The IESO's Forecast accounts for all electrical energy and peak demand in the province. However, certain areas of demand do not fall under any of the previously discussed sectors and are, therefore, classified as "other electricity demand." These include:

- connection of remote communities over the outlook period;
- electricity generators;
- street lighting; and
- municipal water treatment;

Demand from remote communities that were connected to the IESO-controlled grid at the time of forecast development is included in the appropriate sector-level forecasts. Remaining remote community system connections over the course of the outlook period will have their respective forecasts included into explicit sector-level forecasts in future APOs as they are connected. Demand from street lighting and municipal water treatment has been updated to reflect the latest population and household projects.

Overall, in the reference scenario, other electricity demand component's net annual energy demand is projected to grow from 5.6 TWh in 2027 to 6.6 TWh in 2050 — an increase of 1 TWh, 18 per cent or a compound annual growth rate of 0.7 per cent.

### **2.1.7 Demand-Side Management**

Energy efficiency delivered through demand-side management is an important resource for maintaining a reliable, affordable, and sustainable electricity system in Ontario. As electricity demand is forecasted to grow rapidly across the province and as existing resources retire or enter refurbishment, the value of electricity Demand-Side Management (eDSM) to the system increases as a low-cost, non-emitting resource that can respond to changing system needs.

The scope and scale of energy efficiency and demand-side management support economic growth in communities across the province, with a strategic focus on reducing demand on the grid and broadening the types of incentives to meet changing customer needs. Strategic investments into consumer-friendly demand-side management programs helps offset growing demand and saves costs for government, businesses, industry and ratepayers.

The IESO's Forecast accounts for the expected impact of eDSM programs and efficiency regulations in reducing demand.

#### **2.1.7.1 Demand-Side Management Programs**

EDSM programs continue to play an increasingly important role in the power system. Initiatives funded by provincial and federal agencies are underway, achieving energy and peak demand savings and, in turn, reducing energy and capacity needs.

To capture the opportunities and grow the savings from energy efficiency, the IESO is continuing to lead the way in energy efficiency programming in North America through a \$10.9 billion, 12-year funding commitment from the Ontario government, which began January 2025, and provides continued and expanded opportunities for residential and business electricity consumers across the province to manage their electricity use and electricity costs.

The 2025–2036 eDSM Framework is an enduring approach to energy efficiency that enables the IESO to optimize the full value of demand-side management in a variety of ways:

- Provide Ontario homes and businesses with continuing opportunities to manage their electricity costs.
- Empower Ontarians to take actions that will collectively make a difference and help us achieve a sustainable energy future.
- Reduce future electricity system costs by decreasing the amount of new supply and transmission lines needed to meet growing demand for electricity.
- Offer greater certainty to the marketplace that demand-side management programs will be available for the longer term.
- Allow contractors and service providers to continue investing in their business and staff complement with available ongoing opportunities.
- Empower greater consumer engagement on a regional level and programs to help address local system needs through the involvement of local distribution companies (LDCs).
- Enable the IESO to collaborate with sector partners — including LDCs, Enbridge Gas, delivery partners and trade allies — on the promotion of programs and innovative offerings for both residents and businesses.
- Give access to free energy efficiency tips and other educational resources through Save on Energy to help residents better manage their home energy costs and to make smart buying decisions for energy efficient appliances and equipment.
- Improve energy efficiency for First Nations on reserve, and engage with Indigenous communities to better understand barriers and priority areas for future Indigenous programming that takes into consideration the unique Indigenous experiences and insights learned through the delivery of past programs; market research; and engagement with communities, social service organizations, and other stakeholders.
- Continue to run the Energy Affordability Program to help income-eligible consumers save money and improve their home’s energy efficiency.
- Engage small business, commercial, industrial, agricultural, municipal and institutional facilities to drive operational growth and support business competitiveness.
- Offer greater certainty to the marketplace that demand-side management programs will be available for the longer term.
- Enable greater consumer engagement on a regional level and allow programs to help address local distribution system needs through the involvement of local distribution companies.
- Provide sector partners increased opportunities to collaborate with the IESO on the promotion of programs and innovative offerings for consumers across all segments.

The framework will be managed through a series of three-year program plans that enable flexibility and adaptability. The 2025–2027 program plan has a budget of \$1.8 billion for the portfolio of programs and is forecasted to achieve 4.6 TWh of electricity savings by 2027. Beyond that, long-term program savings are assumed to continue as informed by the current three-year plan and expected continued expansion and enhancement of programs under the twelve-year framework, with adjustments for gross demand growth. This APO analyzes three scenarios of long-term demand-side management program savings that are tied to respective gross-demand forecasts.

In addition, other programs funded by the federal government are expected to result in electricity savings in Ontario. The Canada Greener Homes Grant and the Canada Greener Homes Loan Program help homeowners across the country implement energy efficiency and GHG emission-reduction retrofits. These two programs stopped accepting new applications in 2024 and 2025, respectively; however, achieved savings are expected to persist. The Green Municipal Fund targets the commercial sector, with a goal of reducing energy consumption and GHG emissions from fossil fuels. The electricity demand savings in Ontario from these programs are estimated as 0.2 TWh in 2026.

Overall, in the reference scenario, annual electricity demand savings from new eDSM programs implemented between 2027–2050 in Ontario are forecasted to be 22.9 TWh in 2050, which is higher than the savings forecasted in the 2025 APO.

### **2.1.7.2 Demand-Side Management Regulations**

EDSM regulations, which consist of building codes and equipment standards that are both currently in effect and have a relatively high level of certainty of being implemented, are an effective energy-efficiency tool. These electricity demand savings estimates are based on expected improvements in codes for new and renovated buildings and the regulation of minimum efficiency standards for new equipment. The IESO estimates savings attributable to efficiency regulations by comparing the Forecast at the gross level with the Forecast adjusted for the impacts of the regulations. The IESO has identified savings since 2006 and thus uses that year as a base year. Most of the savings from increased regulations will be realized in the residential and commercial sectors.

The eDSM regulations savings forecast is similar to the 2025 APO demand forecast. Minor updates to a handful of equipment standards have been reflected in the latest Forecast. Going forward, as changes to regulations are announced, the IESO will analyze their impacts and include them in forecasts and outlooks as they are published.

Overall, in the reference scenario, annual energy demand savings from eDSM regulations since 2006 are projected to grow from 11.5 TWh in 2027 to 17 TWh in 2050 — an increase of 6 TWh, 51 per cent or a compound annual growth rate of 1.8 per cent.

### **2.1.8 Load Modifiers and Demand Measures**

In addition to sector-level demand and eDSM forecasts, the Forecast is adjusted for load modifiers, initiatives and policies that affect demand or prices. These include the Industrial Conservation Initiative (ICI) and Save on Energy's Peak Perks and (forthcoming) Commercial Heating Ventilation Air Conditioning (HVAC) demand response program, which are controllable initiatives. Both impact the forecasted seasonal peak demand of each year.

### **2.1.8.1 Industrial Conservation Initiative**

ICI is a form of demand response that enables large customers — known as Class A customers — to reduce their electricity costs by curtailing electricity consumption during periods of system peak demand.

ICI forecasts have been created with a load-following methodology, with ICI day program response profiles based uniquely on dynamic forecasted hourly system demand profiles.

Consistent with previous Forecasts, ICI levels are based on the latest observed program responses for the summer 2024 and winter 2025 seasons. The ICI forecast assumes 15 ICI response days each year, with each individual ICI day's response modelled as commensurate with the ICI day's level of system peak demand relative to other ICI days in the same year, consistent with latest observed program responses. Annual ICI response is expected to change consistent with forecasted levels of demand from the industrial sector on a zonal and annual basis with ICI response expected to grow through the early 2030s, remain largely consistent until the late 2040s, and start to grow again thereafter. The IESO expects that ICI drivers — including customer ICI program investment and global adjustment levels — will inevitably change over time; as such, ICI impacts on future forecasts and ICI forecast methodology will be regularly reassessed.

Overall, in the reference scenario, peak ICI annual summer seasonal demand savings are projected to grow from 2,007 megawatts (MW) in 2027 to 2,462 MW in 2050 — an increase of 455 MW, 23 per cent or a compound annual growth rate of 0.9 per cent. Peak ICI annual winter seasonal demand savings are projected to grow from 1,429 MW in 2027 to 1,753 MW in 2050 — an increase of 324 MW, 23 per cent, or a compound annual growth rate of 0.9 per cent.

### **2.1.8.2 Peak Perks**

In May 2023, the IESO launched Peak Perks — a residential demand response program targeting central air conditioning — to help families and small businesses save money and reduce demands on the provincial grid. Participants participate in brief, time-limited thermostat adjustments during periods of peak electricity demand that can occur on the hottest summer days, and the program is designed to be activated on the highest system peak demand days on weekdays from June through September, with a maximum of one activation per day (for no more than three contiguous hours) and no more than 80 hours cumulatively each year.

While the program, which is committed within the parameters of the 2025–2027 eDSM Program Plan, was expanded from solely residential homes to include small business customers in 2025, residential customers continue to account for the majority of participants in the program. Program demand response capacity is forecasted to grow and match responses consistent with forecasted air conditioning unit installations in Ontario. For the purpose of this Forecast, response from the program is assumed to persist to the end of the outlook period, consistent with long-term eDSM program assumptions.

With the benefit of experience from participant enrollment and program activations from previous years, expected program impacts have been updated in this year's Forecast. Peak Perks is expected to reduce system demand by up to 245 MW in 2027 and is included in the Forecast for years 2027–2050, with growth in the program's impact commensurate with province-wide central air conditioning system adoption forecasts.

Overall, in the reference scenario, annual peak demand savings from Peak Perks are projected to grow from 245 MW in 2027 to 294 MW in 2050 — an increase of 49 MW, 20 per cent or a compound annual growth rate of 0.8 per cent.

### **2.1.8.3 Commercial Heating Ventilation Air Conditioning Demand Response**

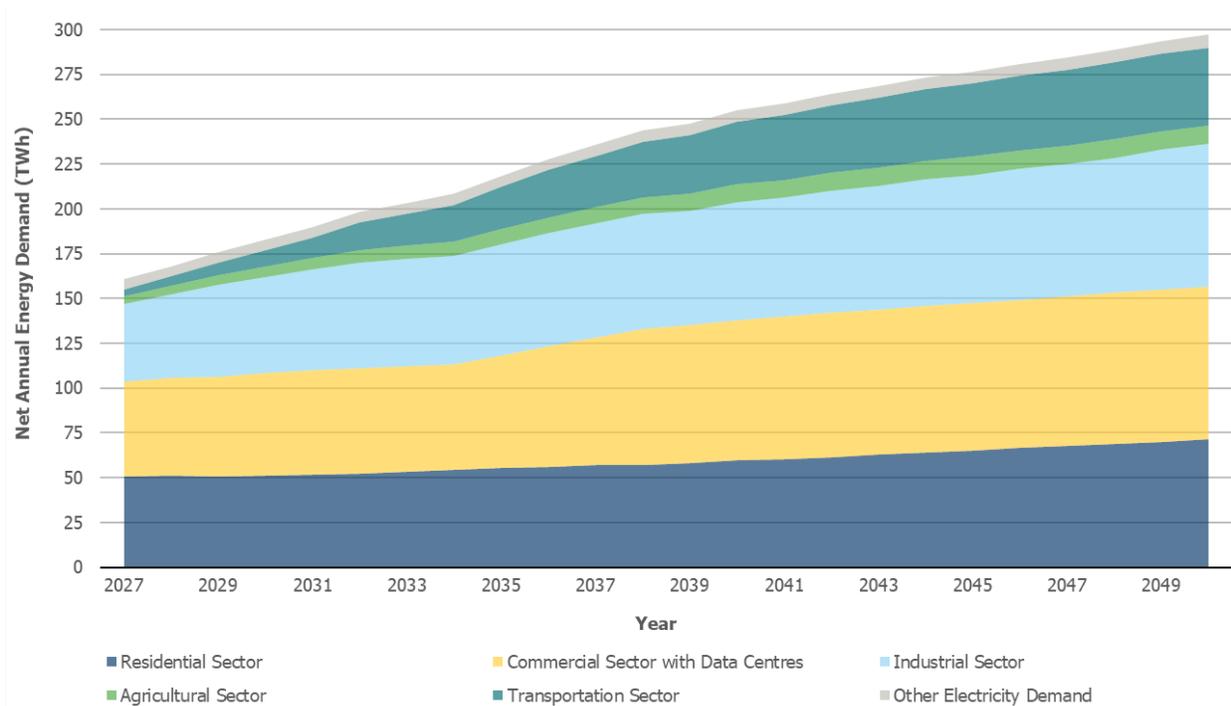
In addition to the expansion of Peak Perks to include small business customers, the IESO is launching a new Commercial HVAC Demand Response program for business customers in 2026. This program is targeting HVAC load that can contribute to reducing summer peaks but is challenged to meet the availability requirements for demand response resources in the IESO's Capacity Auction (i.e., availability for a six-month period including spring and fall "shoulder months" when buildings typically have less cooling load that can be curtailed or shifted). As part of the recently approved 2025 — 2036 eDSM Framework, the new program is expected to help meet the needs of Ontario's electricity system cost-effectively, including by focusing on capacity and electricity savings, supporting reliability, as well as targeted approaches to address regional or local electricity system needs and managing the gradual electrification of Ontario's economy.

Overall, in the reference scenario, annual peak demand savings from Commercial HVAC Demand Response are projected to grow from 245 MW in 2027 to 268 MW in 2050 — an increase of 23 MW, 9 per cent or a compound annual growth rate of 0.4 per cent.

## **2.2 Forecast Drivers: High-Demand Scenario**

The high electricity demand scenario represents a future in which electricity consumption grows significantly due to a combination of accelerated economic activity, resolution of trade disruptions, removal of Canadian internal trade barriers and diversification of external trading partners, and rapid electrification across sectors. This scenario assumes that both public and private sectors actively pursue decarbonization, supported by favourable market conditions and technological advancements.

**Figure 2: Net Annual Energy Demand by Sector, High-Demand Scenario**



### 2.2.1 Residential Sector

The residential household forecast is based on the ratio between the Ontario Ministry of Finance’s high-growth and reference-growth household projections, released in August 2025. This approach reflects a more optimistic outlook on population and housing development, resulting in higher projected electricity demand from the residential sector.

Other assumptions include a ten-year transition from predominantly fossil-fuelled space and water heating to electric heat pumps, from 2040 for new residential buildings.

Overall, in the high-demand scenario, residential sector level net annual energy demand is projected to grow from 50 TWh in 2027 to 71 TWh in 2050 — an increase of 21 TWh, 41 per cent or a compound annual growth rate of 1.5 per cent.

### 2.2.2 Commercial Sector

The Greater Toronto Area (GTA) and surrounding areas are assumed to retain the expected shares of immigrant settlement outlined in the initial projections. The quantitative foundation for this scenario is derived from Ministry of Finance 2024 reference projections, which provide total population estimates for the GTA, surrounding areas, and the province overall. The 2024 Ministry of Finance reference projections serve as an optimistic scenario that are based on the continuation of a very high rate of immigration throughout the forecast period. This scenario yields results that exceed those of the reference scenario.

Overall, in the high-demand scenario, total commercial sector level net annual energy demand is projected to grow from 53 TWh in 2027 to 85 TWh in 2050 — an increase of 32 TWh, 61 per cent or a compound annual growth rate of 2.1 per cent.

### **2.2.2.1 Commercial Sector – Data Centre Sub-Sector**

Data centre demand projections reflect a future with accelerated economic growth and stronger investment confidence, resulting in a higher likelihood of connecting to the grid materializing compared to the reference scenario.

Overall, in the high-demand scenario, commercial data centre sub-sector level specific net annual energy demand is projected to grow from 4.5 TWh in 2027 to 28.4 TWh in 2050 — an increase of 24 TWh, 532 per cent or a compound annual growth rate of 8.3 per cent.

### **2.2.3 Industrial Sector**

Industrial sector electricity demand growth is projected to be substantial, driven by accelerated economic activity, increased production output, and broader electrification of industrial processes. Strong market conditions and supportive policy environments encourage investment in new facilities and modernization of existing operations. It also incorporates emerging hydrogen production loads, further increasing electricity demand as hydrogen becomes a key component of decarbonization strategies. This scenario anticipates a more active role for the industrial sector in demand-side management programs, including expanded participation in initiatives like the ICI, to help manage peak loads and support system reliability amid growing demand.

Overall, in the high-demand scenario, industrial sector level net annual energy demand is projected to grow from 44 TWh in 2027 to 80 TWh in 2050 — an increase of 36 TWh, 82 per cent or a compound annual growth rate of 2.6 per cent.

### **2.2.4 Agricultural Sector**

Electricity demand projections for the agricultural sector incorporate assumptions from the high growth forecast developed for the Windsor-Essex Integrated Regional Resource Plan (IRRP), as well as the greenhouse expansion forecast used in the Coatsworth area under the Hydro One Regional Infrastructure Plan (RIP). These inputs reflect anticipated growth in greenhouse operations and associated energy needs in key agricultural regions.

Overall, in the high-demand scenario, agricultural sector level net annual energy demand is projected to grow from 4 TWh in 2027 to 10.5 TWh in 2050 — an increase of 6.4 TWh, 156 per cent or a compound annual growth rate of 4.2 per cent.

### **2.2.5 Transportation Sector**

Provincial light-duty EV adoption is assumed to meet the (now replaced) 2023 federal EV sales targets), reaching 100 per cent of light duty sales by 2035. Light-duty EV population is expected to increase to 11.5 million in 2050, with associated charging demand of 37.1 TWh. This scenario estimates increased medium and heavy-duty EVs compared to the reference scenario, reaching 90,000 EVs in 2050, with an annual charging demand of 5.1 TWh. The rail transit electrification projects considered are the same as the reference scenario.

Overall, in the high-demand scenario, transportation sector annual electricity demand is projected to grow from 4 TWh in 2027 to 44.5 TWh in 2050 — an increase of 40.5 TWh, 1,102 per cent or a compound annual growth rate of 11 per cent.

## **2.2.6 Other Electricity Demand**

Electricity demand from streetlighting and municipal water treatment is adjusted in proportion to the projected increase in households, reflecting the assumption that these services scale with residential growth and associated usage.

Overall, in the high-demand scenario, net annual energy demand from other electricity demand is projected to grow from 5.7 TWh in 2027 to 7.1 TWh in 2050 — an increase of 1.5 TWh, 25 per cent or a compound annual growth rate of 1 per cent.

## **2.2.7 Demand-Side Management**

### **2.2.7.1 Demand-Side Management Programs**

Projected savings from the 2025-2027 program plan are assumed to be the same as the reference forecast, growing to 4.6 TWh by 2027. Beyond 2027, long-term program savings are assumed to continue, as informed by savings levels under the current three-year plan and expected continued expansion and enhancement of programs adjusted for gross demand growth.

Overall, annual electricity demand savings from new programs implemented between 2027–2050 are forecasted to be 26.4 TWh in 2050, which is higher than eDSM savings forecasted in the reference scenario due to higher gross demand.

### **2.2.7.2 Demand-Side Management Regulations**

EDSM regulations are scaled up to reflect increased electricity demand across the residential and commercial sectors. With more households and businesses driving overall energy usage, the regulatory framework is assumed to be strengthened to support expanded energy efficiency and demand-side management initiatives. This ensures that peak loads are effectively managed, and system reliability is maintained in the face of accelerated sectoral growth.

Overall, in the high-demand scenario, annual energy demand savings from eDSM regulations since 2006 are projected to grow from 11.7 TWh in 2027 to 20 TWh in 2050 — an increase of 8 TWh, 71 per cent or a compound annual growth rate of 2.3 per cent.

## **2.2.8 Load Modifiers and Demand Measures**

Load modifiers and demand-side measures are scaled proportionally, based on the reference scenario, with adjustments — such as ICI, Peak Perks and the new Commercial HVAC demand response program — applied in alignment with the higher overall demand forecast. This approach ensures consistency in modeling assumptions while reflecting the increased electricity needs anticipated under accelerated economic and electrification conditions.

### **2.2.8.1 Industrial Conservation Initiative**

Response from ICI is expected to increase in line with rising electricity demand from the industrial sector. Accelerated economic growth and expanded industrial activity are expected to drive higher energy consumption, particularly in zones with strong manufacturing and resource-based operations. As a result, participation in the ICI program is projected to grow steadily through the early 2030s, remain robust and consistent into the late 2040s, and begin increasing again thereafter. This expanded response supports peak demand management and system reliability, while enabling large industrial consumers to play a more active role in grid efficiency and sustainability.

Overall, in the high-demand scenario, peak ICI annual summer seasonal demand savings are projected to grow from 2,021 MW in 2027 to 2,708 MW in 2050, an increase of 687 MW, 34 per cent or a compound annual growth rate of 1.3 per cent. Peak ICI annual winter seasonal demand savings are projected to grow from 1,444 MW in 2027 to 1,934 MW in 2050, an increase of 490 MW, 34 per cent or a compound annual growth rate of 1.3 per cent.

### **2.2.8.2 Peak Perks**

The Peak Perks residential and small commercial demand response program is scaled to reflect the projected increase in the number of households and small businesses and the corresponding rise in air-conditioning usage. As population growth drives housing development and small commercial businesses, especially in urban and suburban areas, the demand for cooling during summer months is expected to intensify. By expanding program demand response capacity in line with this growth, the scenario leverages flexible load management strategies to reduce peak electricity demand. This targeted approach enhances system reliability, supports grid stability during high-load periods, and helps mitigate the impact of increased residential cooling loads on summer peak demand.

Overall, in the high-demand scenario, annual peak demand savings from Peak Perks are projected to grow from 245 MW in 2027 to 313 MW in 2050 — an increase of 68 MW, 28 per cent or a compound annual growth rate of 1.1 per cent.

### **2.2.8.3 Commercial Heating Ventilation Air Conditioning Demand Response**

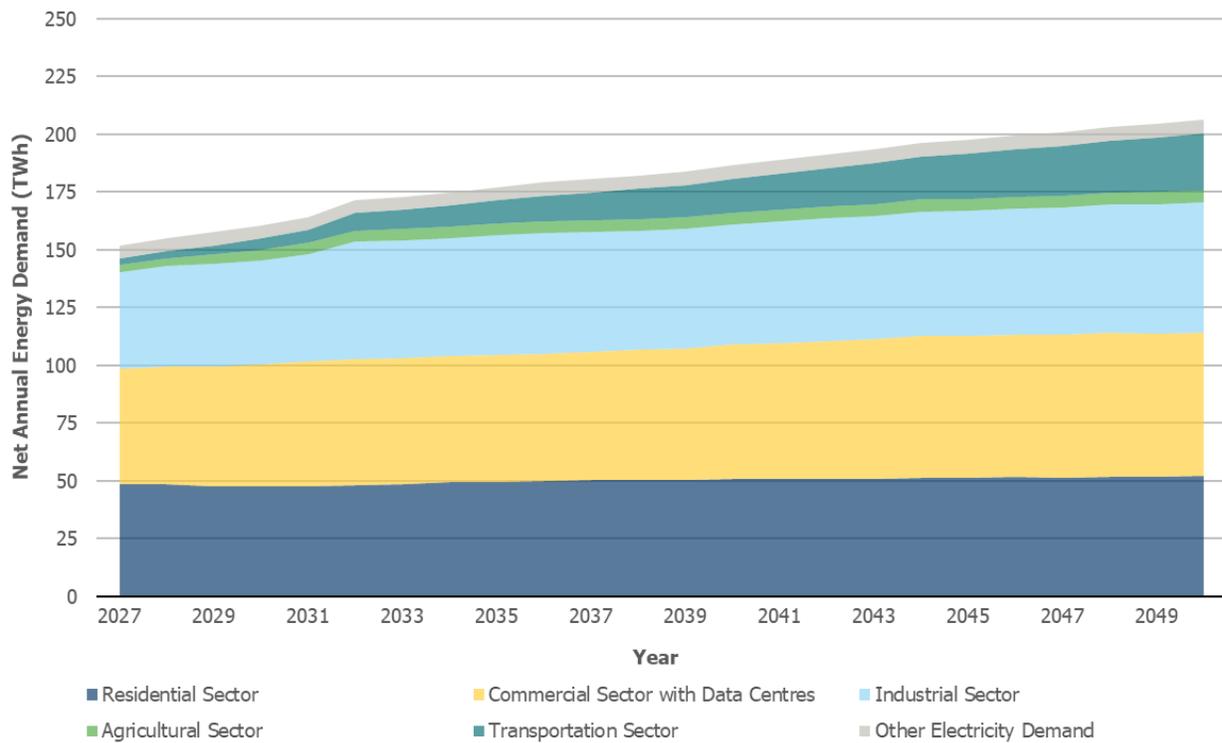
The Commercial HVAC Demand Response Program is scaled in proportion to the projected increase in electricity demand from cooling loads in businesses. This reflects the assumption that as commercial activity and the number of businesses grows, so too will the need for cooling — particularly during warmer months. By aligning demand response capacity with this growth, the scenario accounts for the potential to manage peak loads more effectively through targeted load reduction strategies. This approach supports system reliability and helps mitigate the impact of increased summer peak demand associated with commercial sector expansion.

Overall, in the high-demand scenario, annual peak demand savings from Commercial HVAC Demand Response Program are projected to grow from 245 MW in 2027 to 280 MW in 2050 — an increase of 35 MW, 14.1 per cent or a compound annual growth rate of 0.6 per cent.

## 2.3 Forecast Drivers: Low-Demand Scenario

The low electricity demand scenario represents a future in which electricity consumption grows at a more gradual pace due to slower economic activity, stronger trade disruption, and generally weaker investor confidence and demand for Ontario’s goods and services. Market conditions and technological adoption are less favorable, resulting in more modest increases in electricity demand. The scenario reflects a more conservative outlook, emphasizing system efficiency and reliability under lower growth conditions.

**Figure 3: Net Annual Energy Demand by Sector, Low-Demand Scenario**



### 2.3.1 Residential Sector

The residential household forecast is derived by applying the ratio between the Ministry of Finance’s low-growth and reference-growth household projections, released in August 1, 2025. This method ensures that electricity demand aligns with a more conservative outlook on population and housing development.

Overall, in the low-demand scenario, residential sector level net annual energy demand is projected to grow from 49 TWh in 2027 to 52 TWh in 2050 — an increase of 3.5 TWh, 7 per cent or a compound annual growth rate of 0.3 per cent.

### 2.3.2 Commercial Sector

Commercial square footage is the main driver for the commercial sector. In this low-demand scenario, a lower commercial square footage forecast was developed to assess the impact of demographic growth similar to that of the reference scenario, while modifying the space requirements for non-residential sectors. This adjustment reflects a decrease in new space needs due to the accelerated trends currently observed in the market. For the primary non-residential space, the scenario assumed the following:

- Demand for office space will continue to decline, and this decline will happen more quickly than projected in the reference scenario.
- While demand may continue for new retail space, it is assumed to grow at a much lower rate than population growth, largely due to the increasing shift to online shopping.
- Demand for new industrial-type space — encompassing warehousing, distribution, and logistics uses — will persist at a slower rate than anticipated in the reference scenario. The slowdown may be attributed to disrupted trade relationships or other economic shifts that impact the production and distribution of goods.

Overall, in the low-demand scenario, total commercial sector level net annual energy demand is projected to grow from 50 TWh in 2027 to 62 TWh in 2050 — an increase of 12 TWh, 24 per cent or a compound annual growth rate of 0.9 per cent.

#### 2.3.2.1 Commercial Sector - Data Centre Sub-Sector

Data centre demand projections reflect a future with slower economic growth, more cautious investment behavior, and only those projects confirmed with a completed SIA. The scenario emphasizes a more conservative approach to capacity planning, recognizing that while data centres remain an important load component, their growth may be tempered by broader economic and market conditions.

Overall, in the low-demand scenario, net annual energy demand from the commercial data centre sub-sector level is projected to grow from 3 TWh in 2027 to 14 TWh in 2050 — an increase of 12 TWh, 394 per cent or a compound annual growth rate of 7.2 per cent.

### 2.3.3 Industrial Sector

Electricity demand from the industrial sector is assumed to grow at a more moderate pace, reflecting subdued economic conditions and slower expansion of industrial activity. Factors such as trade barriers, investment uncertainty, and delays in large industrial step loads contribute to a more cautious outlook. Fewer new facilities are assumed to come online, and existing operations are assumed to expand only incrementally. As a result, the sector's contribution to overall electricity demand remains stable, and participation in demand-side management programs such as ICI is expected to remain steady, with limited growth over the planning horizon.

Overall, in the low-demand scenario, industrial sector level net annual energy demand is projected to grow from 42 TWh in 2027 to 56 TWh in 2050 — an increase of 15 TWh, 35 per cent or a compound annual growth rate of 1.3 per cent.

### 2.3.4 Agricultural Sector

In the low-demand scenario, electricity demand growth from the greenhouse sector is assumed to be delayed by two years compared to the reference scenario. This adjustment helps account for sector-specific risks and ensures that planning assumptions remain aligned with realistic growth trajectories under conservative conditions, based on several influencing factors:

- 1) **Market uncertainty:** Greenhouse operations are sensitive to commodity prices, labour availability, and export conditions; a slower economic recovery or market volatility could delay investment in electrified infrastructure.
- 2) **Policy and incentive timing:** The pace of electrification in the greenhouse sector is closely tied to the availability and timing of government incentives, such as energy efficiency grants or electrification subsidies. Delays or reductions in these programs could slow adoption.
- 3) **Technology adoption rates:** The transition to electric heating and lighting systems depends on technology costs and operational reliability. In a low-demand scenario, adoption is assumed to be more cautious, with growers opting to delay upgrades.

Overall, in the low-demand scenario, agricultural sector level net annual energy demand is projected to grow from 3 TWh in 2027 to 5 TWh in 2050 — an increase of 2 TWh, 59 per cent or a compound annual growth rate of 2 per cent.

### 2.3.5 Transportation Sector

Moderate to low growth in light-duty EV adoption is assumed, as informed by the EV adoption trend in recent years. The light-duty EV population is assumed to increase to 6.1 million in 2050, with charging demand of 19.6 TWh. Medium- and heavy-duty EVs are assumed to be the same as those in reference scenario, totalling 53,000 in 2050, with an annual charging demand of 3 TWh. The rail transit electrification projects considered are the same as the reference scenario.

In the low-demand scenario, transportation sector annual electricity demand is forecast to grow from 2.3 TWh in 2027 to 24.9 TWh in 2050 — an increase of 22.2 TWh, 915 per cent or a compound annual growth rate of 10.1 per cent.

### 2.3.6 Other Electricity Demand

Electricity demand from streetlighting and municipal water treatment is scaled down in alignment with a lower household growth forecast. This reflects the assumption that reduced residential development will result in slower expansion of municipal services, leading to lower electricity consumption in these areas.

Overall, in the low-demand scenario, net annual energy demand from other electricity demand is projected to grow from 5.5 TWh in 2027 to 6 TWh in 2050 — an increase of 0.5 TWh, 10 per cent or a compound annual growth rate of 0.4 per cent.

## 2.3.7 Demand-Side Management

### 2.3.7.1 Demand-Side Management Programs

Projected savings of the 2025–2027 program plan are assumed to be the same as the reference forecast, growing to 4.6 TWh by 2027. Beyond that, long-term program savings are assumed to continue as informed by the current three-year plan and adjusted for gross demand growth .

Overall, in the low-demand scenario, annual electricity demand savings from new eDSM programs implemented between 2027–2050 in Ontario are forecasted to be 18.9 TWh in 2050, and savings are lower compared to the reference scenario due to lower gross demand and lower assumptions post-2027 about annual new program savings as a percentage of gross demand.

### 2.3.7.2 Demand-Side Management Regulations

Electricity demand-side management regulations are adjusted to align with projections for the residential and commercial sectors, ensuring the framework remains responsive to reduced electricity demand and sectoral growth. This approach accommodates the anticipated changes while maintaining effective support for energy efficiency and demand-side management.

Overall, in the low-demand scenario, annual energy demand savings from eDSM regulations since 2006 are projected to grow from 11 TWh in 2027 to 15 TWh in 2050 — an increase of 4 TWh, 36 per cent or a compound annual growth rate of 1.3 per cent.

## 2.3.8 Load Modifiers and Demand Measures

Load modifiers and demand-side measures are scaled proportionally based on the reference scenario. This means that adjustments — such as ICI, Peak Perks, residential demand response and the commercial HVAC demand response program — are applied in alignment with the lower overall demand forecast. This approach ensures consistency in modeling assumptions while reflecting the increased electricity needs anticipated under lower economic activity and electrification conditions.

### 2.3.8.1 Industrial Conservation Initiative

Response from ICI is expected to remain relatively stable, reflecting slower growth in electricity demand from the industrial sector. With more subdued economic activity and fewer large industrial step loads, the need for aggressive peak demand management is reduced. ICI participation is projected to grow modestly through the early-2030s, stabilize through the mid-century, and potentially increase slightly in the longer term as industrial demand gradually picks up. This measured approach ensures that the program continues to support system reliability while remaining aligned with lower demand expectations.

Overall, in the low-demand scenario, peak ICI annual summer seasonal demand savings are projected to grow from 1,982 MW in 2027 to 2,259 MW in 2050, an increase of 276 MW, 14 per cent or a compound annual growth rate of 0.6 per cent. Peak ICI annual winter seasonal demand savings in the low-demand scenario are projected to grow from 1,411 MW in 2027 to 1,608 MW in 2050 — an increase of 197 MW, 14 per cent or a compound annual growth rate of 0.6 per cent.

### **2.3.8.2 Peak Perks**

In this scenario, the Peak Perks demand response program capacity change remains relatively mild, reflecting slower growth in household and small business formation and a more modest increase in air-conditioning usage. With fewer new homes being added, lesser small business expansion and less upward pressure on summer electricity demand, the need for large-scale residential and small commercial load management is reduced. This scenario prioritizes maintaining core demand response capabilities to manage peak loads efficiently, while recognizing that the overall potential for Peak Perks participation may be constrained. By aligning program scale with lower demand projections, the approach supports system reliability in a cost-effective manner without over-investing in capacity that may not be fully utilized.

Overall, in the low-demand scenario, annual peak demand savings from Peak Perks are projected to grow from 245 MW in 2027 to 275 MW in 2050 — an increase of 30 MW, 12 per cent or a compound annual growth rate of 0.5 per cent.

### **2.3.8.3 Commercial Heating Ventilation Air Conditioning Demand Response**

The Commercial HVAC Demand Response Program is maintained at a modest scale, reflecting slower growth in electricity demand from cooling loads in businesses. This scenario assumes limited expansion in commercial activity and a relatively stable number of businesses, resulting in less pronounced increases in cooling needs during warmer months. By keeping demand response capacity aligned with these subdued growth trends, the scenario emphasizes cost-effectiveness and operational efficiency. It supports system reliability by continuing to target peak load reduction where feasible, while recognizing that the potential for large-scale demand response may be constrained under lower demand conditions.

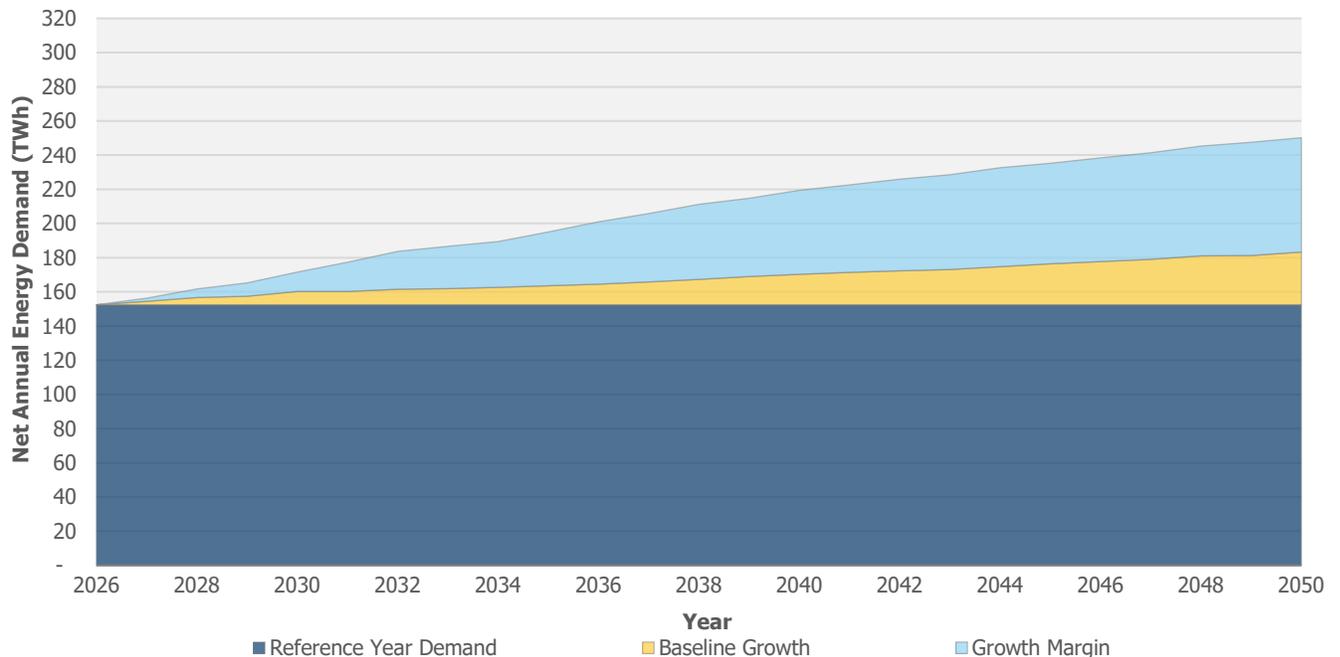
Overall, in the low-demand scenario, annual peak demand savings from Commercial HVAC Demand Response Program are projected to grow from 245 MW in 2027 to 257 MW in 2050 — an increase of 12 MW, 5.1 per cent or a compound annual growth rate of 0.2 per cent.

# 3. Growth Margin

## 3.1 Reference Scenario

The reference scenario provides the IESO's view of the most likely development of trajectory of electricity demand to develop over the planning horizon, given current energy market trends, the assumed macroeconomic outlook, assumed energy prices, and the existing suite of government programs. On a high level, several forecasted demand trends and influences identified in the [2025 Annual Planning Outlook](#) are consistent or similar in the reference scenario of the 2026 APO.

**Figure 4 | Reference Scenario Demand Forecast by Component**



The Forecast of reference year demand for the reference scenario aligns with the June 2025 Reliability Outlook planned scenario demand forecast, is at the grid demand level, and was adjusted to the net demand level as described in the APO methodology document. Reference year demand net annual energy demand is forecasted to be 152 TWh in 2026.

Baseline growth demand increases are strongly influenced by projected long-term increases in population with lesser increases in the commercial and industrial sectors. Baseline growth net annual energy demand is forecasted to grow from 0 TWh in 2026 to 31 TWh in 2050, 20 per cent of reference year demand, and results in 1.3 TWh average annual growth over the 24 year outlook period, accounting for 32 per cent of total growth over this period.

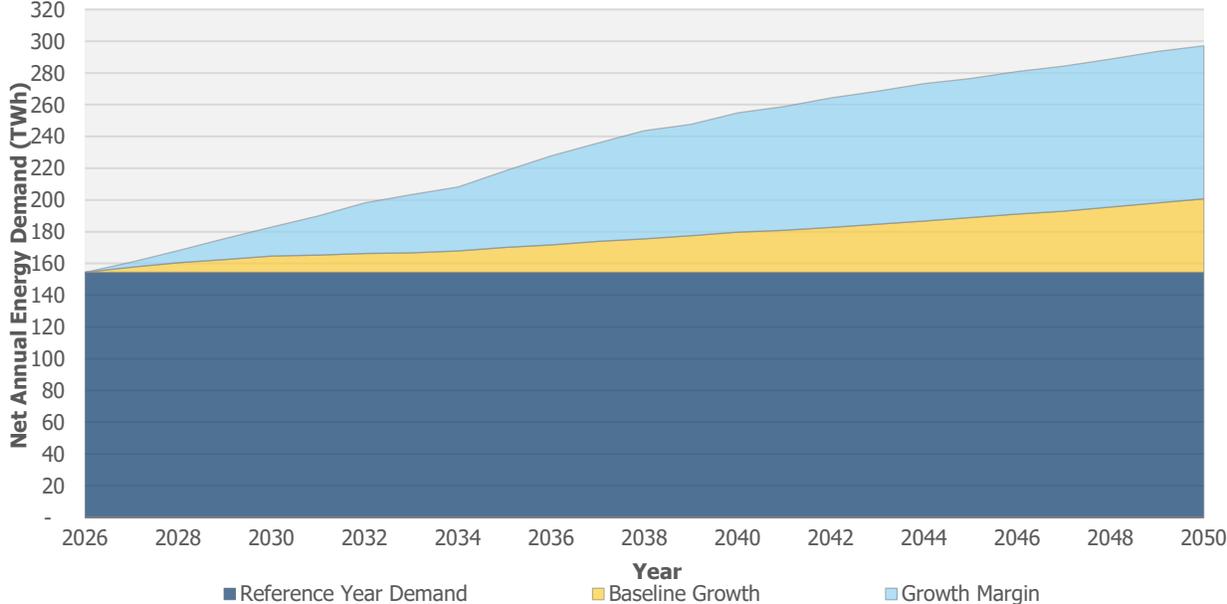
Growth margin demand increases are strongly influenced by projected growth and thus electricity demand increases in the commercial data centre sub-sector and the industrial automobile and transportation machinery sub-sector, specifically in electric vehicle production and associated local supply chains. Growth margin net annual energy demand is forecasted to grow from 0 TWh in 2026 to 67 TWh in 2050, 44 per cent of the reference year demand, and results in 2.8 TWh average annual growth over the 24 year outlook period, accounting for 68 per cent of total outlook period growth.

Overall, net annual energy demand is forecasted to grow from 152 TWh in 2026 to 250 TWh in 2050, a total growth of 98 TWh, 64 per cent of reference year demand and results in 4.1 TWh average annual growth and a 2.1 per cent compound annual growth rate over the 24 year outlook period.

### 3.2 High-Demand Scenario

The high electricity demand scenario represents a future in which electricity consumption grows significantly due to a combination of accelerated economic activity, resolution of trade disruptions, removal of Canadian internal trade barriers and diversification of external trading partners, and rapid electrification across sectors. This scenario assumes that both public and private sectors actively pursue decarbonization, supported by favourable market conditions and technological advancements.

**Figure 5 | High-Demand Scenario Demand Forecast by Component**



The Forecast of reference year demand for the high-demand scenario is aligned with the reference year demand forecast for the reference scenario, and was adjusted to reflect stronger assessed projections in economic growth and increased large step load materialization in the reference year. Reference year demand net annual energy demand is forecasted to be 154 TWh in 2026, 2 TWh or 1 per cent greater than the reference scenario.

Baseline growth in the high-demand scenario is projected to be greater than the reference scenario on the basis of higher population projections and associated increases in household and commercial floor space counts and marginal increases in economic output in the industrial sector. Baseline growth net annual energy demand is forecasted to grow from 0 TWh in 2026 to 46 TWh in 2050, 30 per cent of reference year demand, 15 TWh or 48 per cent greater than the reference scenario, and results in 1.9 TWh average annual growth over the 24 year outlook period, accounting for 32 per cent of total outlook period growth.

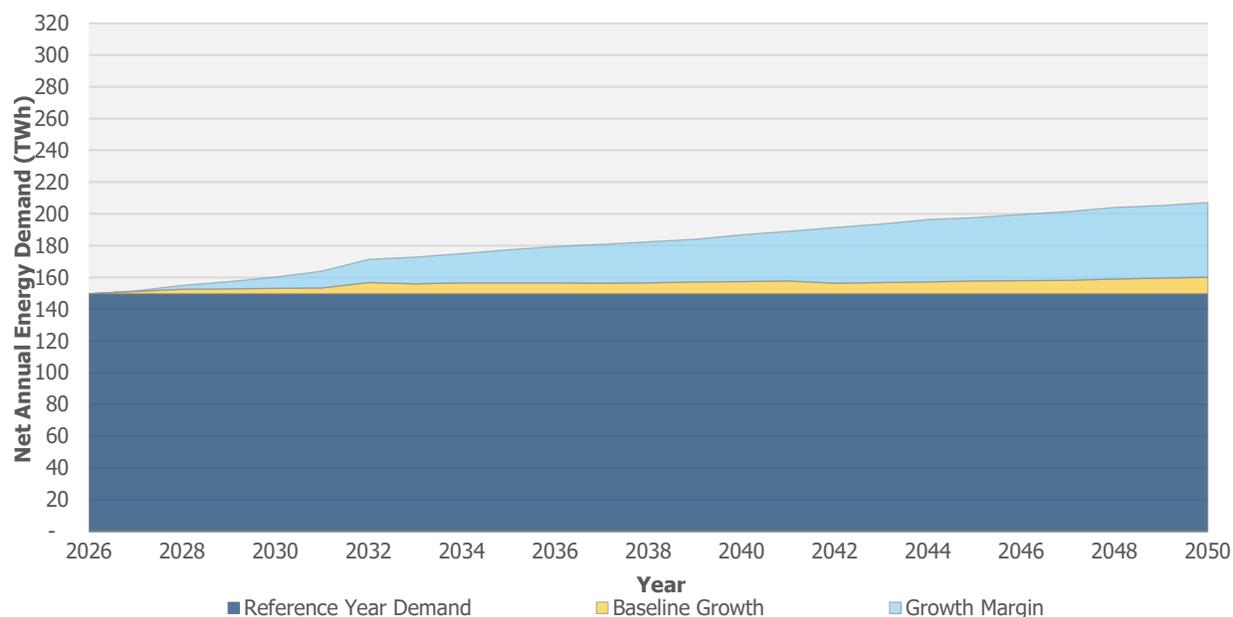
Growth margin in the high-demand scenario is projected to be greater than the reference scenario on the basis of higher levels of electrification including residential sector building electrification, industrial mineral extraction projects and broader adoption of electric vehicles, and higher levels of economic development including greater materialization rates for commercial data centres, industrial mineral extraction projects, electric vehicle production, hydrogen production and other manufacturing projects. Growth margin net annual energy demand is forecasted to grow from 0 TWh in 2026 to 96 TWh in 2050, 62 per cent of reference year demand, 35 TWh or 52 per cent greater than the reference scenario, and results in 4 TWh average annual growth over the 24 year outlook period, accounting for 68 per cent of total growth over the period.

Overall, net annual energy demand is forecasted to grow from 154 TWh in 2026 to 297 TWh in 2050, 47 TWh or 19 per cent greater than the reference scenario, a total growth of 143 TWh, 93 per cent of reference year demand, 45 TWh or 46 per cent greater than the reference scenario, and results in 6 TWh average annual growth and a 2.8 per cent compound annual growth rate over the 24 year outlook period.

### 3.3 Low-Demand Scenario

The low electricity demand scenario represents a future in which electricity consumption grows at a more gradual pace due to slower economic activity, stronger trade disruption, and generally weaker investor confidence and demand for Ontario's goods and services. Market conditions and technological adoption are less favorable, resulting in more modest increases in electricity demand. The scenario reflects a more conservative outlook, emphasizing system efficiency and reliability under lower growth conditions.

**Figure 6 | Low-Demand Scenario Demand Forecast by Component**



The Forecast of the reference year demand of the low-demand scenario is aligned with reference year demand of the Reference Scenario, and was adjusted to reflect lower assessed projections in economic growth on the basis of a deterioration in the economic conditions and lower than anticipated growth from large step loads. Reference year demand net annual energy demand is forecasted to be 150 TWh in 2026, 3 TWh or 2 per cent lower than the reference scenario.

Baseline growth in the low-demand scenario is projected to be lesser than the reference scenario on the basis of slowing population growth and associated commercial activity and industrial sector output. Baseline growth net annual energy demand is forecasted to grow from 0 TWh in 2026 to 10 TWh in 2050, 7 per cent of reference year demand, 20 TWh or 68 per cent lesser than the reference scenario, and results in 0.4 TWh average annual growth over the 24 year outlook period, accounting for 18 per cent of total growth over this period.

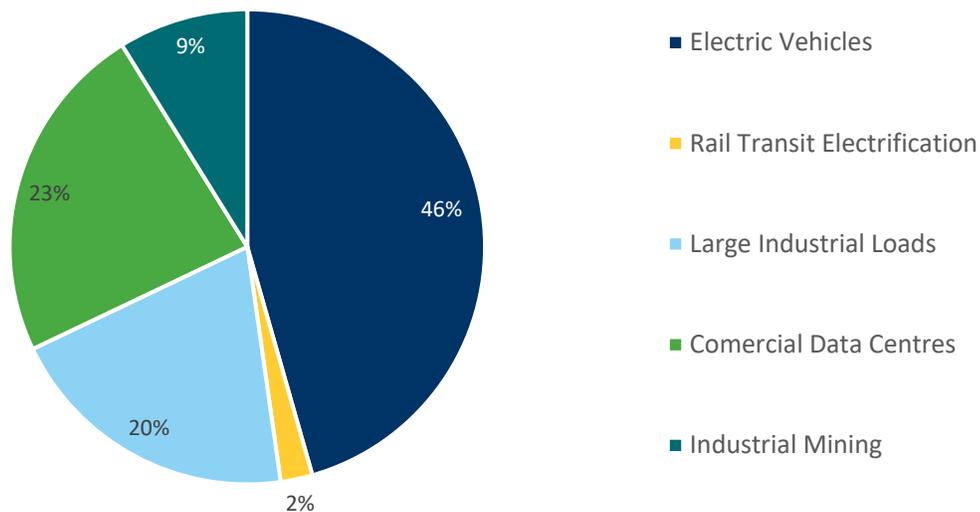
Growth margin in the low-demand scenario is projected to be lesser than the reference Scenario on the basis of lesser electrification adoption, primarily in the industrial primary metals production sub-sector and lesser electric vehicle adoption, and lesser economic development, primarily lesser materialization of commercial data centres, and marginally lesser materialization of industrial mineral extraction projects, electric vehicle and hydrogen production. Growth margin net annual energy demand is forecasted to grow from 0 TWh in 2026 to 47 TWh in 2050, 31 per cent of reference year demand, 20 TWh or 30 per cent lesser than the reference scenario, and results in 2 TWh average annual growth over the 24 year outlook period, accounting for 82 per cent of total outlook period growth.

Overall, net annual energy demand is forecasted to grow from 150 TWh in 2026 to 207 TWh in 2050, 43 TWh or 17 per cent lesser than the reference scenario, a total growth of 58 TWh, 39 per cent of reference year demand, 40 TWh or 41 per cent lesser than the reference scenario and results in 1.4 TWh average annual growth and a 2.1 per cent compound annual growth rate over the 24 year outlook period.

### 3.4 Growth Margin Composition

The growth margin represents the additional load anticipated to materialize beyond today's reference year demand and baseline growth, driven by structural changes in technology, industry, and transportation. The components making up the growth margin include electric vehicles, rail transit, data centres, large industrial loads, and mining subsectors. Figure 7 illustrates the projected composition of the growth margin by 2050 under the reference scenario, highlighting how different sectors contribute to future electricity demand.

**Figure 7 | Growth Margin Component by 2050 – Reference Scenario**



These shifts include the widespread adoption of new technologies, major industrial transitions, and the ongoing electrification of transportation. As illustrated, electric vehicles represent a substantial portion of this projected increase, reflecting the accelerating move away from internal combustion engines in both personal and commercial transportation. Rail transit also contributes meaningfully to the growth margin, as transit agencies increasingly electrify rail corridors to support lower-emission mobility options.

Another major driver is the rapid expansion of data centres, which continue to grow in number and scale in response to digitalization, cloud computing, and artificial intelligence workloads. These facilities are large, continuous consumers of electricity, making them an influential element of future demand projections. In addition, large industrial loads—such as advanced manufacturing, clean-tech processing, hydrogen production, or other energy intensive operations—are expected to place new and concentrated demands on the grid. Finally, the mining sub-sectors add to overall growth as extraction and processing activities expand and shift toward more electrified operations, especially in support of critical mineral development

While the components are the same across all three scenarios, the relative contribution of each component varies slightly depending on the scenario assumptions. These variations reflect differences in projected economic activity, technology adoption rates, electrification pathways, and regional development patterns embedded within each scenario framework.

A wide range of uncertainty exists in the load forecasts across the three demand scenarios, and some anticipated loads may not materialize as projected.

---

**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](mailto:customer.relations@ieso.ca)

**ieso.ca**

 [@IESO Tweets](#)

 [linkedin.com/company/IESO](https://www.linkedin.com/company/IESO)