

TORONTO LEADS AGAIN

Powering Toronto: Electricity, Grid, Compute & Energy

Plan electricity, distribution, resilience, district energy, electrification and compute capacity ahead of growth.

Campaign Policy Proposal - Not a City of Toronto Publication



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People first. Families first. Machines serve. Democracy decides. Nature sets the constraint. Art gives the future meaning.

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Why this matters

Megawatts are not parcel capacity

System-level power availability does not mean every site can connect immediately. Distribution, substations, transmission, protection equipment, construction schedules and local constraints determine usable capacity.

Compute earns its place

Public-interest and commercial compute should be planned against grid constraints, heat-recovery opportunities, economic value, security, land use and priority needs rather than treated as unlimited digital infrastructure.

Executive Summary

Powering Toronto treats electricity as enabling infrastructure for housing, transit electrification, cooling, industry and compute. Capacity is not only a citywide megawatt number; projects depend on local stations, feeders, transmission, timing and the institutions that control each part of the system.

The strategy distinguishes City responsibilities from Toronto Hydro, Hydro One, IESO, provincial and private-sector roles. It proposes an annual Giga Grid capacity plan, district readiness grades, housing-to-power triggers and clearer rules for energy-intensive compute and industrial loads.

The goal is reliable growth: connect homes and essential services on time, improve resilience, and ensure large discretionary loads contribute to the infrastructure and public value they require.

Major commitments

- Create an annual Toronto growth-and-grid capacity plan with utilities and provincial system planners.
- Publish district electrical-capacity readiness for major growth areas.
- Create housing-to-power escalation triggers where delivery is likely to outrun utility timing.
- Advance district energy, storage and resilience business cases where they reduce system costs or risk.
- Set public-value and infrastructure-readiness expectations for large compute loads.
- Keep utility/rate-supported investments on the appropriate balance sheet.

How this fits the governing program

Financial treatment: first-term actions in this report must reconcile to Report 03. Unsigned partner funding and unverified technology savings are not booked in the municipal base case.

How to read commitments and numbers

Status	Meaning
OFFICIAL BASELINE	Current public evidence or an inherited program.
ADOPTED CITY TARGET	A target already approved by the City; not a new campaign promise.
CAMPAIGN COMMITMENT	A first-term action proposed by the campaign, subject to lawful Council/budget authority.
CAMPAIGN TARGET	A measurable result the campaign proposes to pursue.
PLANNING ASSUMPTION / SCENARIO	A decision-support input, not a guarantee.
PARTNER-DEPENDENT OBJECTIVE	Requires another government, agency, utility, institution or private partner.
LONG-RANGE ASPIRATION	Part of the 25-year direction; future Councils retain democratic authority.

Key public baselines and planning anchors

Indicator	Value	Date / status	Use in this report
Toronto peak electricity demand	~5,000 MW	Current planning context Official/utility context	Scale denominator, not site capacity.
Toronto Third Line capability	900 MW	Planned/approved System capacity project	Not equal to spare capacity at every parcel.
Summer eDSM by 2045	1,167 MW	2045 Planning forecast/target	847 MW planned plus 320 MW incremental in the campaign planning scenario.
Ontario data-centre connection proposals	>10,000 MW	2026 context Connection queue / proposal set	Queue is not a demand forecast.
Toronto electricity demand growth	~70-100%	To 2044 Scenario range	Broad regional scenarios, not single forecast.
Applied compute decade band	20-80 MW	Decade scale Campaign capacity scenario	Requires real connections and utilization evidence.

Indicator	Value	Date / status	Use in this report
Regional applied compute horizon	150-400 MW	Longer horizon Partner-dependent scenario	Utility/institutional/private and senior-government scale.

Toronto Today and Inherited Work

Current Conditions

This strategy begins from the programs, infrastructure and conditions Toronto already has. Existing work is identified as the inherited baseline; new campaign commitments are stated separately. Baseline facts that control the plan Baseline What the evidence says Distribution Toronto Hydro serves more than 3 million people, ~790,000 customers, 37 terminal stations, 139 municipal stations, 61,300 distribution transformers and about 29,000 km of overhead/underground wires. [GRID2] Investment \$5.9B 2025-29 Toronto Hydro investment plan: modernization, growth, sustainment and general plant. 40% of outages are attributed to defective equipment in the customer summary. [GRID2] Demand Toronto electricity demand could grow 70-100% by 2044; drivers include development, electrification and data-centre/digital economic growth. [GRID1] Non-wires Toronto Hydro aims to procure up to 30 MW local flexible demand response at six targeted transformer stations during 2026-29; 12 MW was secured for summer 2026. It operates >15 MW battery storage and connected 25 MW solar/storage during 2023-25. [GRID3] Transmission Etobicoke Greenway adds up to 300 MW; the approved Toronto Third Line is planned for up to 900

MW of additional transmission capacity, subject to the approved project scope and in-service schedule.

Data centres IESO reported Toronto had ~293 MW of data centres as of Sep. 2023; most Ontario facilities then were ~10 MW or less, largest ~50 MW. Ontario now says proposed connection requests can exceed 10,000 MW cumulatively - a queue, not a forecast. [GRID6][GRID7] Throughout this report, official baselines, campaign calculations, campaign proposals and partner-dependent decisions are identified separately.

Vision and Outcomes

The strategy is organized around a small set of outcomes that residents and delivery partners can understand and measure.

- Reliable power for homes, transit, cooling and essential services.
- Growth districts whose electrical constraints are known early.
- More local resilience and useful district-energy opportunities.
- Compute capacity that supports public, research and economic value without displacing higher-priority needs.
- Clear institutional accountability across City, Toronto Hydro, IESO and Hydro One.

Visualizing the Strategy

Selected campaign visuals from the earlier reference reports are retained here because they explain relationships that are harder to understand in prose alone. They are explanatory illustrations; the surrounding text and tables define commitments, costs, authority and status.



Housing, transit, cooling, industry, digital infrastructure and compute all draw on the same enabling systems.



Capacity planning should bring utilities, land use, transportation and economic development into the same decision process.

Strategic Priorities

Toronto's energy strategy focuses on the capacity decisions that determine whether housing, transit, electrification and digital growth can actually connect when they are ready.

1. Annual Giga Grid Capacity Plan with City/Toronto Hydro/IESO/Hydro One

Toronto needs a shared picture of where electricity capacity exists, where it is constrained and where growth will require reinforcement. The proposed Giga Grid Capacity Plan would connect land-use growth, housing, transit

electrification, climate adaptation, district energy and major economic loads to the planning cycles of Toronto Hydro, IESO and Hydro One.

The City cannot direct provincial system planning, but it can make its growth pipeline legible and negotiate earlier. The annual plan would identify near-term bottlenecks, committed reinforcements, unresolved dependencies and the decisions that require provincial or utility action.

2. Electrical Capacity Grade for major growth districts

A citywide megawatt total does not tell a builder whether a specific district, feeder or station can support new housing. Toronto would develop a simple district-level capacity grade for major growth areas so planners, builders and utilities can see whether electrical servicing is ready, constrained or dependent on a scheduled upgrade.

The grade would be a planning signal rather than a substitute for engineering studies or connection offers. Its value is timing: constraints become visible while projects can still be sequenced, redesigned or coordinated with utility work.

3. Housing-to-Power acceleration trigger

Where housing delivery is likely to outrun electrical infrastructure, the City should not wait for individual projects to fail one at a time. A Housing-to-Power trigger would elevate the issue when a defined amount of planned housing depends on unresolved station, feeder or transmission capacity.

The response could include load management, local non-wires alternatives, revised phasing or formal escalation to Toronto Hydro and provincial system planners. The purpose is to preserve housing schedules without promising electricity that has not been engineered or funded.

4. Compute Commons and Ethical Compute Exchange readiness within municipal envelopes

Advanced computing will be an important economic and educational input, but public policy should distinguish shared civic and research capability from speculative large-load development. Compute Commons would prioritize bounded access for universities, students, creators, startups and public-interest uses within approved municipal financial and energy envelopes.

Any Ethical Compute Exchange would require security, provenance, privacy and cost controls. Neither concept would receive an automatic claim on scarce grid capacity; essential services, housing and system reliability remain first-order constraints.

5. Green Compute disclosure: energy, water, cooling, carbon, heat, flexible load, lifecycle and grid

Large compute facilities can bring investment and capability while also creating material electricity, water, cooling and land demands. Toronto should require clear disclosure of those demands when City approvals, land, infrastructure or incentives are involved.

Assessment would include peak demand, annual energy, water use, cooling technology, heat-reuse potential, flexible-load capability, carbon implications, lifecycle equipment needs and any contribution to local grid infrastructure. The objective is transparent public value, not a blanket prohibition or subsidy.

6. District-energy / heat-master-plan integration

Dense neighbourhoods create opportunities to share heating and cooling infrastructure, recover waste heat and reduce peak electrical demand. District-energy and heat-loop business cases should therefore be coordinated with major redevelopment areas, municipal buildings, transit projects and suitable compute or industrial heat sources.

Projects would advance only where lifecycle economics, reliability and emissions performance justify them. The City's role is to align land, rights-of-way and development timing while leaving generation and utility decisions with the appropriate regulated or market actors.

7. Guardian Grid resilience telemetry with no population surveillance

Resilience telemetry can help operators understand outages, flooding, heat stress and critical-facility conditions in real time. The Guardian Grid concept limits that intelligence to infrastructure and environmental conditions rather than building a generalized system for tracking people.

Any pilot would use data minimization, cybersecurity standards, clear retention limits and public documentation of purpose. The measure of success is faster restoration and safer infrastructure, not the volume of data collected.

8. Prepare post-Third-Line supply strategy before 2037 rather than after constraints reappear

Major transmission projects take many years to study, approve and construct. Toronto should begin evaluating the period after currently planned reinforcements well before constraints reappear, using updated growth, electrification and load forecasts rather than waiting for a crisis.

This is a planning and advocacy responsibility, not a municipal promise to build provincial transmission. The City would maintain scenarios and trigger points that allow IESO, Hydro One and Toronto Hydro to consider future options in time to preserve reliability and growth.

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Targets, Scenarios and Planning Assumptions

Planning Assumptions and Key Calculations

Show the arithmetic and its limitations so optimistic assumptions cannot quietly become promises. Calculation register Calculation / model Method / interpretation Official 2044 span Approximate chart values: ~4.7-4.8 GW today -> ~7.2 GW summer reference and ~8.3 GW winter high-electrification by 2044. That is about +50% to +75% at the endpoints, while IESO summarizes the broader scenario growth as 70-100% depending on assumptions and local subsystem needs. 2051 planning continuation If an 8.3 GW 2044 high case continued at the same 2024-44 compound growth rate from a 4.8 GW starting point, it would reach about 10.1 GW in 2051. This is a campaign continuation stress calculation, not an IESO forecast. A 9-10 GW planning range is therefore reasonable for scenario testing, with actual capital gated by utility forecasts. Annual energy order of magnitude Toronto Hydro delivered roughly 25 TWh

in recent years (campaign baseline). A current load factor near 60% means a 9-10 GW future peak at 55-60% load factor corresponds roughly to 43-53 TWh/year. Use ~45-55 TWh as a planning order of magnitude, not a supply procurement promise. Data-centre queue comparison 10,000 MW proposed Ontario data-centre connections / ~25,000 MW recent Ontario peak = ~40%. It demonstrates why a connection queue cannot be treated as a jobs plan. [GRID7] Non-wires scale 30 MW flexible demand is only ~0.6% of a 4.8 GW Toronto peak, but targeted local flexibility can defer specific station/feeder upgrades where the avoided-cost case works. Planning arithmetic is used as decision support. Where official forecasts or project-specific engineering supersede a campaign screening calculation, the official or engineered value governs.

Implementation and Delivery

First 100 Days

The opening 100 days convene the institutions that control electrical capacity, publish the first growth constraints and define escalation rules before housing or transit projects are delayed by power.

- Convene the City-Toronto Hydro-IESO-Hydro One growth capacity table.
- Publish a first district capacity and constraint map for priority housing areas.
- Define the housing-to-power trigger and escalation protocol.
- Begin a district energy and resilience opportunity screen for major public growth districts.
- Set preliminary readiness and public-value criteria for large discretionary compute proposals.

2027-2030 First-Term Action Plan

During 2027-2030, grid readiness becomes a recurring city-building input: district capacity grades are maintained, reinforcements are sequenced and district energy, storage and demand flexibility advance where business cases work.

Phase	Action	Lead / authority	Resident result
Coordinate	Annual growth-and-grid capacity plan	City / Toronto Hydro / IESO / Hydro One	Housing and infrastructure sequencing reflects real electrical constraints.
Grade	District electrical readiness	Toronto Hydro / City Planning	Developers and residents see likely capacity constraints earlier.
Trigger	Housing-to-power escalation	City / Toronto Hydro	Utility timing is reopened when growth assumptions change materially.
Resilience	District energy, storage and critical-facility planning	City / utility / private partners	Essential services are better protected from disruption.
Govern	Large compute and industrial connection expectations	City / utility / Province / private	Energy-intensive growth is matched to infrastructure and public value.

2031-2051 Long-Term Direction

Long-range energy planning preserves reliable supply and optionality for a city with more homes, electrified transportation, cooling and digital infrastructure, with new supply decisions made by the institutions that legally control them.

- Plan transmission, distribution and district capacity alongside 25-year growth rather than parcel by parcel.
- Use load flexibility, storage, district energy and efficiency where they are cost-effective alternatives to conventional expansion.
- Reassess compute demand scenarios as technology efficiency and market conditions change.

Risks and dependencies

Risk	Specific mitigation
Local grid constraints delay housing	Use district readiness grades and escalation triggers tied to growth forecasts.

Risk	Specific mitigation
Roles between institutions are blurred	Publish responsibility matrices and keep rate-supported costs on utility balance sheets.
Large compute loads crowd out essential growth	Apply readiness, infrastructure-contribution and public-value rules.
Resilience investments become expensive duplication	Use business cases comparing conventional, local and demand-side options.

Review and renewal

Energy assumptions will be refreshed with utility and provincial planning cycles because demand forecasts, connection queues and reinforcement schedules can change materially.

Accountability and Public Reporting

Performance framework

Energy reporting will track district capacity readiness, major reinforcements, outage/reliability indicators, local flexibility, district-energy progress and the status of large-load connection dependencies.

Metric	Baseline	Target / direction	Horizon	Responsible body	Reporting
Priority growth districts with published electrical readiness	Establish baseline	All designated priority districts	First term	Toronto Hydro / City	Annual
Housing projects delayed by electrical connection	Establish baseline	Reduce avoidable delays	First term	Toronto Hydro / Housing	Quarterly
Critical facilities with resilience plans	Existing baseline	Increase	First term	City / utility	Annual
Large compute loads assessed against readiness criteria	0 under new framework	100% of designated proposals	Ongoing	City / utility	Per proposal

Sources and Notes

Primary public sources are listed by organization and title. Campaign commitments, targets, scenarios and long-range aspirations are distinguished from adopted government policy throughout the report.

- [IESO - Toronto Integrated Regional Resource Plan](#)
- [Toronto Hydro - System Planning](#)
- [City of Toronto - TransformTO](#)