BUILDING DECARBONIZATION Alliance

An initiative of The Transition Accelerator

Thermal Energy Networks in Canada

Policy Toolkit

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Policy Toolkit

This Policy Toolkit is designed to provide insights into the most effective policies to enable low carbon, thermal energy networks (TENs). TENs, also known as district energy systems, are energy infrastructure delivering thermal energy (heating, cooling and/or water use) from one or more sources of production to multiple buildings through a network of pipes.

The following policies are considered as strong options, assuming they are correctly structured and implemented, though there may be others such as TENs performance policies and financial policies such as tax credits and incentive programs that are also valuable. The policy options reviewed in this study are summarized in Table 1 and explored more deeply in Table 2. For all of these policy options, the focus is on building stock with sufficient density to support a TEN.

Table 1 Summary of Policies to Support Thermal Energy Networks

	Policy	Definition	Lead Government	Timing	Applicability
Targeted TENs Policies	**Connection Policies**	Policies requiring or enabling buildings in a defined area to connect to a TENs infrastructure, once the network area is identified.	Municipal or regional	After TENs area identified	For defined area(s) identified in thermal energy plan
Enabling Policies	**Thermal Energy Plans**	Strategic plans that assess community energy needs and outline pathways for low-carbon heating and cooling solutions, including where TENs could be deployed.	Municipal or utility	Prior to TENs areas identified	For a defined geographic area
	National Energy Code for Buildings	Model code setting requirements for energy efficiency and performance in new buildings and major renovations across Canada.	Federal (develops model), province (adopts), municipality (enforces)	Model codes released every 5 years	Building sector-wide
	Municipal Green Development Standards	Local standards or bylaws that require new developments to achieve energy, GHG, and resiliency performance levels above provincial building codes.	Municipal or regional	Anytime	Building sector-wide, requires new developments exceed the provincial building code on energy, emissions, resiliency, etc.
	Building Emissions Performance Standards	Regulatory standards that set energy and/or emissions minimum performance requirements for existing buildings, with phased increases in performance thresholds.	Municipal or regional or provincial	Anytime	Building sector-wide, including existing buildings

Table 2 Detailed Analysis of Policy Options to Support Thermal Energy Networks

Category	Connection Policies	Thermal Energy Plans	National Energy Code for Buildings (NECB)	Municipal Green Development Standards (GDS)	Building Emissions Performance Standards (BEPS)
Decision-Makers (Ministry/Agency)	• Municipal governments (bylaw/planning). • Provincial regulators, if they are given authority, and when it pertains to a regulated utility franchise area.	• Provincial energy/ environment ministries to set mandate. • Utility regulators may enforce mandate. • Municipalities and/or utilities develop thermal energy plans, either in response to provincial direction or voluntarily.	• Natural Resources Canada's Commission on Building and Fire Codes defines the model NECB. • Provincial ministries that implement codes include: municipal affairs / housing / construction departments.	• Municipal planning and environment departments.	• Municipal planning/ climate departments. • Sometimes provincial environment/energy ministries.
Rationale for Policy	• Enable or require new developments to connect to low-carbon district or thermal networks to maximize system efficiency.	• Align utilities, municipal zoning plans, investment sequencing, and community expectations with net-zero goals. • Identify pathways for low-carbon thermal networks. • Enable a smart and managed energy transition and decarbonization of thermal energy demand. • Shift away from building-by-building decision making, offers municipalities greater control over the pace and trajectory of decarbonization, while improving speed, equity, and efficiency of implementation.	• Establish minimum energy efficiency standards for new buildings to reduce energy use and emissions.	• Encourage sustainable site and building design through local requirements that exceed provincial/ federal codes, which may include connection to a low carbon TENs as a compliance pathway. • Require developers to evaluate TENs feasibility for new developments above a certain size.	• Ensure existing buildings reduce emissions over time by setting performance targets, encouraging them to explore connection to a low-carbon TENs. • TENs may be included as a defined compliance pathway.

Category	Connection Policies	Thermal Energy Plans	National Energy Code for Buildings (NECB)	Municipal Green Development Standards (GDS)	Building Emissions Performance Standards (BEPS)
Impact on TENs Viability	✚ Reduces load risk for TENs utility. ✚ Direct determinant of whether new or existing buildings connect to TENs.	✚ Identifies potential demand for TENs by mapping thermal loads and waste heat sources, and by assessing grid constraints. ✚ Supports awareness of, and investment in TEN solutions.	✚ Consistent standards that help to plan for TENs-Ready design. ✘ 2025 NECB does not correctly account for the efficiency of the TENs, as it measures energy use at the building supply point.	✚ Can mandate or incentivize TENs-ready HVAC design in new developments, which supports TENs integration. ✚ Can include mandatory TEN feasibility assessments for large developments.	✚ Drives emissions reductions in existing buildings that can be met through connecting to a low-carbon TENs, which enables fuel switching at scale.
Implementation Considerations	• Needs legal authority (e.g., through planning approvals or utility regulation). • Alignment with development timelines can be a challenge, as developers need certainty that the network will be there on time.	• Best done in conjunction with broader energy planning so that all energy needs can be considered at once by utilities. • Requires coordination and data-sharing agreements across gas and electric utilities, municipalities, and regional energy planning agencies. Accuracy depends on access to data on thermal energy demand and supply. • Clear templates needed. • Funding considerations.	• 5-year delay between model code updates. • Adoption and enforcement are responsibility of provinces/territories and timelines vary significantly. • Delay between model code release and provincial adoption.	• Municipal authority varies by province. • Success depends on staff capacity, developer engagement, and provincial enabling authority. • To ensure the feasibility of a TENs is thoroughly studied, municipalities can provide a template (as done in Vancouver), and be involved throughout.	• Data access and benchmarking are essential. • Enforcement and compliance tracking are complex.

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Leading Jurisdiction	• In specific areas of Vancouver, new developments are required to connect to a TENs.[1] • Edmonton - Blatchford District Energy System, bylaw requires new buildings to connect unless they achieve net zero.[2] • City of Richmond requires by bylaw all new buildings in the service area of the Alexandria District Energy Utility to connect.	• European Union: Mandates municipalities to develop thermal energy plans for cities > 45,000 inhabitants. • United Kingdom Heat Network Zoning: Identifies zones where TENs are the lowest-cost, low-carbon heating solution. Within these zones, typically new and large buildings are required to connect to a heat network.[3] TENs must be reliable, affordable, and transparent. Aiming for 20% of heat supplied by TENs by 2050. • Vancouver is developing a thermal energy plan voluntarily.	• Federal government expected to publish NECB 2025 by early 2026 and a 2030 code in 2030. • BC, New Brunswick, and Nova Scotia have committed to implementing higher energy tiers.[4]	• Toronto[5] and Vancouver[6] have leading GDS frameworks integrating low-carbon energy targets.	• New York City, Local Law 97.[7] • Vancouver[8] has the only active BEPS in Canada, while Montréal[9] (soon all of Québec) and Toronto[10] require reporting and are considering BEPS.

1 Neighbourhood energy requirements | Developers, designers, builders | City of Vancouver
2 Blatchford Renewable Energy Utility bylaw 17943
3 Heat network zoning: overview
4 BDA-Thermal-Energy-Networks-in-Canada.pdf
5 Toronto Green Standard – City of Toronto
6 High performance building standards | City of Vancouver
7 LL97 Greenhouse Gas Emissions Reduction - Buildings
8 Commercial buildings | City of Vancouver
9 By-law concerning GHG emission disclosures and ratings of large buildings | Ville de Montréal
10 Building Emissions Performance Standards – City of Toronto

Category	Connection Policies	Thermal Energy Plans	National Energy Code for Buildings (NECB)	Municipal Green Development Standards (GDS)	Building Emissions Performance Standards (BEPS)
Key Advocacy Messages	• Reduced equipment costs and time: TENs can save owners money by eliminating costly mechanical systems and future replacements. • Improve energy security: TENs support local jobs, local businesses, and energy security. • Climate resilience: TENs improve resilience that individual building systems can't match. • Avoid stranded assets: A mandatory connection policy ensures TENs succeed, avoiding stranded assets and unnecessary public risk. • Reducing future burden: Mandatory connection prevents today's new buildings from becoming tomorrow's expensive retrofit problem. • Clarity for business planning: Clear rules reduce uncertainty, which developers consistently request.	• Stable affordable energy: Thermal energy plans help identify the lowest-cost, highest-impact heating options and supports affordability and rate stability for ratepayers. • Smart and managed transition: Thermal planning enables the optimization of grid systems and control of rates for ratepayers and the Province. • Job creation: Thermal planning highlights opportunities to use local resources and create local jobs. • Attracting private investment: Clear direction on where TENs are preferred enables private investment in infrastructure.	• Reducing future burden: Every year of delay adds thousands of inefficient buildings to the province's future retrofit burden. • Lowest cost pathway: Stronger codes save the province from billions in future energy-system upgrades. • Provincial leadership: A predictable, higher-tier code creates local jobs and positions the province as a leader in the clean-building economy. • Affordable and safe homes: Energy-efficient homes are more affordable, healthier, and better protected against the impacts of climate change. • Cost-effective policy: A stronger code gives municipalities the tools they need without downloading costs.	• Long-term affordability: Better-designed buildings are more affordable to operate long-term and avoid costly retrofits. • Impact without tax increases: A GDS is a municipal tool to support affordability without raising taxes. • Desirable communities: Greener development creates more livable communities where people want to stay and businesses want to locate. • Resiliency to climate change: A GDS is a climate-resilience tool that protects buildings, infrastructure, and City budgets. • Streamlined planning: A clear standard simplifies planning decisions and reduces time spent on case-by-case negotiations.	• Keep energy bills affordable: A BEPS helps keep energy bills manageable and protects people from future cost spikes. • Improve safety and comfort: A BEPS helps make safer, healthier, more comfortable places to live and work. • Effective and fair policy: We can't meet climate goals without addressing existing buildings, and a BEPS is the most fair and effective way to do it. • Affordable energy infrastructure: A BEPS help reduce demand on local infrastructure and lower long-term system costs. • Job creation: A BEPS is an economic development strategy that creates jobs for local trades and businesses. • Clarity for business planning: Clear rules reduce risk and help owners budget upgrades responsibly.