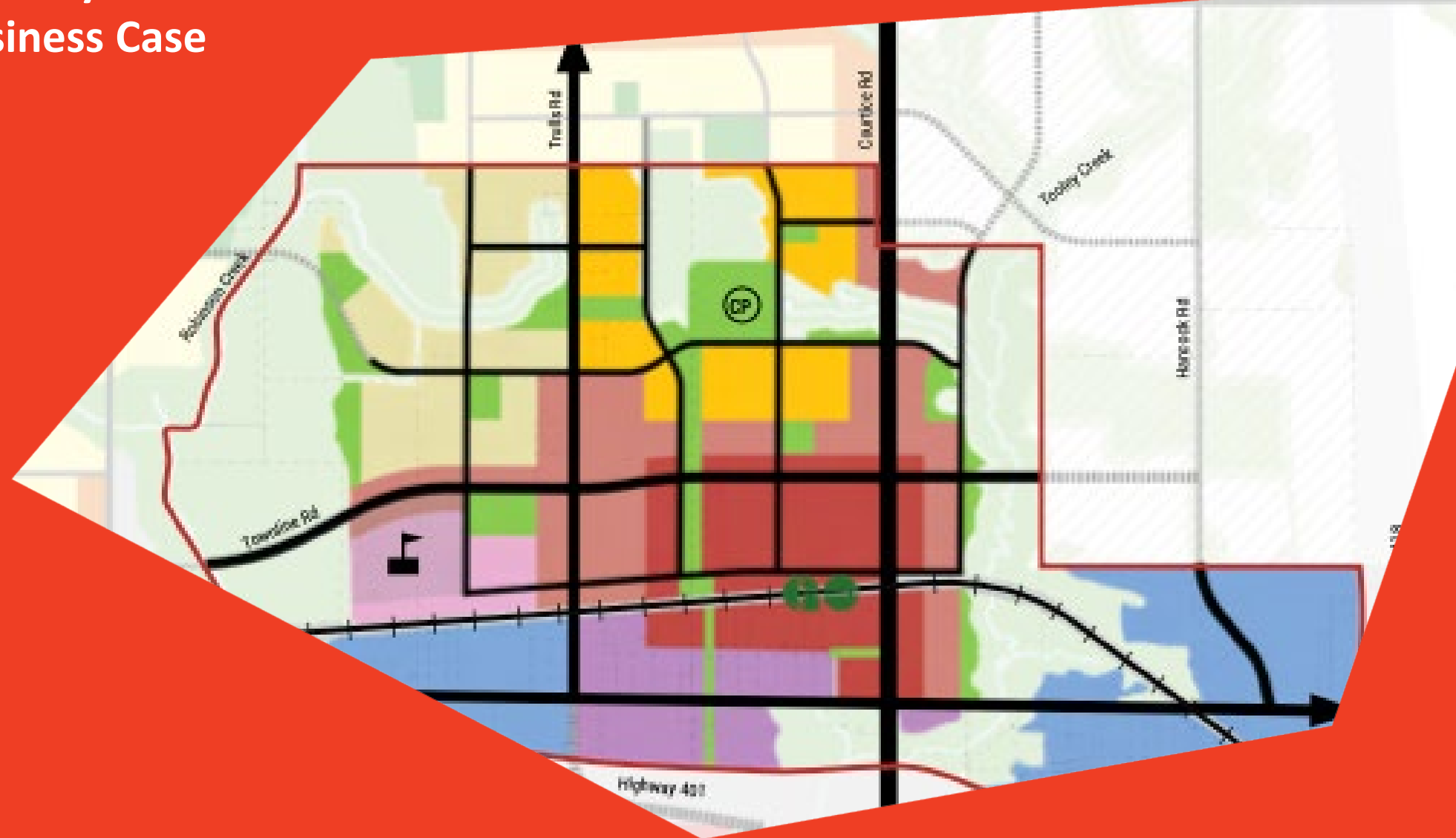


Regional Municipality of Durham

Courtice DES Business Case

April 2025



RESHAPE
STRATEGIES

COURTICE DES SERVICE AREA (CONCEPTUAL ONLY)

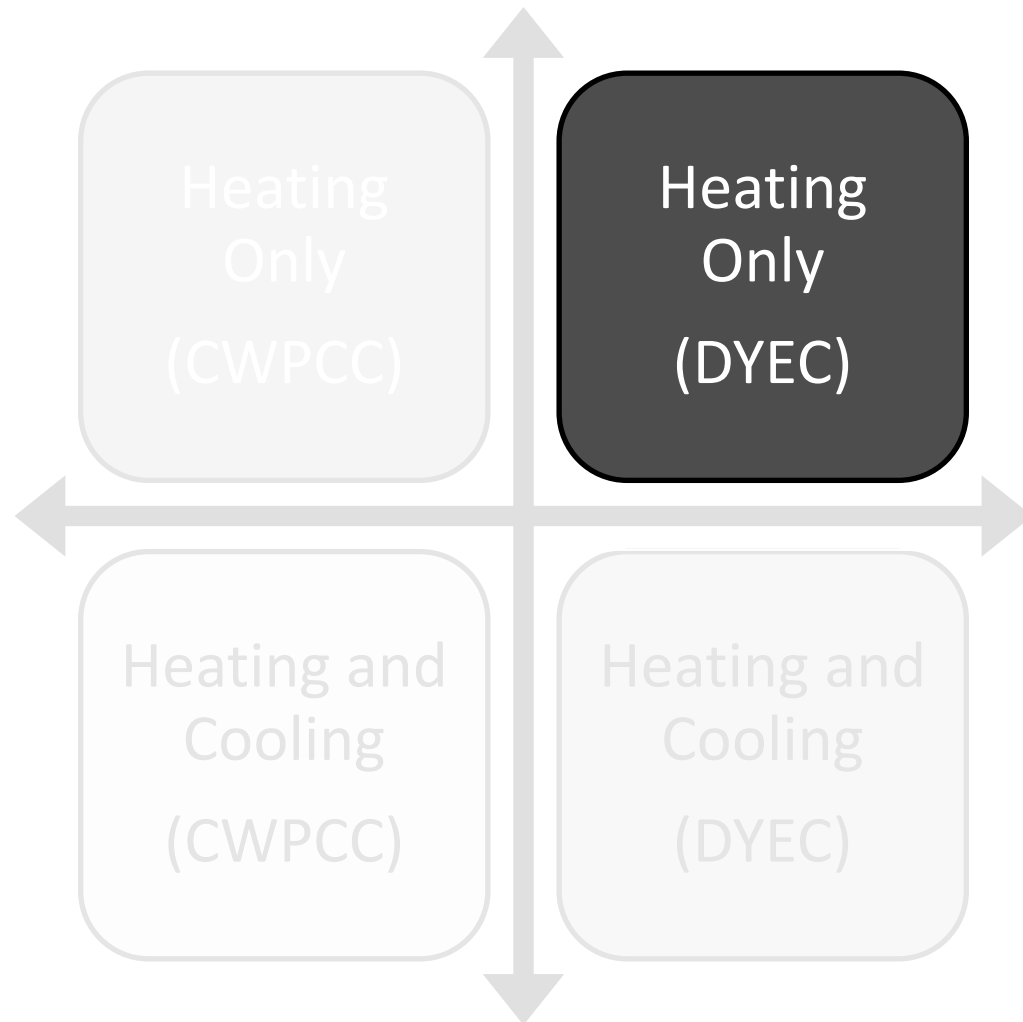
RESHAPE
STRATEGIES



Red outline indicates
approximate DES service area
(can be expanded to serve
adjacent areas)

CTOC 3D View Looking SW (Urban Strategies DRAFT CTOC Demonstration Plan, December 2023)

DISTRICT ENERGY OPTIONS EVALUATED



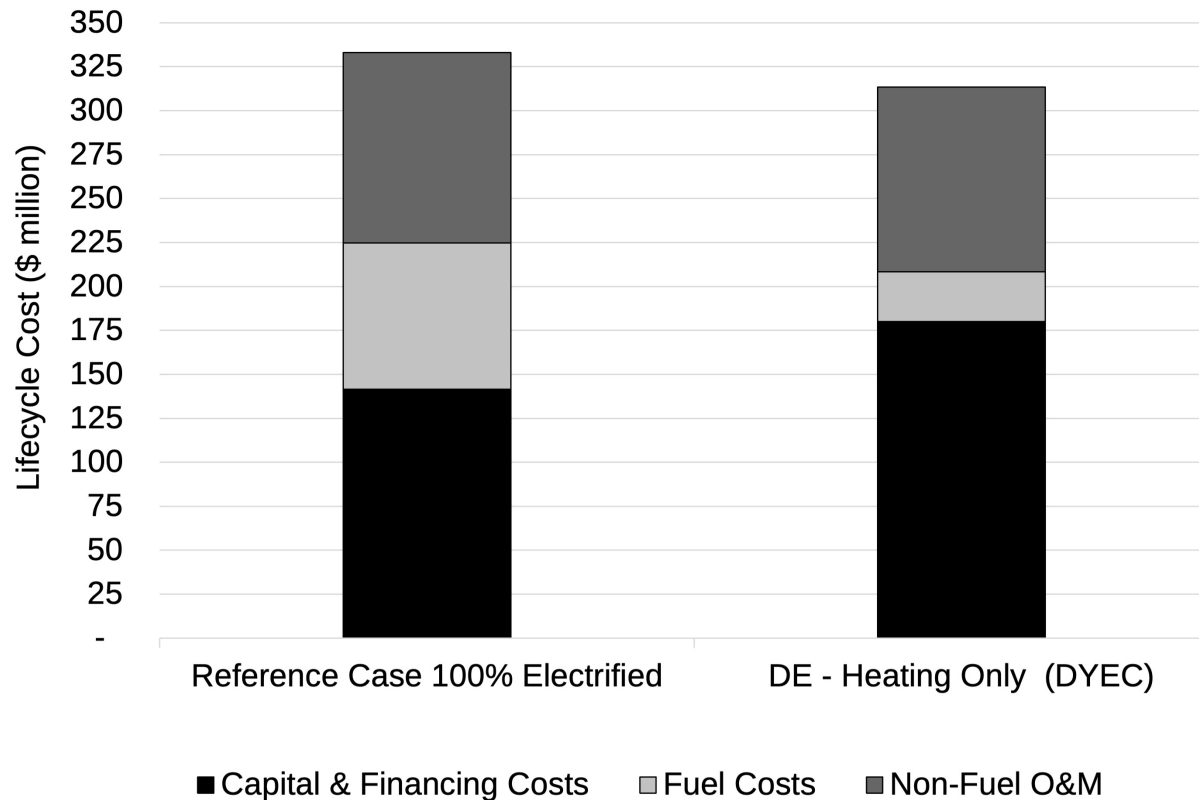
A heating-only system with heat from DYEC is the preferred DES concept and the basis of the DE business case because it:

- Has the lowest capital and lifecycle cost¹
- Results in an 70% reduction in GHG emissions from gas boiler BAU over analysis period.
- Results in the lowest cost per tonne of avoided GHG emissions.

1. Including the capital and lifecycle costs of in-building cooling systems

DYEC HEATING ONLY - DES BUSINESS CASE

Lifecycle Cost of DE vs. Reference Case



- To achieve similar GHG outcomes without the DES, all buildings in the Courtice MTSA would need to have 100% electrified heating (Reference case).
- The lifecycle cost of low-carbon heating in the Courtice MTSA supplied by DE is lower than electrification of heating at the building level.
- In the reference case, fuel costs are ~30% of the lifecycle cost, and capital is ~40%. In the DE case, capital and financing costs are 57% of the total lifecycle cost and the fuel cost is 9%.
 - DE provides greater energy cost stability to MTSA residents, relative to building electrification, due to reduced exposure to escalating electricity rates.

LANDOWNER GROUP (LOG) DEVELOPMENT FORECAST (UPDATED JANUARY 2025)



MTSA Boundary

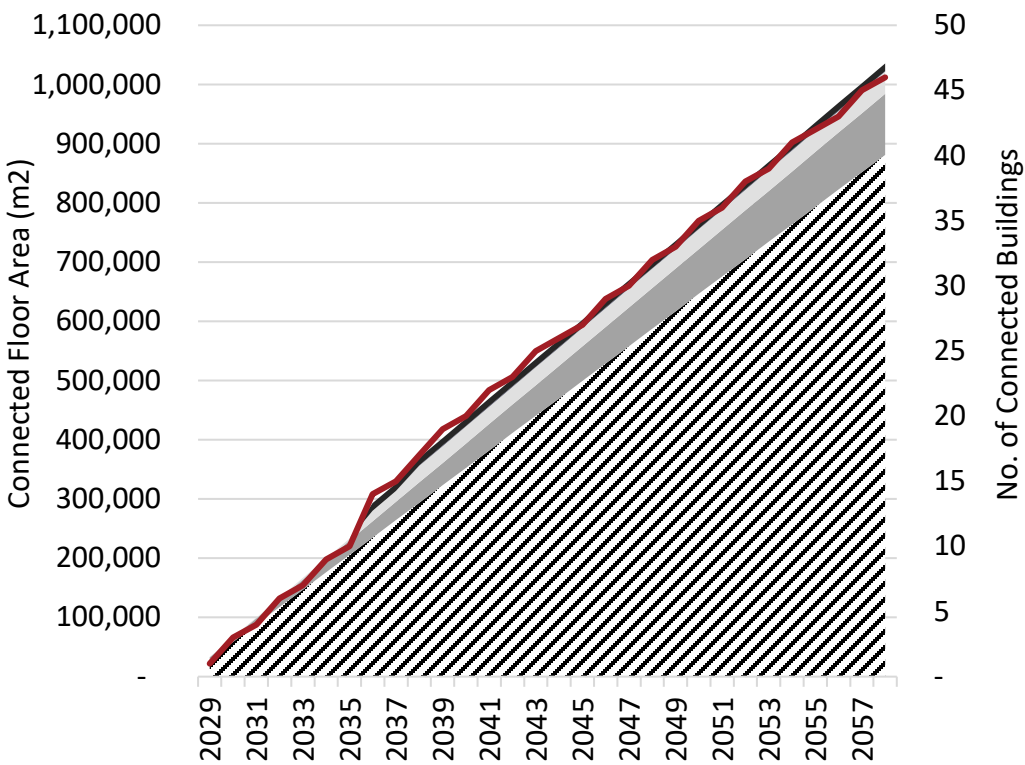
Ownership	Parcel	# Units / Year				Total Units
		2029	2030	2031	2032+	
Tribute	9	800	900	845	9,214	11,759
Brookfield Properties	12	525	550	550	3,725	5,350
Louisville Homes	15	-	-	-	1,625	1,625
Metrolinx	13	-	-	-	5,080	5,080
Non-Participants (NP)	NP, 32	-	-	-	6,401	6,401
Total Units		1,325	1,450	1,395	26,045	30,215

At an estimated average unit size of 720 ft² (67 m²), the build-out floor area in the high-density area of the MTSA is estimated to be **2 million m² or ~20 million square feet.**

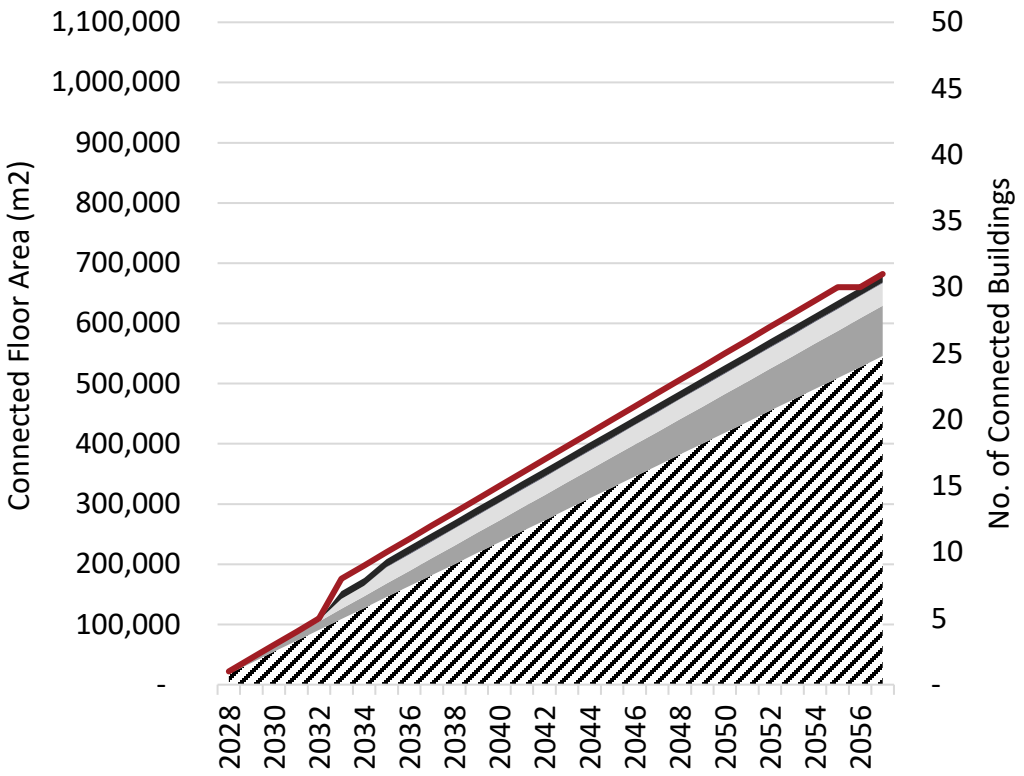
COURTICE DES LOAD FORECAST ASSUMPTIONS (UPDATED)



2025 Updated Forecast (“Target” Density)



2023 Prior Forecast (“Minimum” Density)



- High Rise MURB

Office

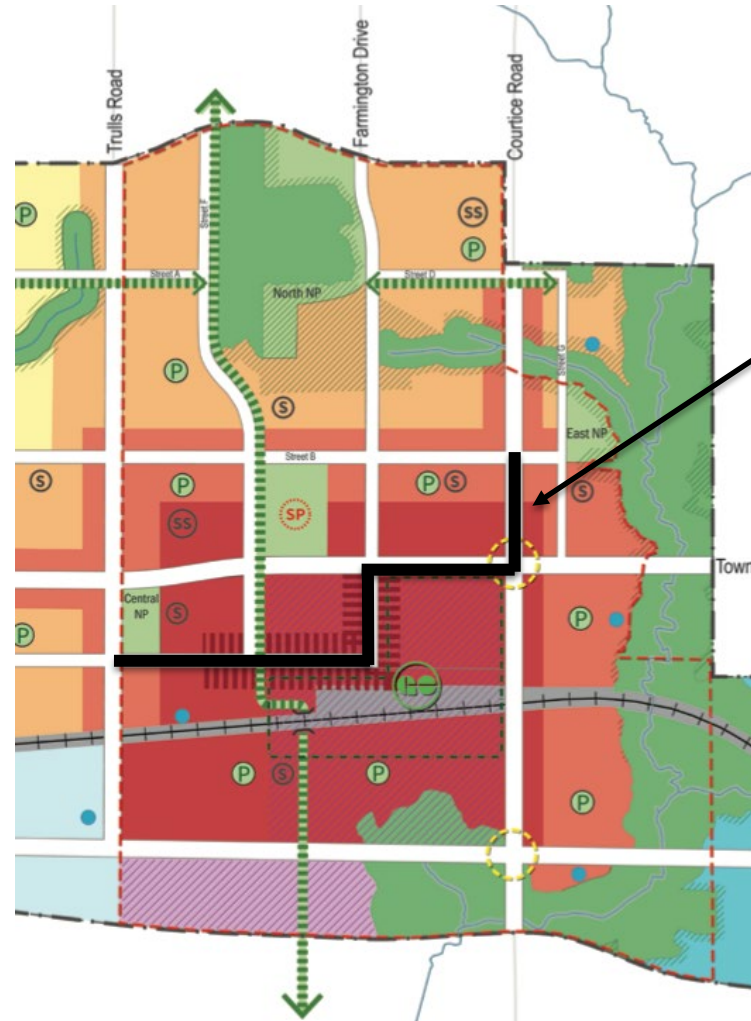
Advanced Manufacturing
- Low Rise MURB

Retail

Total Connected Buildings

PHASE 1 DISTRIBUTION PIPING PLAN ASSUMPTIONS

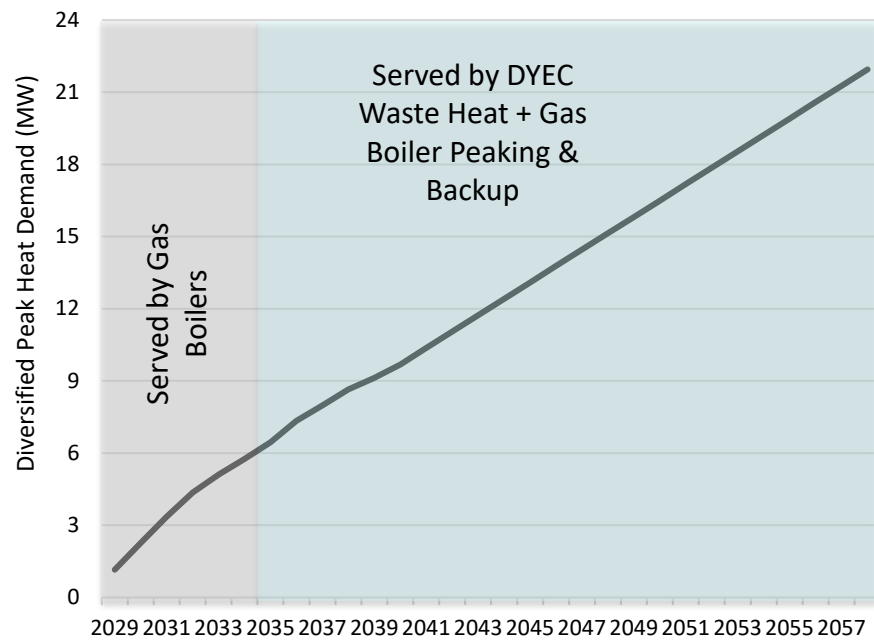
RESHAPE
STRATEGIES



- First phase of distribution piping system
- Estimated to be 1400 m
- Service connections to buildings not shown

PHASE 1 – ENERGY CENTRE

- The first phase of the DES will be heated by a ~7 MW temporary energy centre (TEC).
- Once sufficient development in CTOC is underway, connection to DYEC will be

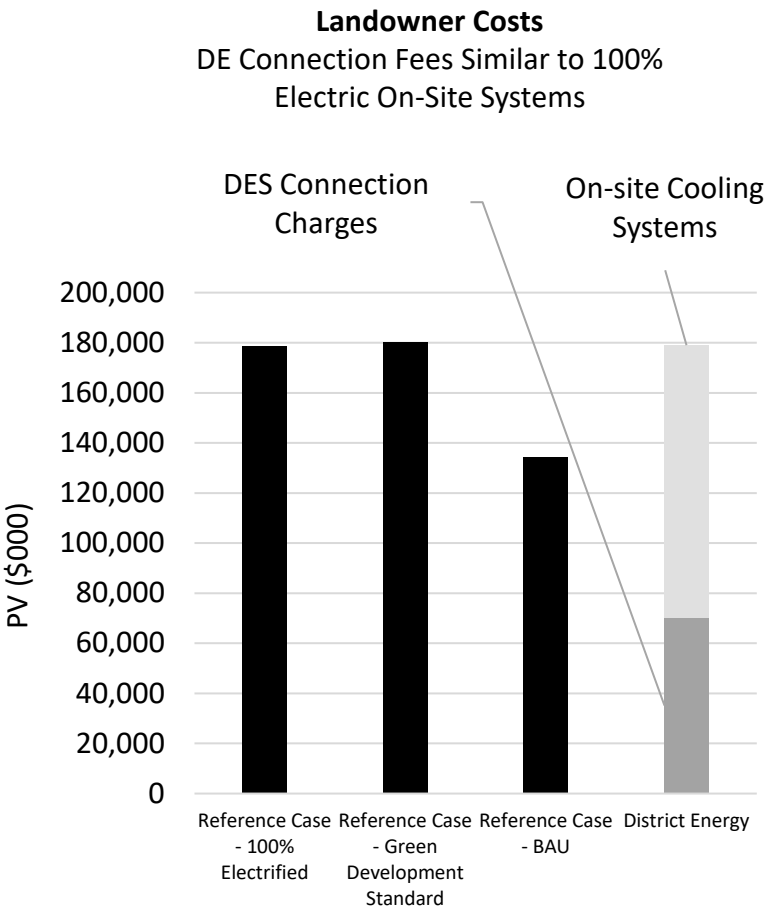
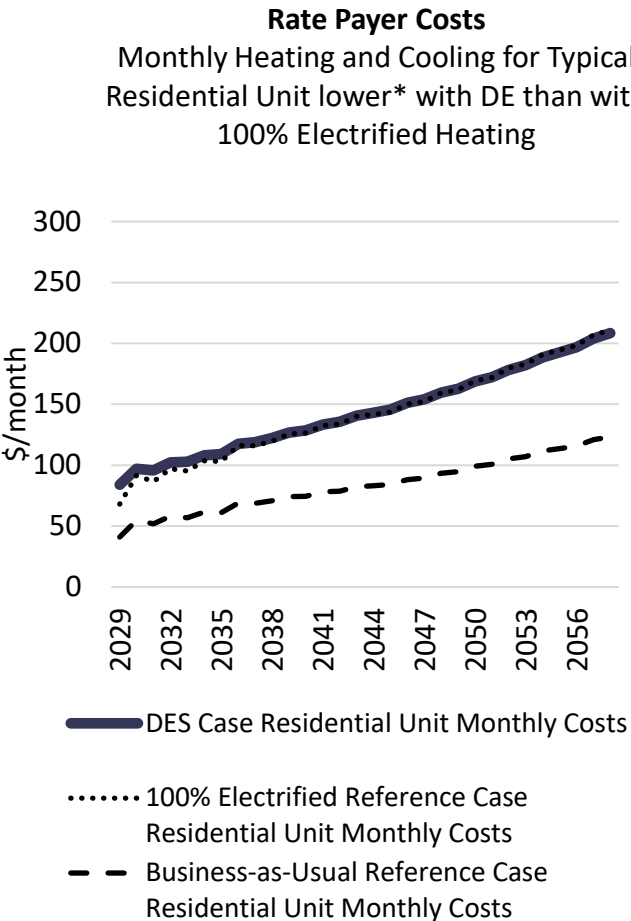
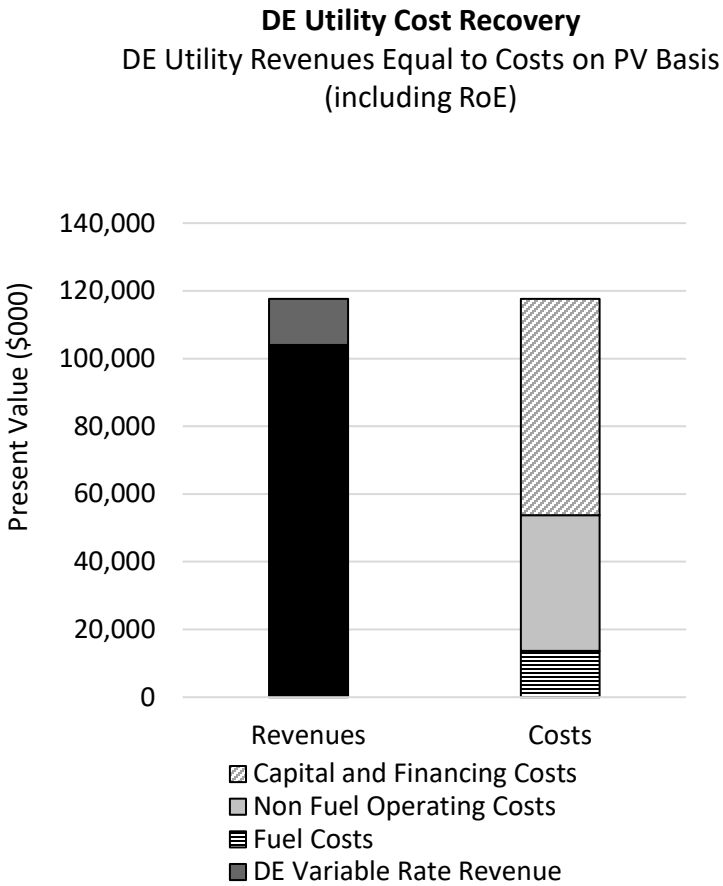


Temporary Energy Centre at the UBC Neighbourhood District Energy System (Corix Utilities)

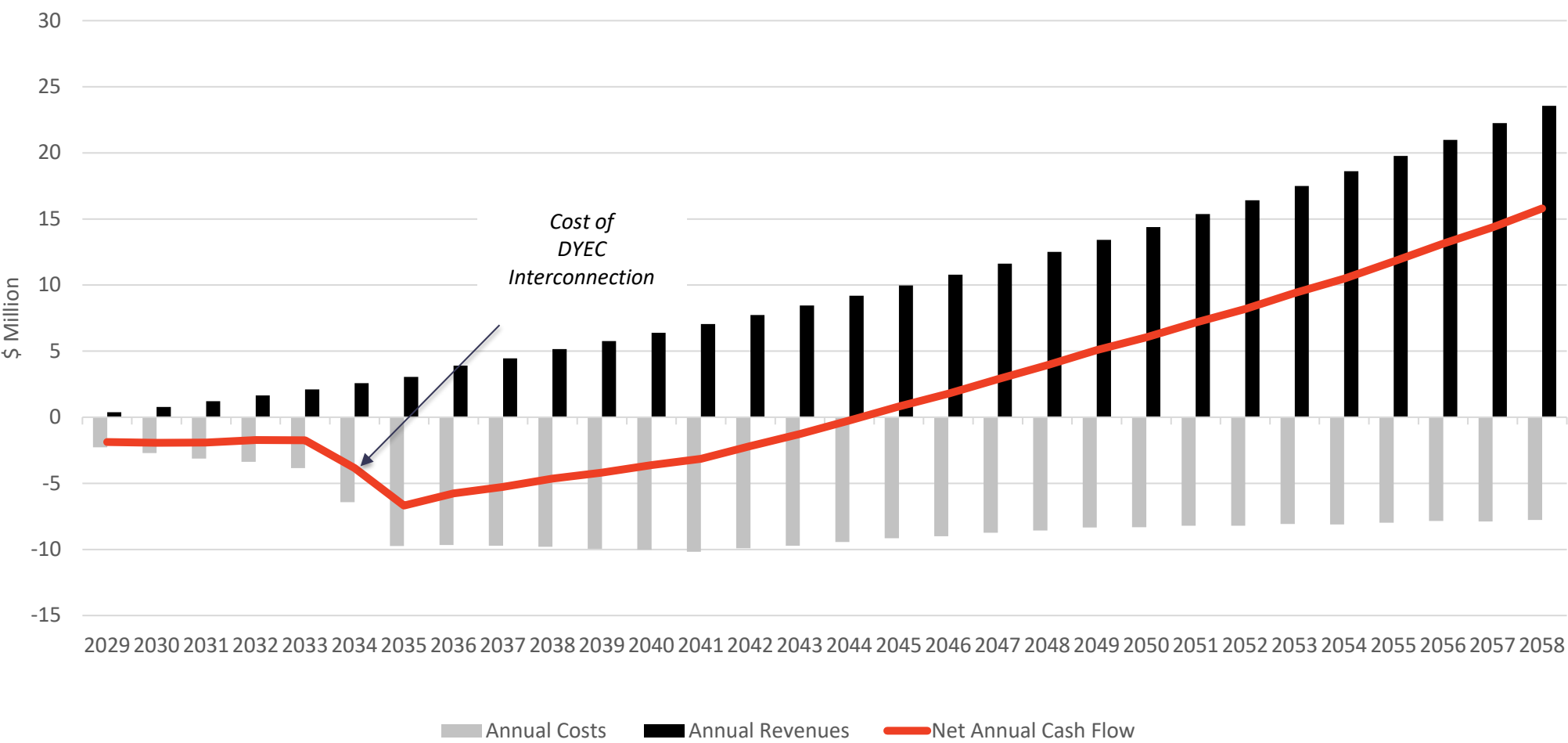
UPDATED DES BUSINESS CASE (BASE CASE)



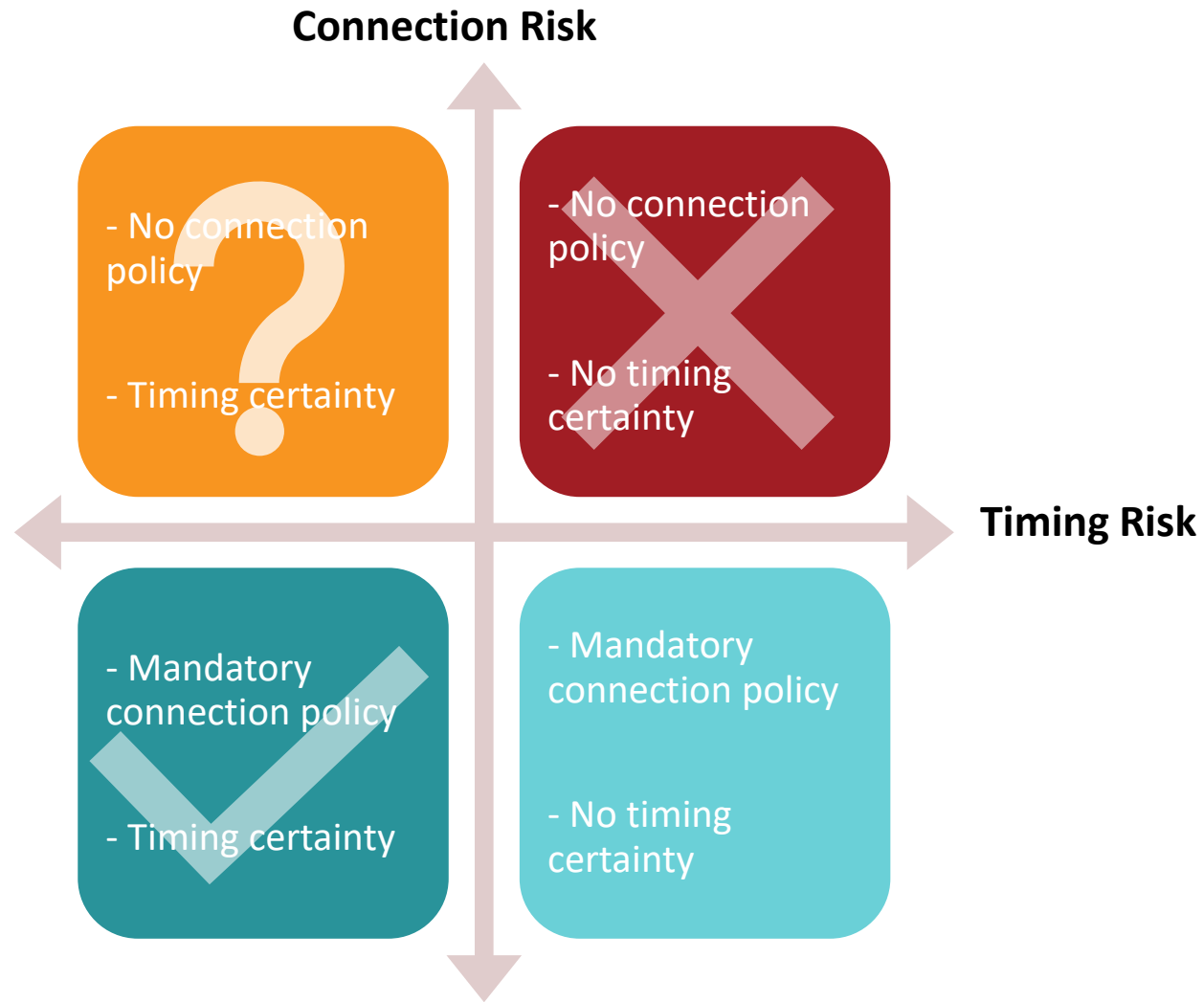
Business case is presented as cost neutral from the DE Utility perspective (including return on equity) with competitive costs for DE rate payers and similar capital costs for landowners relative to the 100% electrified reference case.



DES BUSINESS CASE – DE UTILITY CASH FLOW



FINANCIAL RISKS AND MITIGATION STRATEGIES



Connection Risk: *Will* buildings connect?

Timing Risk: *When* will buildings connect?

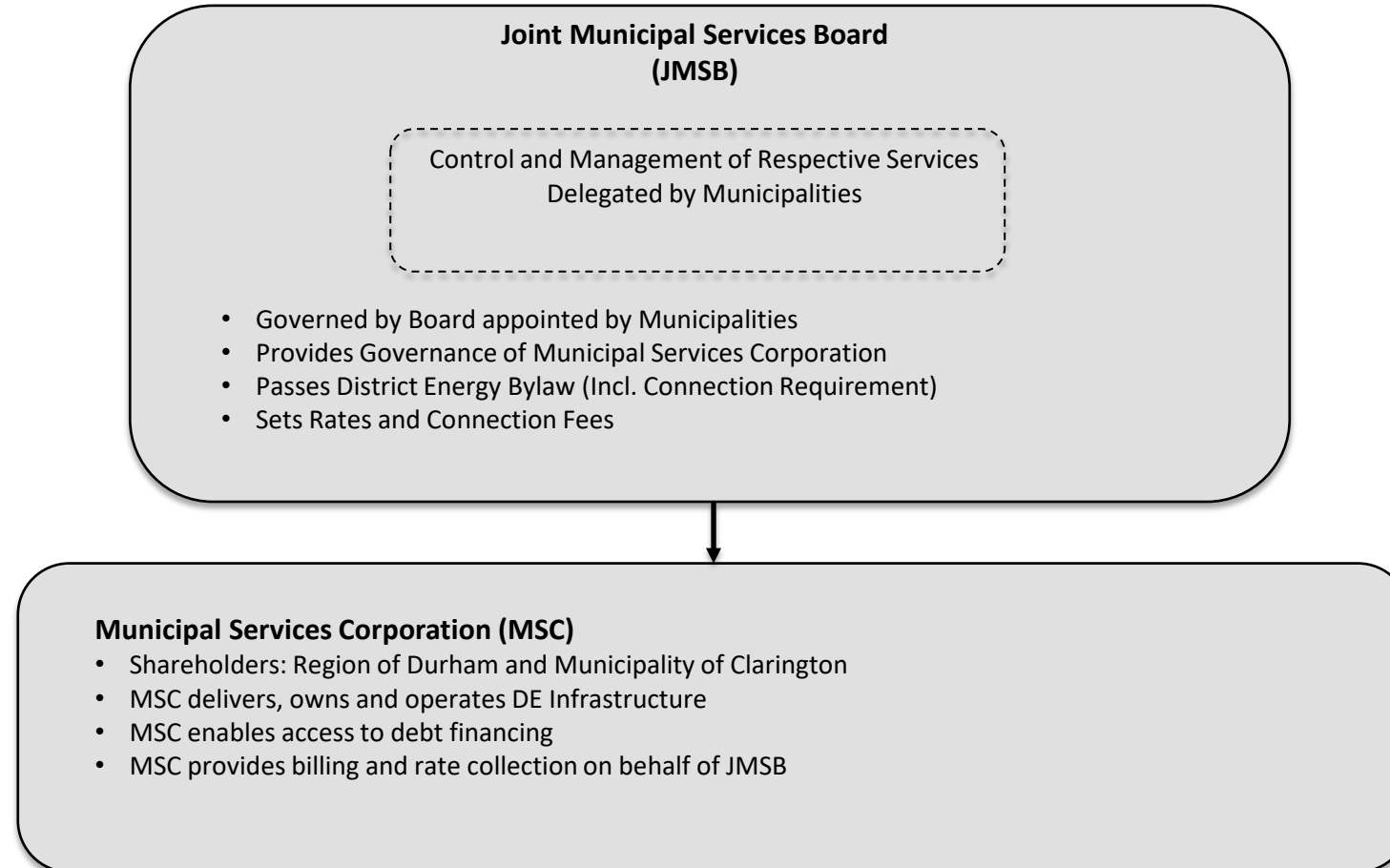
Mitigating Strategies for Connection Risk

- Mandatory connection bylaw in defined service area.
- Supported with:
 - Competitive rates
 - Competitive connection fees
 - Streamlined / accelerated permitting process
 - Other incentives

Mitigating Strategies for Timing Risk

- Don't build too much too soon!
 - Minimize early investment in system
 - Plan expansion of DES to match growth of neighbourhood
 - Utilize temporary energy centres
 - Complete cost/benefit analysis of extending service to new service areas (extension test).

OWNERSHIP & GOVERNANCE OF COURTICE DES



POTENTIAL FOR LOW-COST FINANCING AND GRANTS

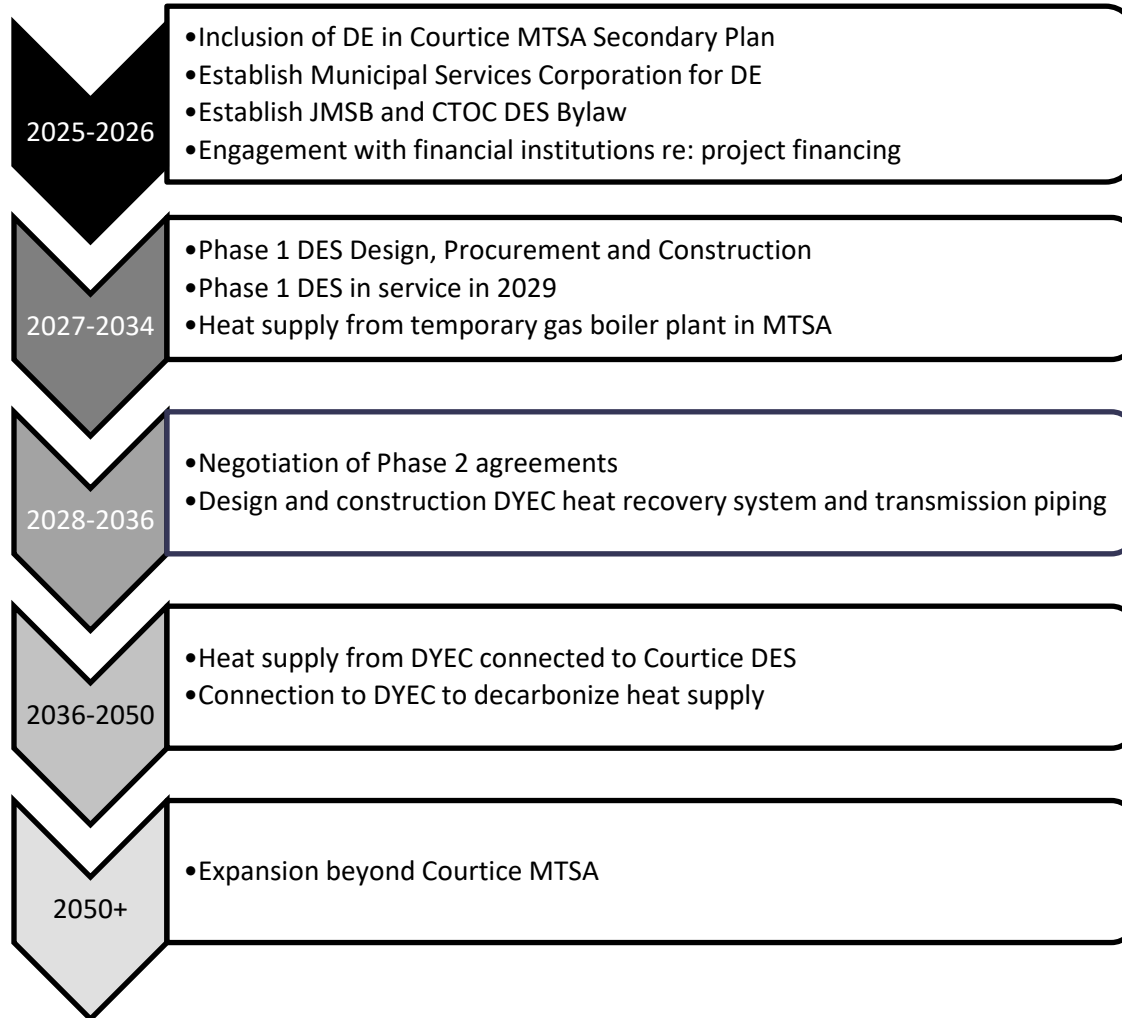


- Over the past 2-3 years CIB has entered into financing agreements with three DES utilities totaling more than a billion dollars.
- Many low-carbon DE projects secure lesser amounts as grants.

Selection of Funding and Financing Recipients (non-exhaustive)

Name of Program	Recipient Project	Grant Amount (\$ million)	Financing Amount (\$ million)
Canadian Infrastructure Bank (CIB)	Markham Centre District Energy		135
Canadian Infrastructure Bank (CIB)	Enwave Energy Corporation		600
Green Municipal Fund (GMF)	Markham Centre District Energy	1	7.2
Green Municipal Fund (GMF)	Zibi Community Utility	3	20
Green Municipal Fund (GMF)	City of Vancouver NEU	1.5	15
Green Municipal Fund (GMF)	Lonsdale Energy Corporation	2	2
Low Carbon Economy Fund	Enwave Energy Corporation - PEI	3.5	

TARGET PROJECT DEVELOPMENT TIMELINE & PROCESS



- In the near term, the Municipalities will work to include DE as part of the Courtice MTSA Secondary Plan as an enabling policy for DE.
- The objective is to have DE service available in time for the first buildings in the CTOC to connect (2029).
- The DE Service Area and Phasing Plan will be developed in coordination with Landowner's Group.
- To manage investment risk, the first phase of the DES will be served by a temporary gas boiler plant (or plant integrated with a municipal facility).
- Once sufficient load is connected to the DES, the connection to DYEC will be completed, decarbonizing the heat supply to all buildings connected to the DES.
- Depending on growth outside the MTSA, the DES may be expanded to serve additional areas.

- Following Council endorsement of proposed governance and ownership model, Regional and Clarington staff will undertake next steps as mandated by the Municipal Act to develop the proposed governance and ownership model, including:
 - **Develop a comprehensive Business Case Study** that outlines the rationale for establishing the Municipal Services Corporation, including projected costs, revenue streams, operational structure, and key benefits. The Plan will include:
 - **Governance structure design** – determine board composition, decision-making processes, and reporting mechanisms
 - **Funding mechanisms** – detail how the MSC will be funded through debt financing, connection fees, and user rates
 - **Asset transfer policies** – describe which assets will be transferred, and under what terms
 - **Staffing and recruitment** – describe the staffing plan, including management and technical personal, and how they will be recruited
 - **Conduct public consultations** – engage public through public meeting/information session to gather feedback on the proposed MSC, its services and potential impacts
 - **Legal review** – consult with legal counsel to ensure compliance with relevant provincial legislation regarding creation and operations
 - **Council approval** – Fall/winter 2025 staff will return to council to present the business case and seek approval