

FROM PILOT TO PIPELINE: SELECTION CRITERIA FOR MASS DEEP ENERGY RETROFITS OF MULTI-UNIT RESIDENTIAL BUILDINGS

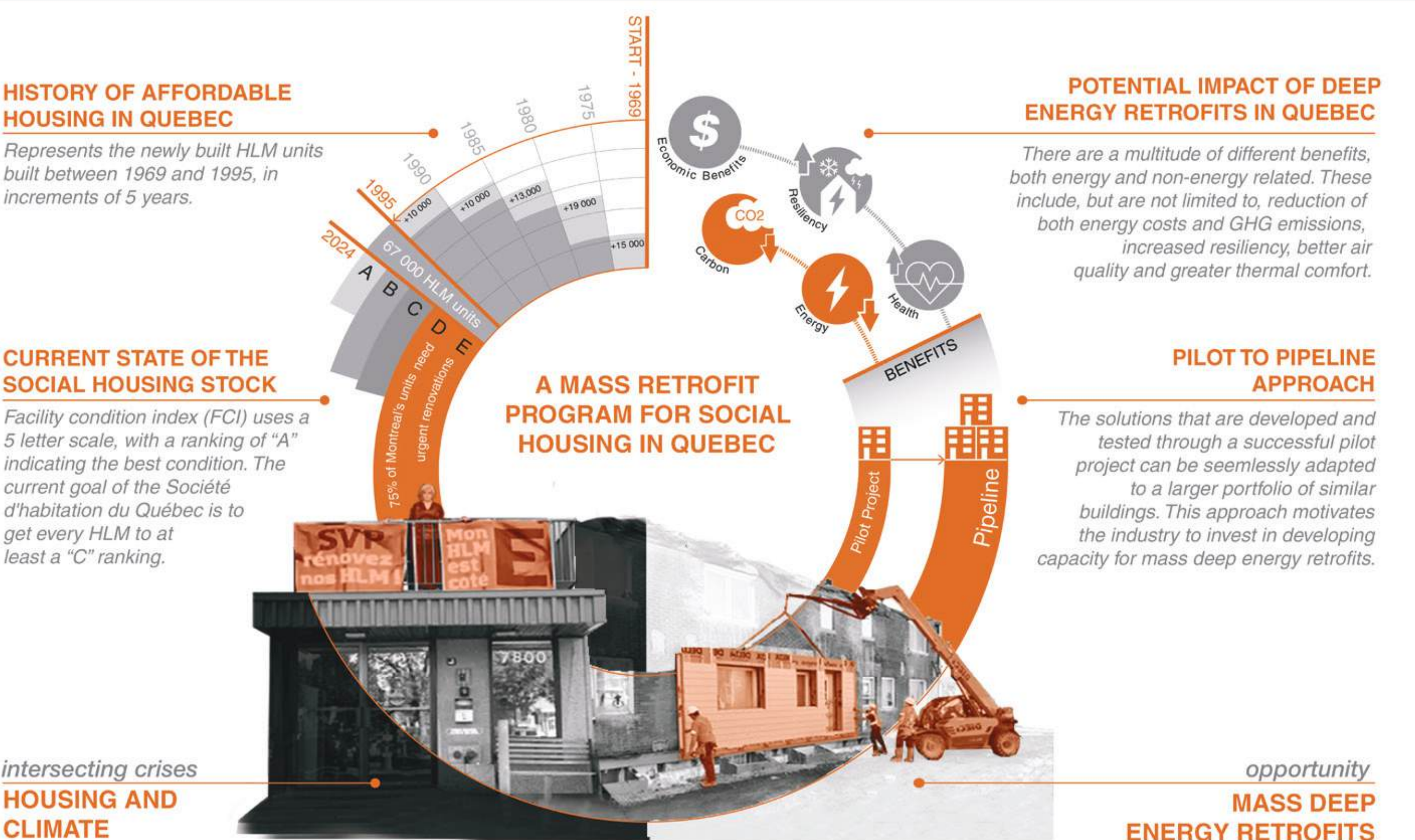
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INTRODUCTION INTERSECTING CRISES

Over 65 000 “habitations à loyer modique” units, known as HLMs, were built between 1969 and 1995 to provide the province with affordable housing, with rent caps at 25% of a household’s income¹. Due to funding cuts in the late 1990s and a lack of investment since, over 40% of the province’s units, including 75% of Montreal’s units, are currently in need of urgent renovation².

For Reconstruct, this is a golden opportunity for a pilot to pipeline approach. The HLM building stock in Quebec is characterized by an abundance of self-similar multi-unit residential buildings (MURBs). Since these are representative of a larger pool of buildings across the province, solutions developed through a pilot project can be easily adapted to a mass scale with minimal adjustments.

Retrofitting Quebec’s affordable housing provides a strategy to address the intersecting crises of climate and housing, while valorizing this important infrastructure.



APPROACH PILOT TO PIPELINE



METHODOLOGY PILOT PROJECT SELECTION CRITERIA

To better understand the selection process for DER pilot projects under the industry’s current capabilities, physical building characteristics were weighted and ranked into four, value-based categories: eliminatory criteria, opportunities, design and process influencing.

Eliminatory criteria help identify MURBs with the greatest pipeline potential given current capacity and constraints; only MURBs possessing the desired criteria are considered for pilot projects. The criteria and their weighting are likely to evolve as more pilot and early adopter projects are realized.

ELIMINATORY CRITERIA									
SIMPLE FORM FACTOR									
NUMBER OF STORIES									
	1	2	3	4	5	6	7	8	+
COMBUSTIBLE BUILDING									
	WOOD STEEL CONCRETE								
SITE CONDITIONS									
HERITAGE STATUS									
RENOVATION HISTORY									
	DONE ☒ REQUIRED ☐								
FACILITY CONDITION INDEX									
	A	B	C	D	E				

The opportunities category highlight’s additional considerations which may increase a project’s interest and potential for realisation, such as access to supplemental resources or support. This may also include the potential to expand the project beyond a DER, such as the potential for densification, which provides an additional solution to address the intersecting crises.

The final two categories include characteristics that impact either process or design. These criteria dictate aspects of the project such as panel design, ease of transportation, and construction methods.

OPPORTUNITIES					
THERMAL RESILIENCE	BUILT CAPACITY	DENSIFICATION	ENERGY SOURCE	NON-COMBUSTIBLE BUILDING	HVAC

PROCESS INFLUENCING CHARACTERISTICS		
LOCATION	BLOCK TYPOLOGY	
SITE ACCESSIBILITY	TERRAIN CHARACTERISTICS	
LOT SPECIFICATION		

DESIGN INFLUENCING CHARACTERISTICS		
GLAZING SURFACE AREA	EMERGENCY EXITS	CLADDING MATERIAL
BALCONIES	BASEMENT	ROOF GEOMETRY
STRUCTURE	PROTRUSIONS AND FACADE IRREGULARITIES	

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