



## ENERGY SERVICES ACQUISITION PROGRAM (ESAP) ENERGY SERVICE MODERNIZATION (ESM) PROJECT

### ENERGY SYSTEM GROWTH

#### **I. Introduction**

Canada may pursue expansion opportunities by entering into energy service agreements with public and private customers in the NCR. It is anticipated that marketing, billing and customer service activities will be performed by Canada. It is anticipated that the role of the Private Partner will be to support Canada with design, construction, operation and maintenance services of additional infrastructure associated with the expansion of the District Energy Infrastructure.

The following information is provided for purposes of communicating the growth potential in the NCR. CANADA MAKES NO REPRESENTATIONS OR WARRANTIES AS TO THE ACCURACY OF THE INFORMATION PRESENTED IN THIS ATTACHMENT. Rather, the information and maps are meant to convey to Respondents the opportunity that exists within the NCR for growing the District Energy Infrastructure, reducing energy costs for system customers, and reducing greenhouse gas emissions within the Ottawa community.

#### **II. Growth within the NCR**

In establishing the design criteria for ESAP, Canada established a set of assumptions for overall system growth in the NCR. Included in these assumptions are the following:

- The heating systems of the Cliff, Tunney's Pasture, NRC, and Printing Bureau CHCPs would be interconnected to enhance reliability and establish a platform for growth throughout the NCR.
- The government buildings in Gatineau would be connected to the new system, representing roughly 40 MW of demand across the Portage Bridge.
- A more significant opportunity for growth exists within downtown, particularly with all of the privately owned buildings in place today.
- The upcoming development at LeBreton offers a unique opportunity to add a significant load to the system, estimated to be close to 60 MW.

Figure 1 sets out the system growth opportunity envisioned by Canada.



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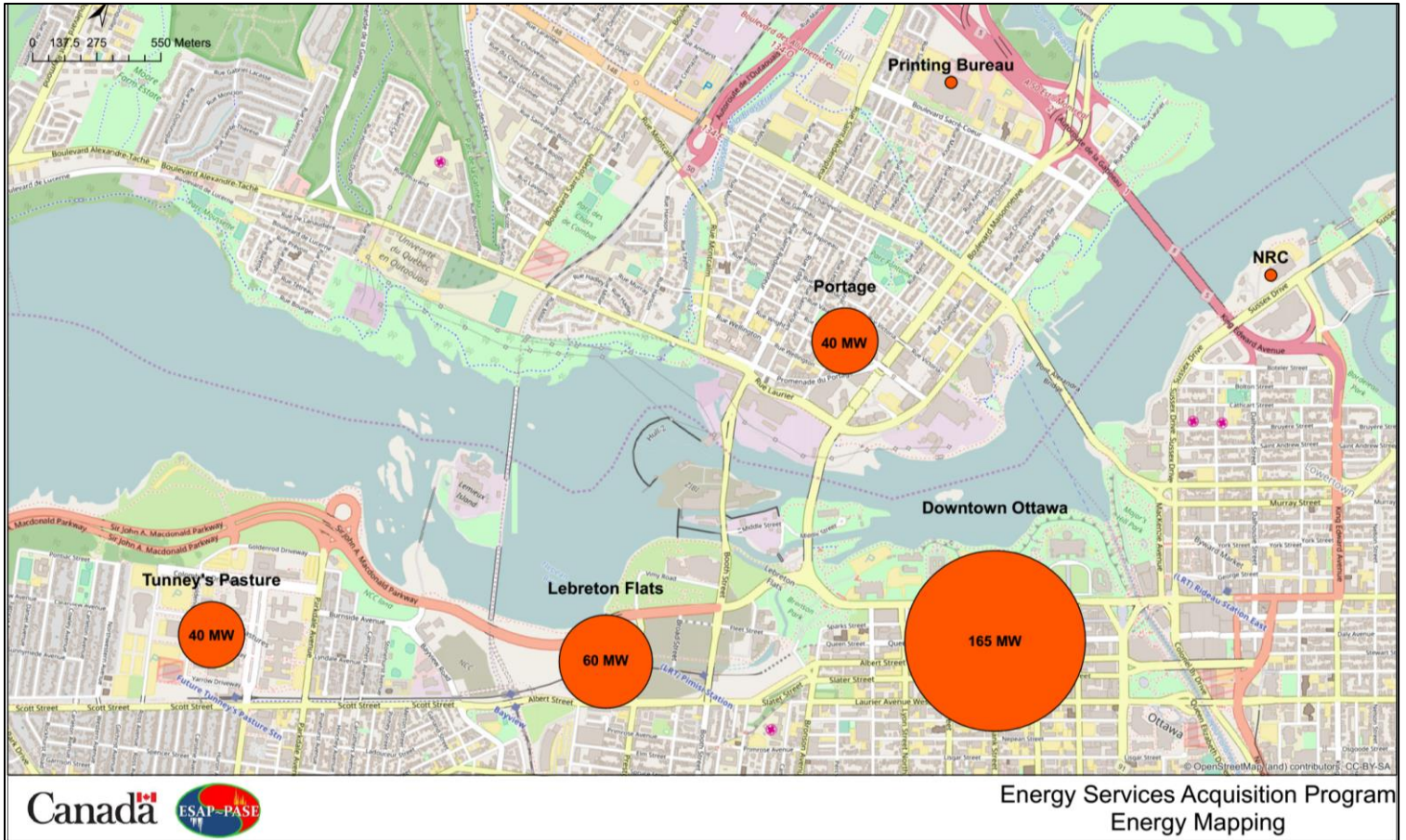


Figure 1: Energy System Growth in the NCR



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### III. Projected Energy Loads in downtown Ottawa

Canada has performed a preliminary analysis of the growth potential within the NCR. The following table summarizes the existing loads on the system (once converted to hot water), along with an educated approximation of the additional hot water/chiller water compatible buildings within the downtown.

Potential Growth						
	Heating			Cooling		
	Number of Buildings	Estimated Peak Load (MW)	Area (m <sup>2</sup> )	Number of Buildings	Estimated Peak Load (MW)	Area (m <sup>2</sup> )
Currently Connected Load on ESAP Systems	55	72	720,041	45	59	672,907
Potential Government-Owned Growth	4	10	148,408	4	8	148,408
Potential Government-Leased Growth	31	44	659,383	49	60	1,179,748
Potential Private Building Growth	28	38	565,455	30	24	579,689
<b>Total</b>	<b>118</b>	<b>165</b>	<b>2,093,287</b>	<b>128</b>	<b>151</b>	<b>2,580,752</b>

Table 1: Existing and estimated potential heating and cooling loads in the NRC

As seen in the table, the hot water system in the NCR could be grown by nearly 130%, and the chilled water system could be grown in the NCR by over 155%.





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### IV. Load Density Maps

Canada analyzed the makeup of building ownership within the NCR, and also estimated the block-by-block energy density of the area, based upon building size, building use, and American Society of Heating and Air-Conditioning Engineers (ASHRAE) data. The following maps provide this ownership and energy density information.

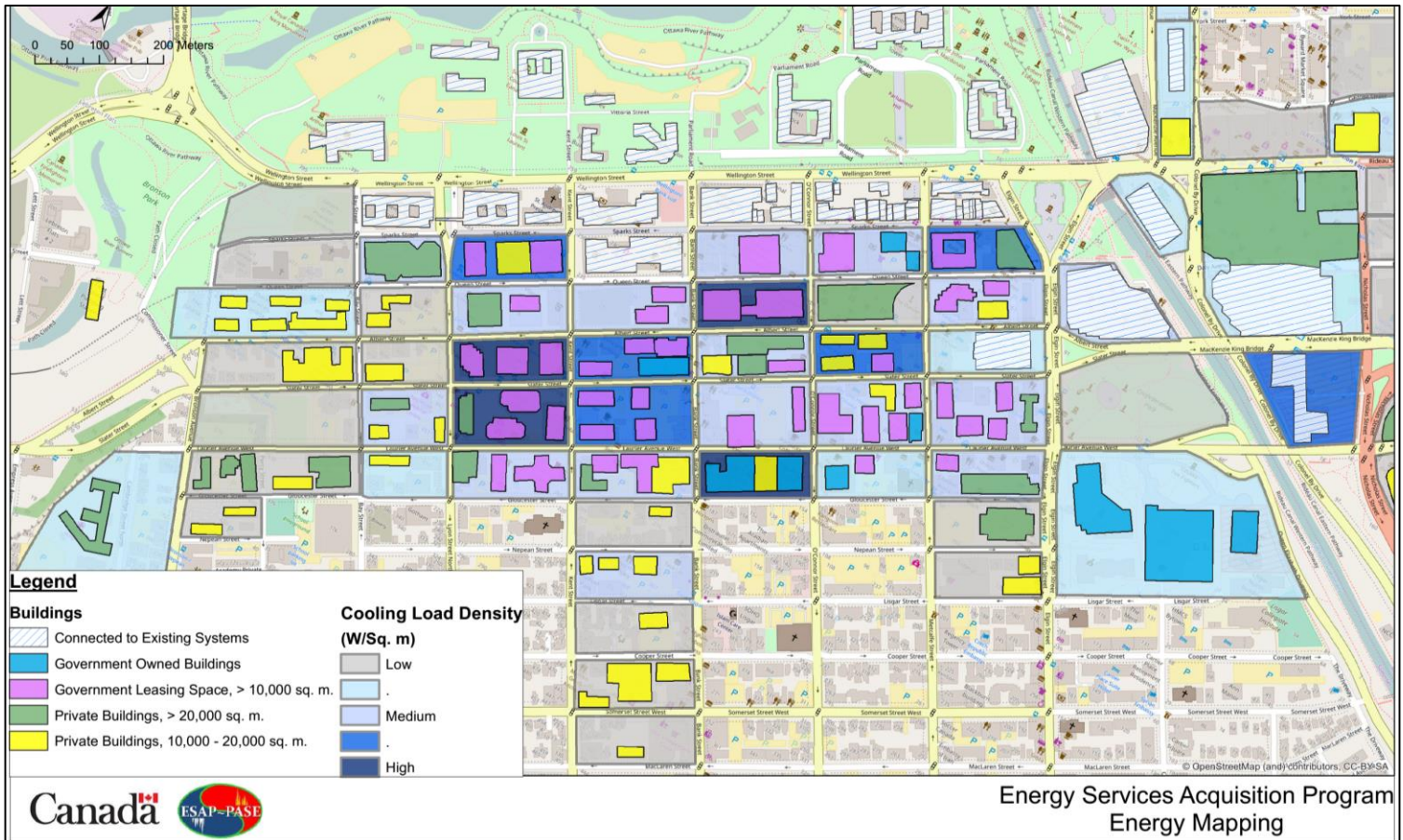


Figure 2: Cooling load density and building ownership in the NRC



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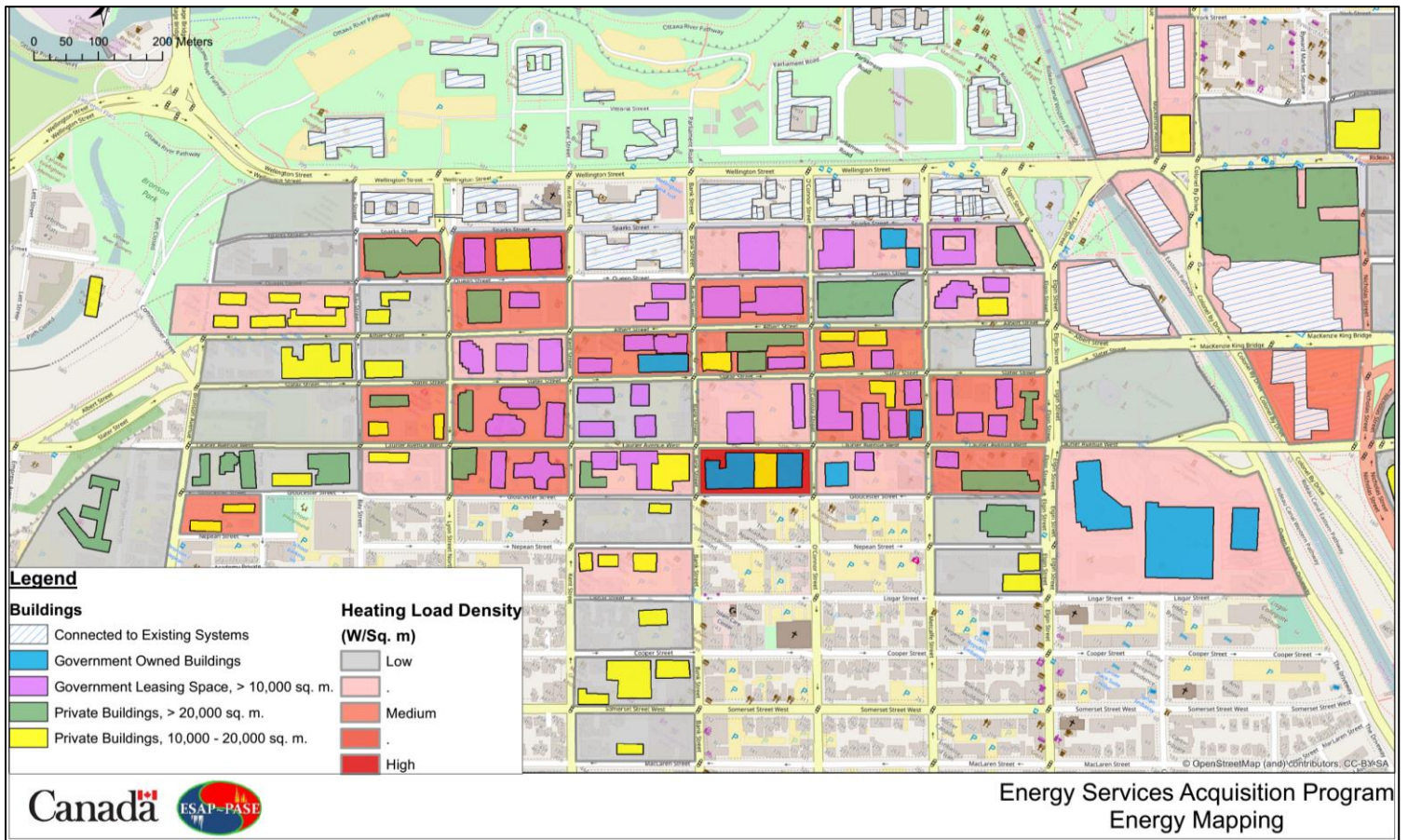


Figure 3: Heating load density and building ownership in the NRC