

Ten questions that could be posed and answered at the March 20 meeting on Should Ontario municipalities be required to engage in heating planning?

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1. What is heating planning and why is it important?

Planning for space heating in buildings in a neighbourhood, municipality or region has three elements:

- a. Assessing current demand for heating and future demand until 2050 (or another year).
- b. Noting current sources of otherwise-wasted and/or carbon-free sources of heat and potential sources.
- c. Putting #1 and #2 together in a feasible decarbonization plan with 5-year sub-targets, all developed with widespread consultation.

Heating planning is important because space heating in buildings is the or a major source of greenhouse gas emissions (GHGs) in most communities in Canada.

2. Might not cooling planning be needed more for 2050?

Likely more than now because of climate change, but still much less than planning for cold winter days. Today, heating accounts for well over 10 times more GHGs than cooling, in part because much more energy is used for heating but chiefly because heating energy now produces very many more GHGs. Heating plans should provide for cooling, but in a way that optimizes production and use of heating energy. Cooling can be a major source of heat— e.g. from data centres – that can be especially valuable if storable across seasons.

3. Why consider making heating planning a mandated municipal responsibility?

Chiefly because municipalities have good knowledge of existing and planned buildings in their jurisdiction, and they have much expertise in planning. European experience points to municipalities being best positioned to engage in heating planning. Indeed, in the EU, municipalities with populations of over 45,000 are being required to develop heating plans.

4. What does heating planning involve, what does it cost, and who might pay?

See #1 above for what it involves, often with substantial contributions from consultants where municipalities do not have staff available. Costs are unclear except we know that in Germany the federal government provides municipalities on average with the equivalent of \$10 per capita for required heating planning.

5. What would be the time frames for (a) developing heating plans; (b) applying them?

(a) Again, we look to Germany, where federal legislation that came into force in January 2024 requires municipalities with a population over 100,000 to prepare heating plans by the end of June 2026 – June 2028 for smaller municipalities. Municipalities under 10,000 can use a simplified procedure. (See [link](#).) (b) Separate legislation in Germany concerns implementation of municipal heating plans ([link](#)). The March 20 event is to focus on heating *planning*. Implementation of heating plans could be the subject of a later event.

6. How differently would heating plans treat new and existing development?

The objective for each kind of development would be the same: cost-effective decarbonization. For new buildings there's an option that may not be available for existing buildings: meeting what are known as Passive House requirements ([link](#)), which can be such as to obviate the need for added energy for heating or cooling.

7. How would municipal heating plans be implemented and enforced?

Again, the March 20 event will barely touch on *implementation* of municipal heating plans. The plans could be implemented by property owners with the guidance of municipalities, which could also enforce compliance, if allowed by provincial legislation.

8. Is heat planning no more than a means of promoting heat networks?

For neighbourhoods and districts where district heating is economically feasible, its widespread deployment has been the usual prescription of completed heating plans. In Europe, feasibility is most often assessed in terms of heating density. A heating load of 20 TJ/km² is often regarded as being the minimum requirement for feasibility, with much variability according to circumstance.

For residential development in Ontario, this minimum is roughly equivalent to a population density of 10 persons per hectare, more in the south than in the north. Using this guideline, perhaps 70% of Ontario's existing residential buildings could feasibly be served by district heating. The remaining 30% of residential buildings would likely be targeted to be served by ground source heat pumps.

Commercial and institutional development mostly requires different feasibility considerations. Such development can be feasible in its own right. Where mixed with residential development, usually makes district heating more feasible.

9. What are the alternatives to municipal heating planning?

Perhaps a separate federal or provincial agency charged with developing heating plans.

10. What might happen if there's no good planning for decarbonization of space heating?

Buildings, the most important and amenable sector, may well not be decarbonized. There's good evidence that, with proper planning, the buildings sector can be decarbonized by 2050 or earlier. Prospects for decarbonization of the other two main sectors – transportation and industry – appear to be less favourable. It would be prudent to have much focus on the most promising sector, for which substantial investment in heating planning may be essential. Good heating planning seems to be a necessary prerequisite for such a focus.