

Comments by URA on Markham Centre Community Energy Plan - May 26, 2023

URA-MarkCentreCEP2023-05-26

Due to time limitations, we have focused on the Executive Summary with just a brief skim of the body of the report.

Executive Summary

1. This CEP is a key component of Markham's "Getting to Zero" Municipal Energy Plan. As such, it needs to follow the requirements in "Box 1: The Integrity of Net Zero". Specifically:

- Stepping stone targets for every 5 years
- Concrete actions
- Needs to start fast, reflecting that global emissions must decline by at least 50% by 2030

2. Table 1 Development Concept population is not consistent with latest Development Concept presented by staff at the public meeting February 2, 2023.

3. We badly need updated actual data. You have modelled that 2020 emissions were about 50 kT CO₂equiv/year. Assuming we have continued along the "DC" line, emissions today are already 70 KT/yr and will reach 85 KT/yr by 2025, making it that much harder to achieve the NZ target of 30 KT/yr by 2050.

4. More explanation is needed on how Markham Centre will get from 30 KT/yr to net zero. Because the provincial grid will still emit some GHG, this means that any use of the provincial grid means we cannot reach absolute zero, unless carbon sequestration is used. Apparently net zero is achieved by exporting surplus renewable energy during certain times, which can offset those GHG emissions. Is this correct?

5. What is to be concluded from Figure 2? Taking the residential building case, it seems to say that total energy need is $15 + 55 = 70$ KWH/m²/yr. Available solar is 1100 KWH/unit/yr or about 20 KWH/m²/day if a typical unit is 50 m². Therefore solar can only provide about one-third of building needs. Is this the correct conclusion? (See also our comment 10 below, which may be related)

6. We applaud the innovative policies proposed in the report

- Solar harvesting configuration
- Access to Solar bylaw
- Passive solar design
- V2G charging
- Ubiquitous on-street EV charging
- MDE to store heating and cooling in boreholes
- Embodied carbon report

However, as per point #1, there needs to be explicit timing for some of these actions, eg Solar Bylaw by date x, passive solar design requirement by date y, monitoring program set up by date z.

7. An important conclusion in Section 5 of the main report is to “build all new buildings to NZ standards, **starting now**”. This very important message needs to be emphasized more prominently in the Executive Summary, rather than buried in Table 3.
8. The monitoring program described in Section 10 of the main report needs to be summarized in the Exec Summary and given prominence.

Main Report

9. Box 4 (page 19) is completely out of date regarding number of residents and jobs
10. The floor areas in Table 4 seem awry. The ones for single-detached dwellings and rowhouses make sense – about 370 and 265 m² per unit. But mid-rise and high-rise apartments seem wrong, at 3000 and 7800 m² per unit!! Hopefully this does not affect the calculations in the report, although may be related to the problem in comment 5 above.
11. Equation on pg 33 is wrong