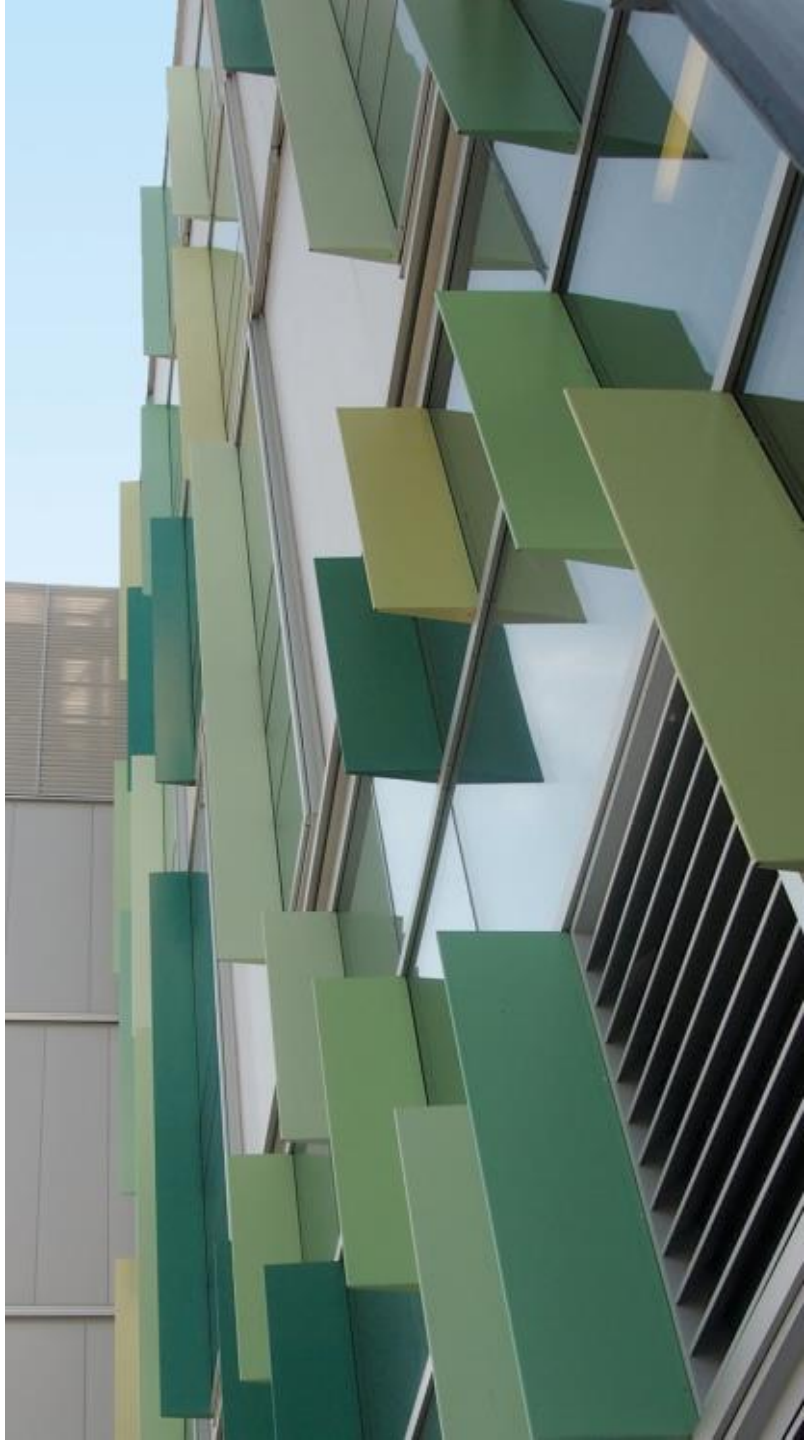

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*Façade Tectonics Forum: Simulation vs. Reality – **Ten Figures of Note.***

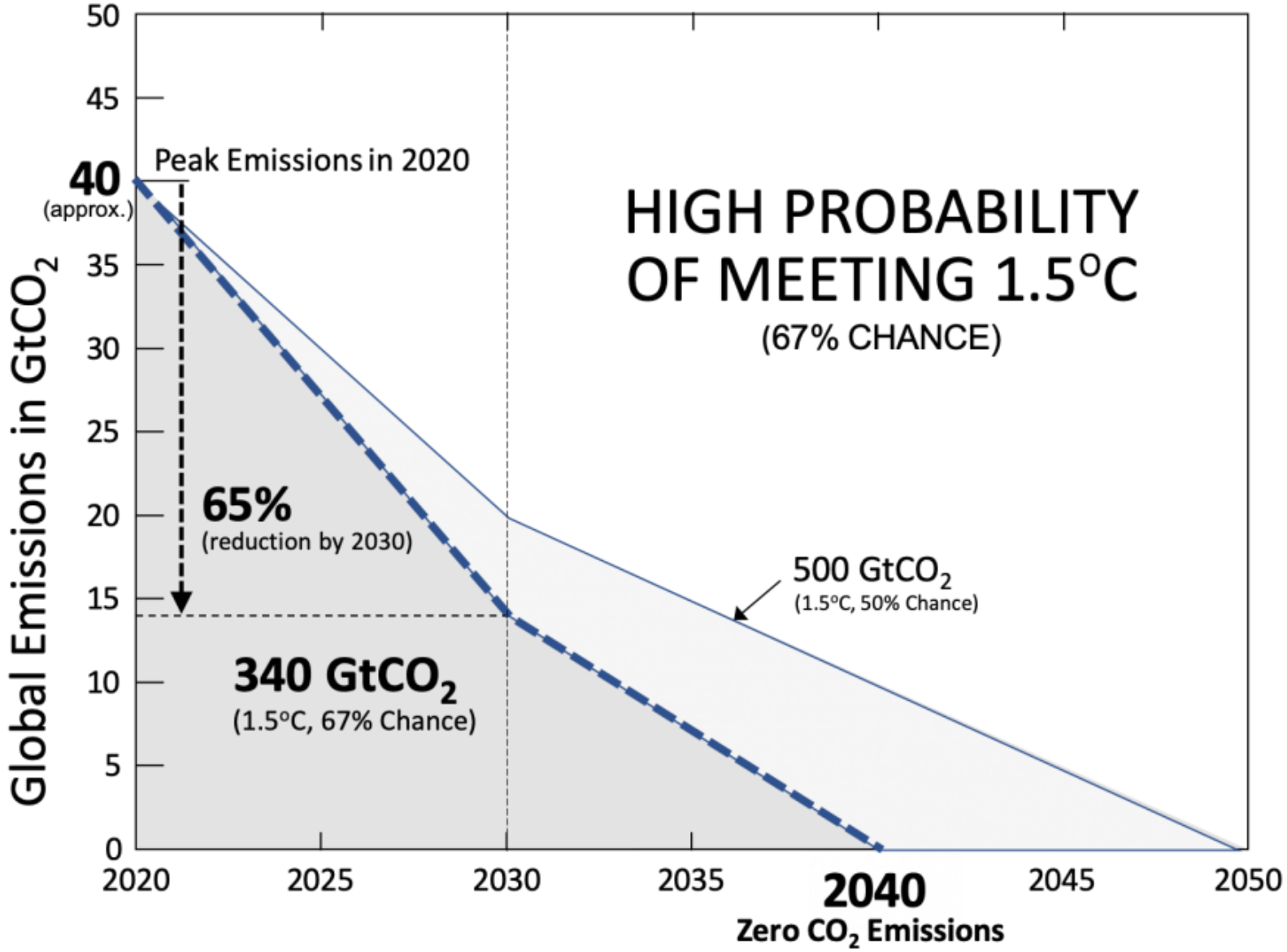


Figure #1: We have *9* years to do A LOT, 30 years to do it all.

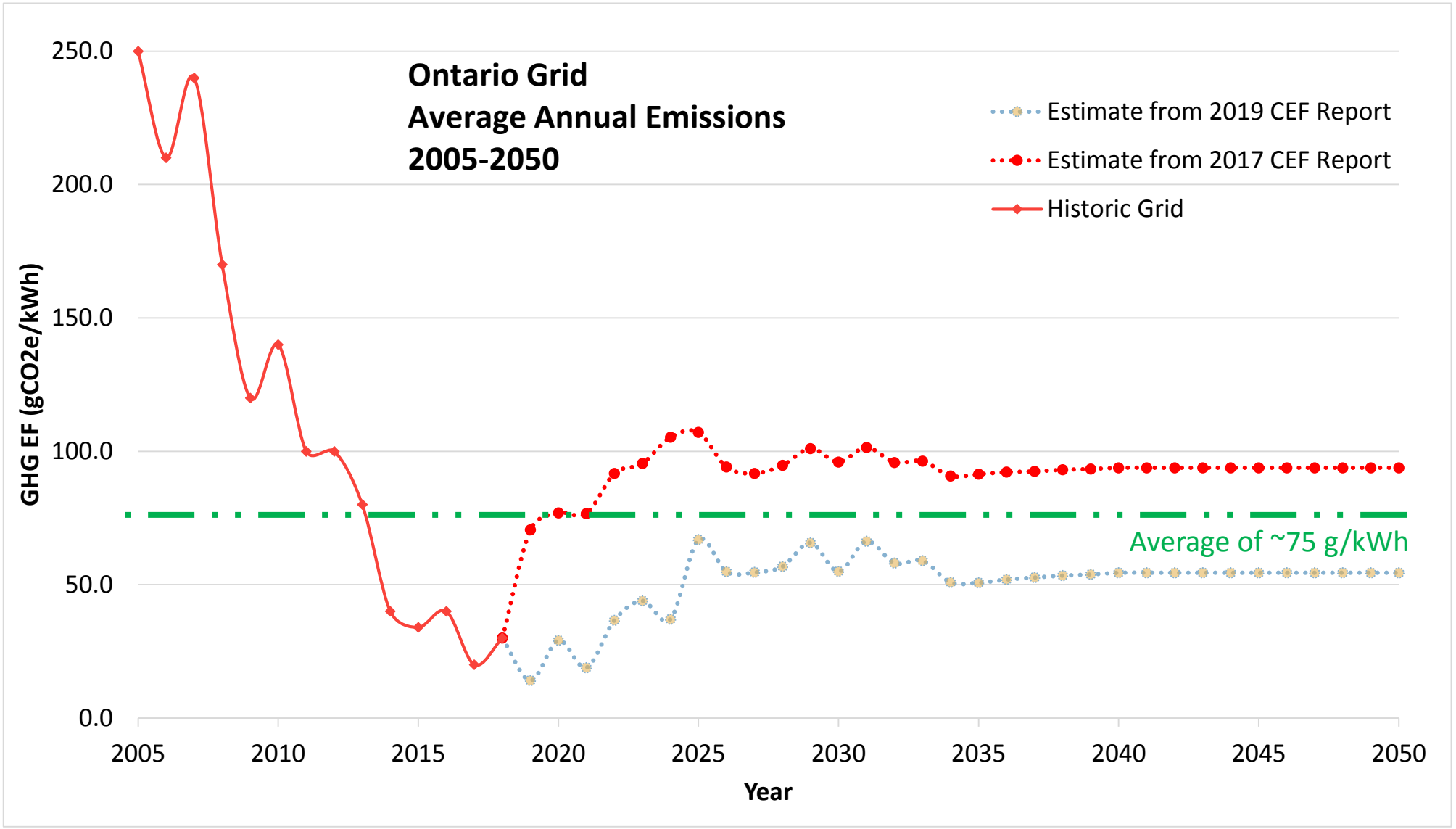


Figure #2: Decarbonizing the grid is an obvious first step.

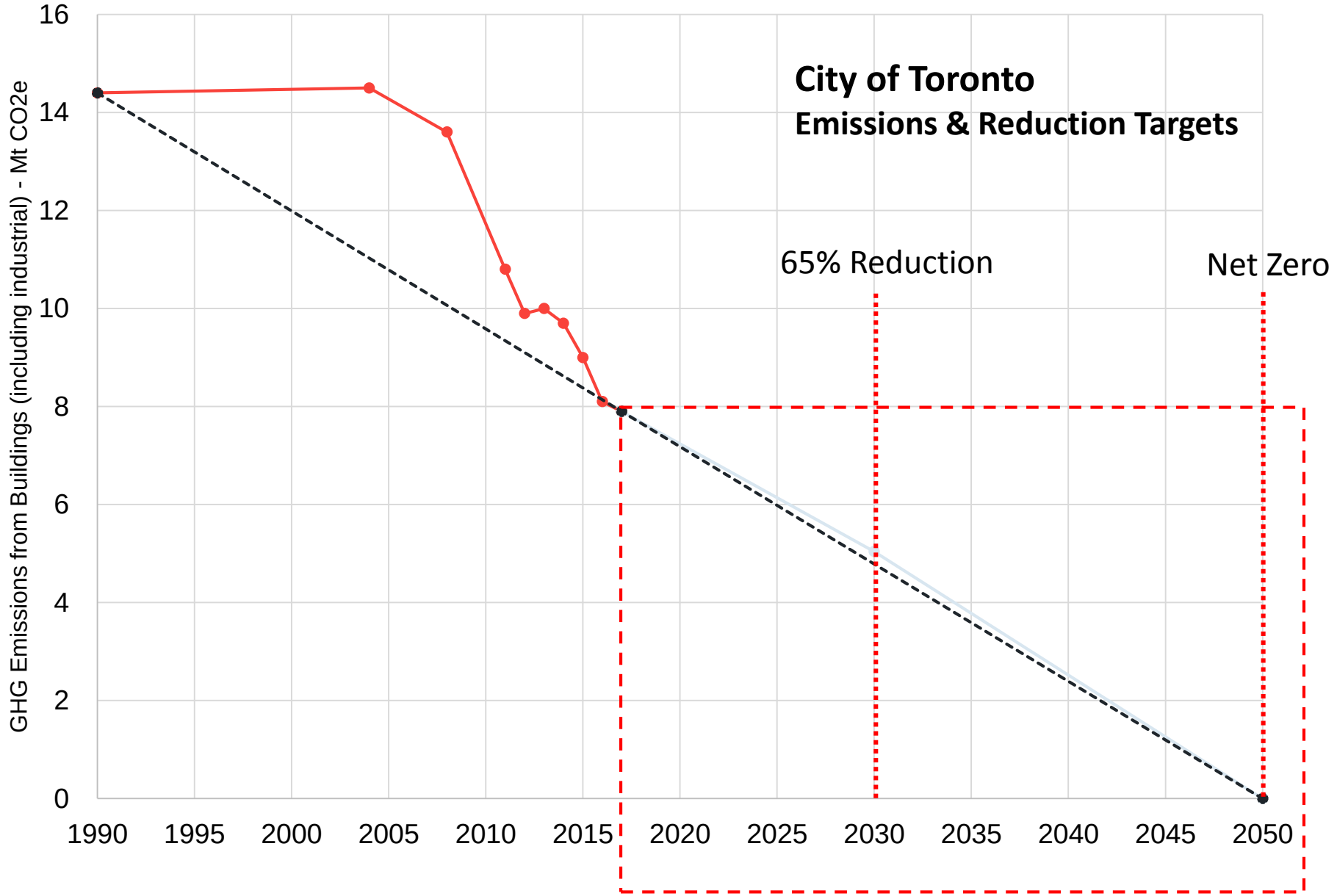


Figure #3: The target is net zero for all buildings, especially EBs.

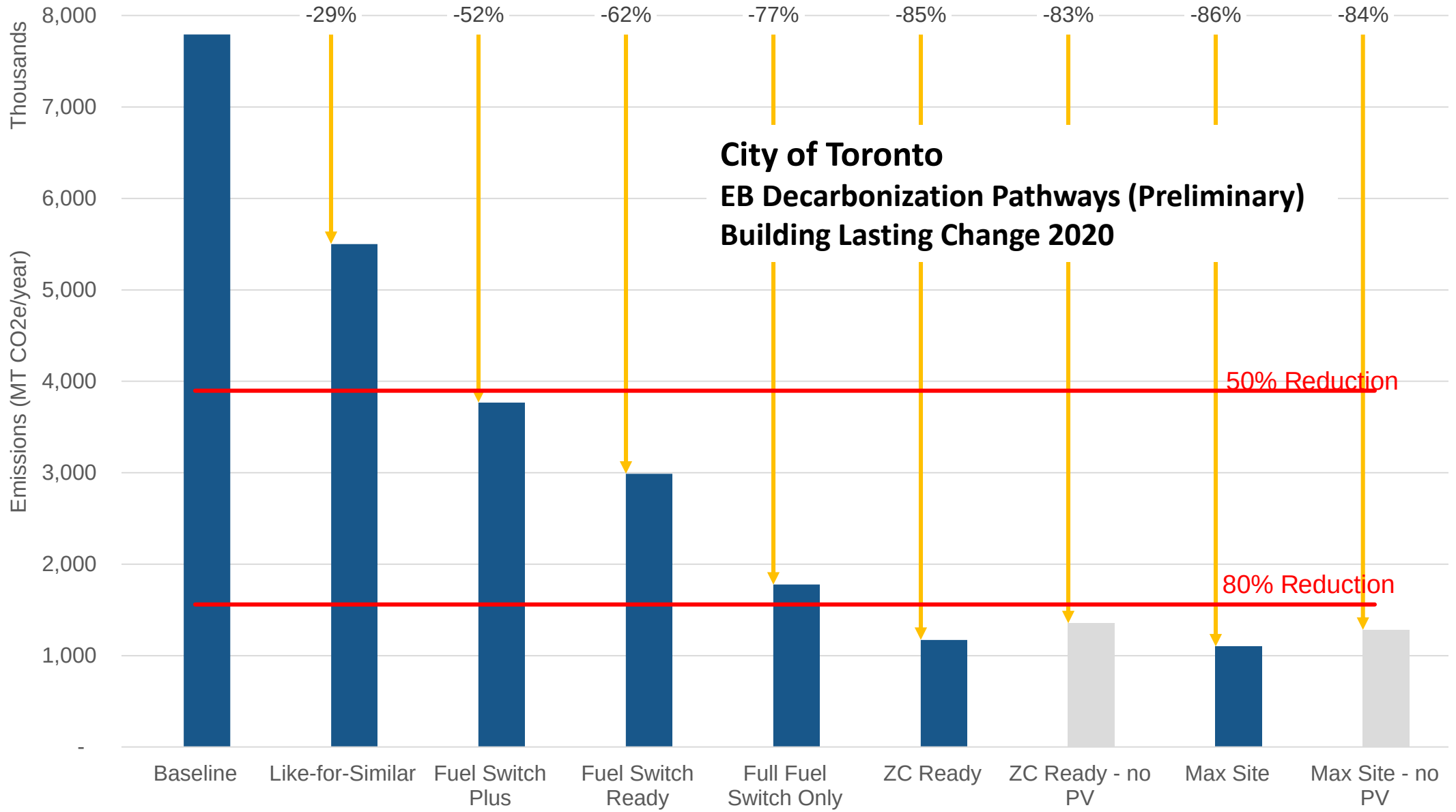
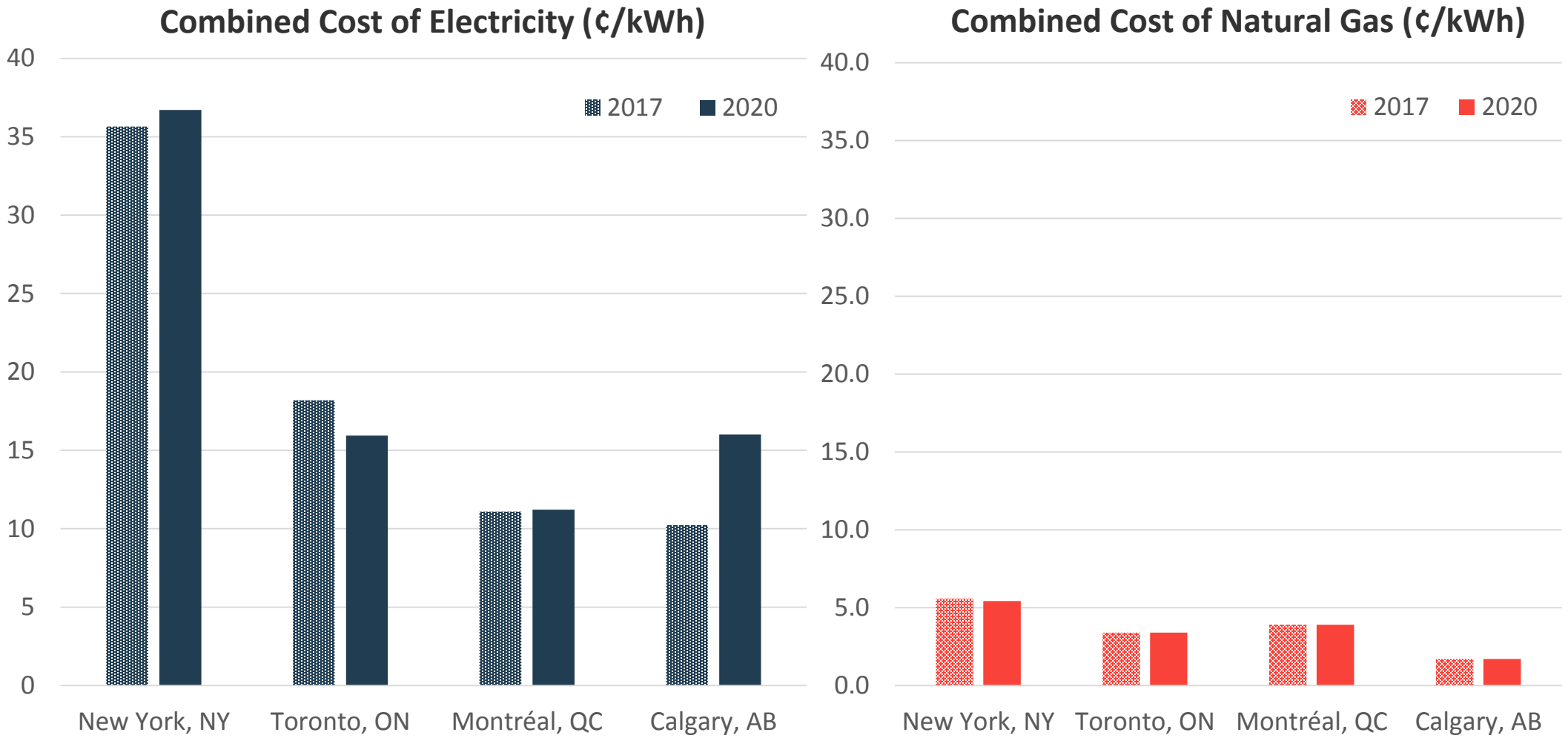


Figure #4: Fuel switching is essential.



Hydro Quebec
2017 and 2020 reports

Figure #5: Fuel Switching, even with heat pumps, could be very expensive.

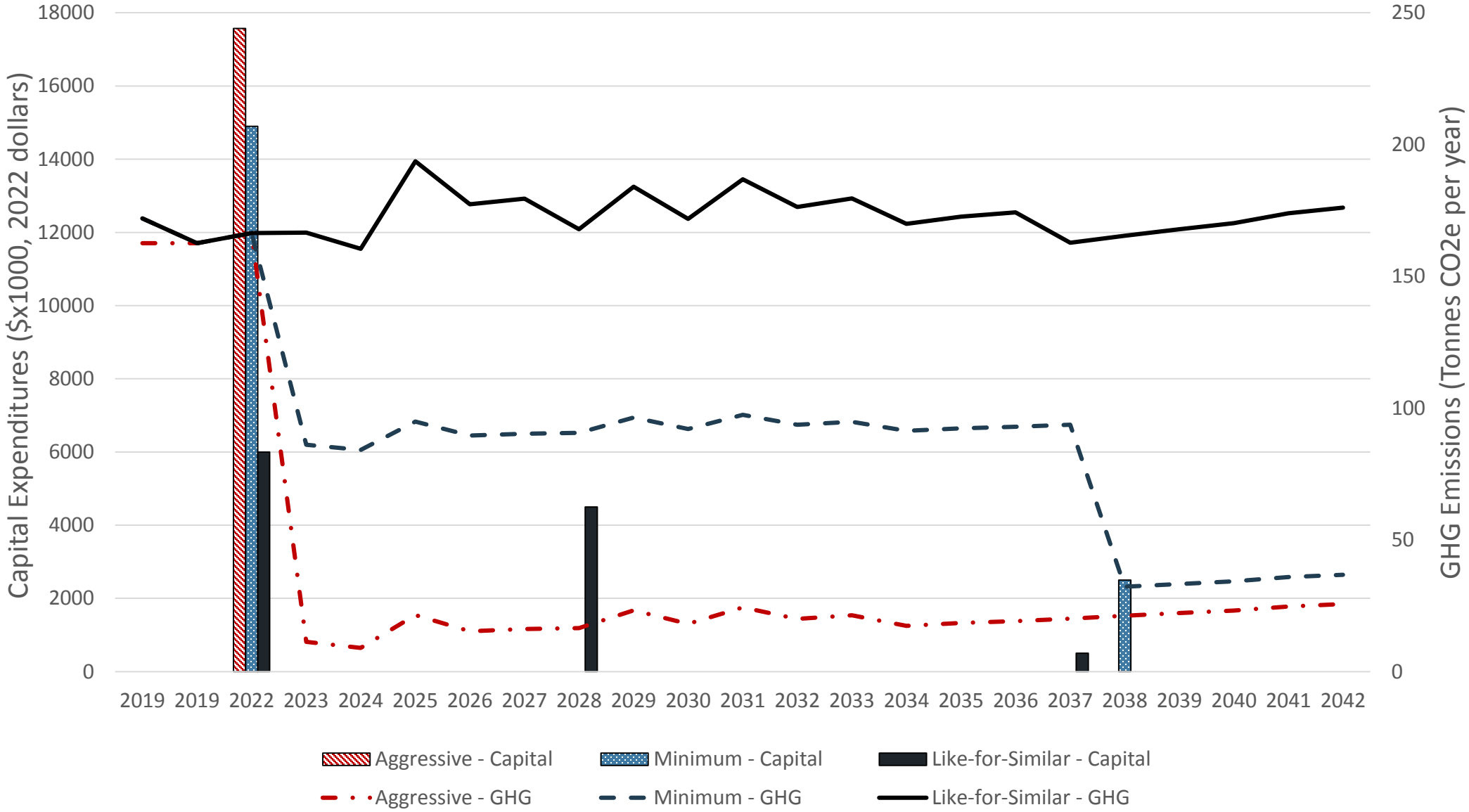
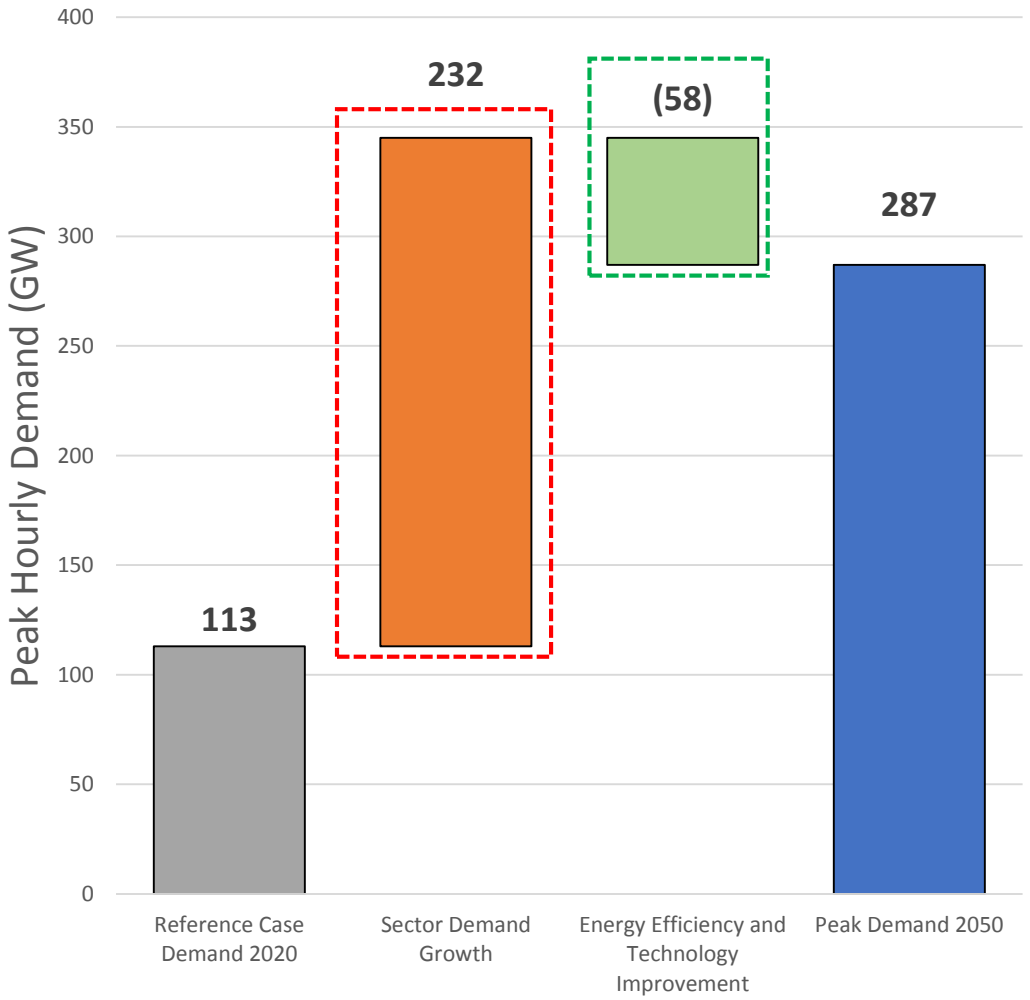
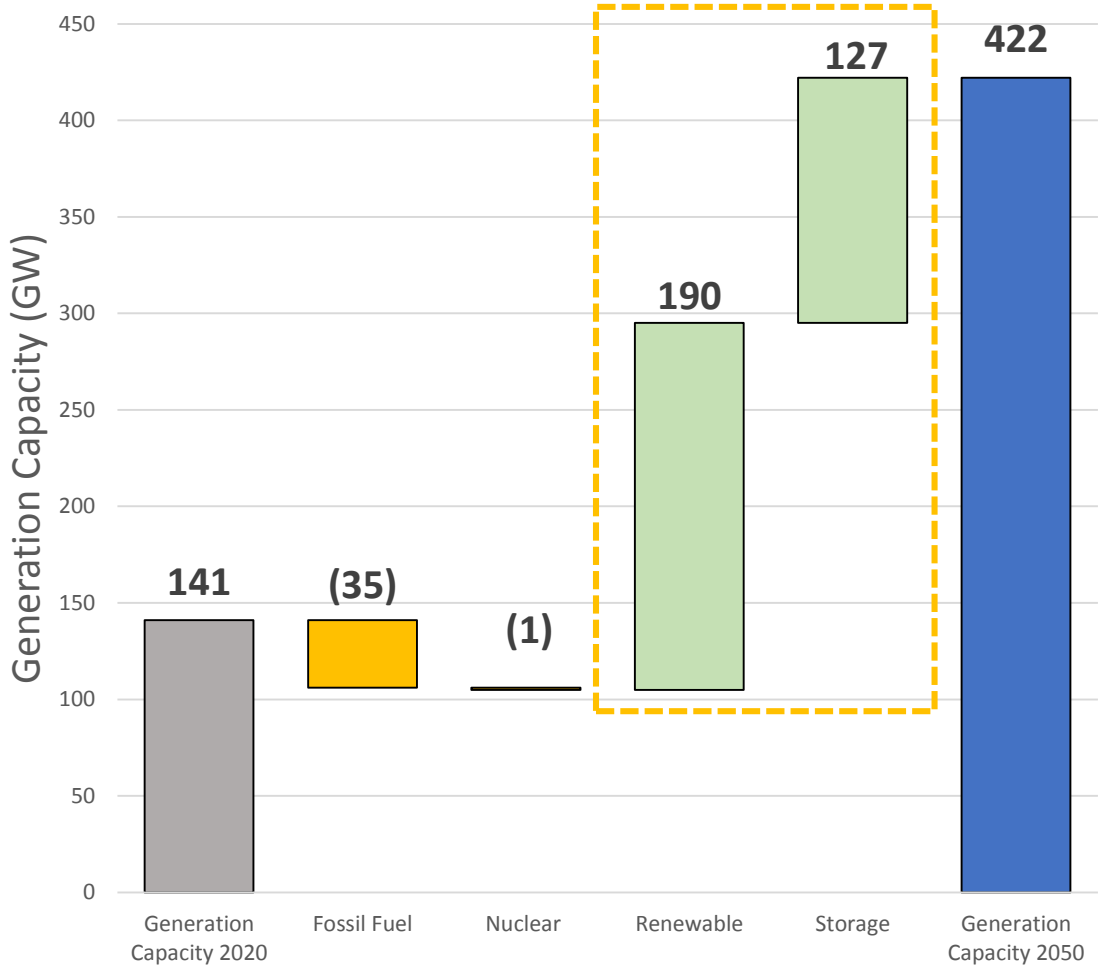


Figure #6: Facility Modeling Problem #1 – "Optimal" fuel switching.

Full electrification with Air-source Heat Pumps



Full Grid Decarbonization (No Fossil Fuel)



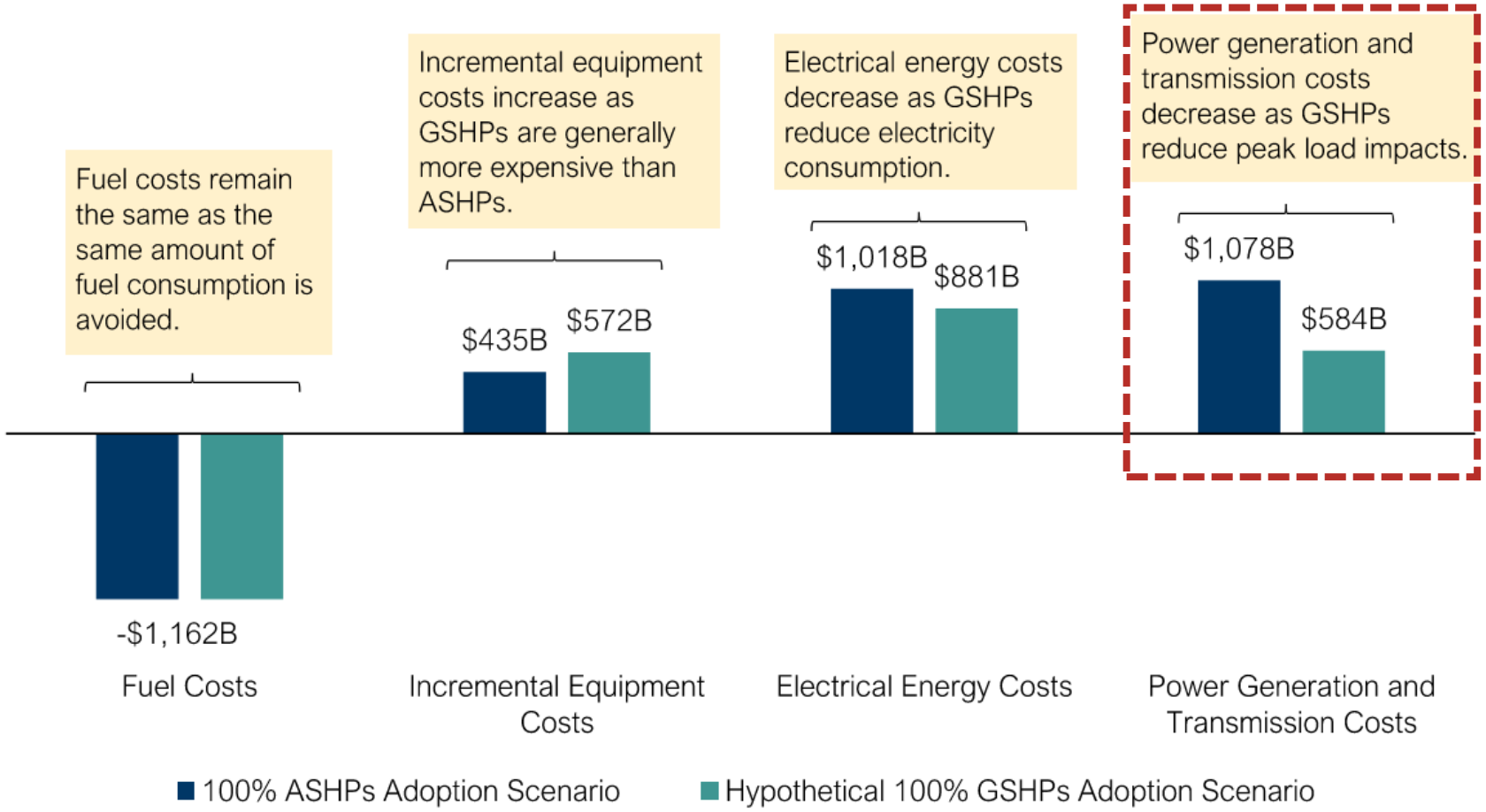
~1.25x

~1.5x

Canada-wide Study
CGA / ICF - 2019

Figure #7: Getting all the way to zero could grid operators a lot.

Figure 5. Cumulative Costs from 2020 to 2050 by Cost Component Under Renewables-Only Generation Scenario (Scenario 1) Assuming 100% of Buildings Electrify with ASHPs vs. 100% GSHPs ($Billions)



The Economic Value of Ground Source Heat Pumps for Building Sector Decarbonization, HRAI / Dunsky, Reissued: October 2020

Figure #8: What if we all worked together?

Ontario Architecture Association Headquarters

Contribution of key systems to Peak Demand

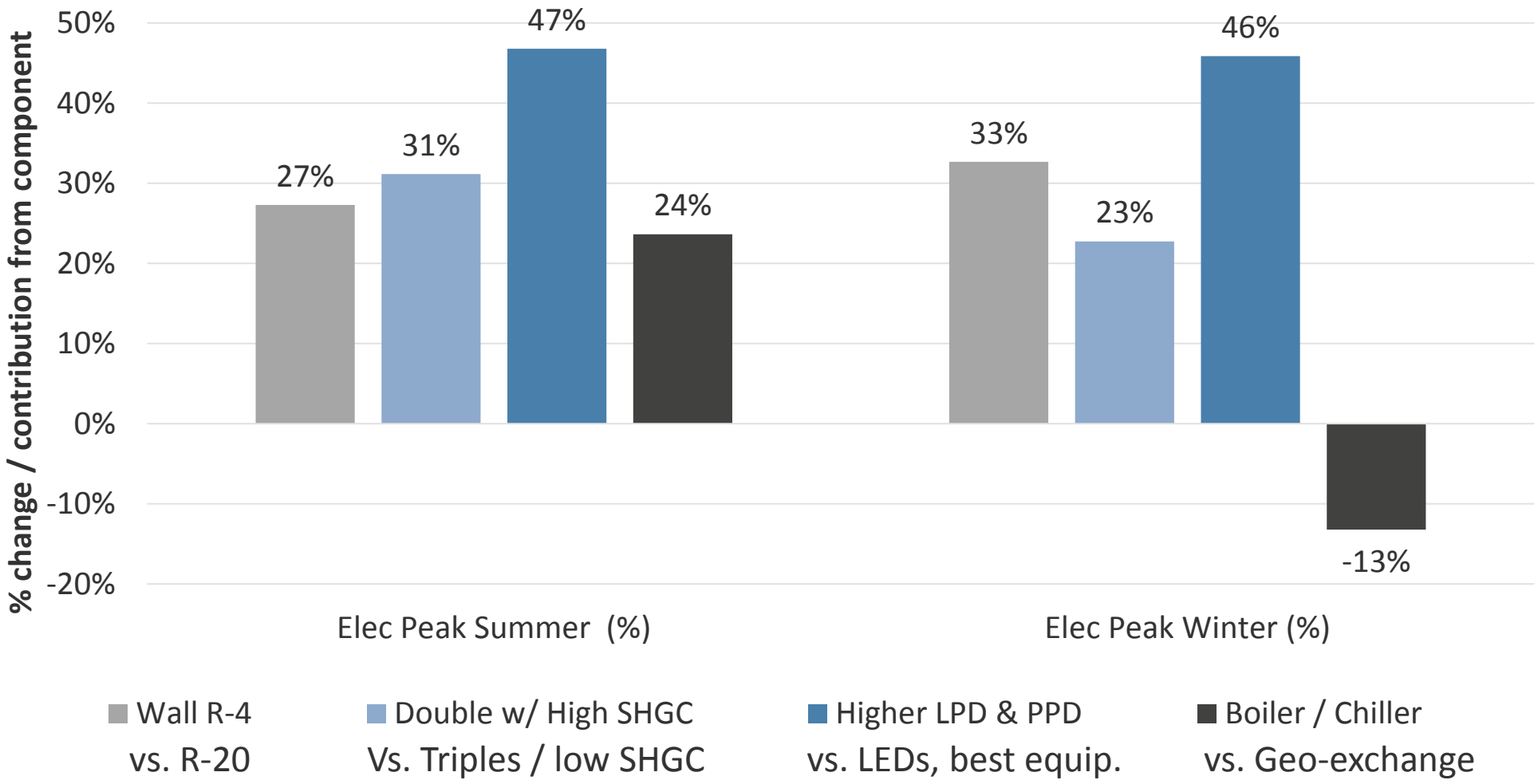


Figure #9: Systemic design, including enclosure, matters a lot.

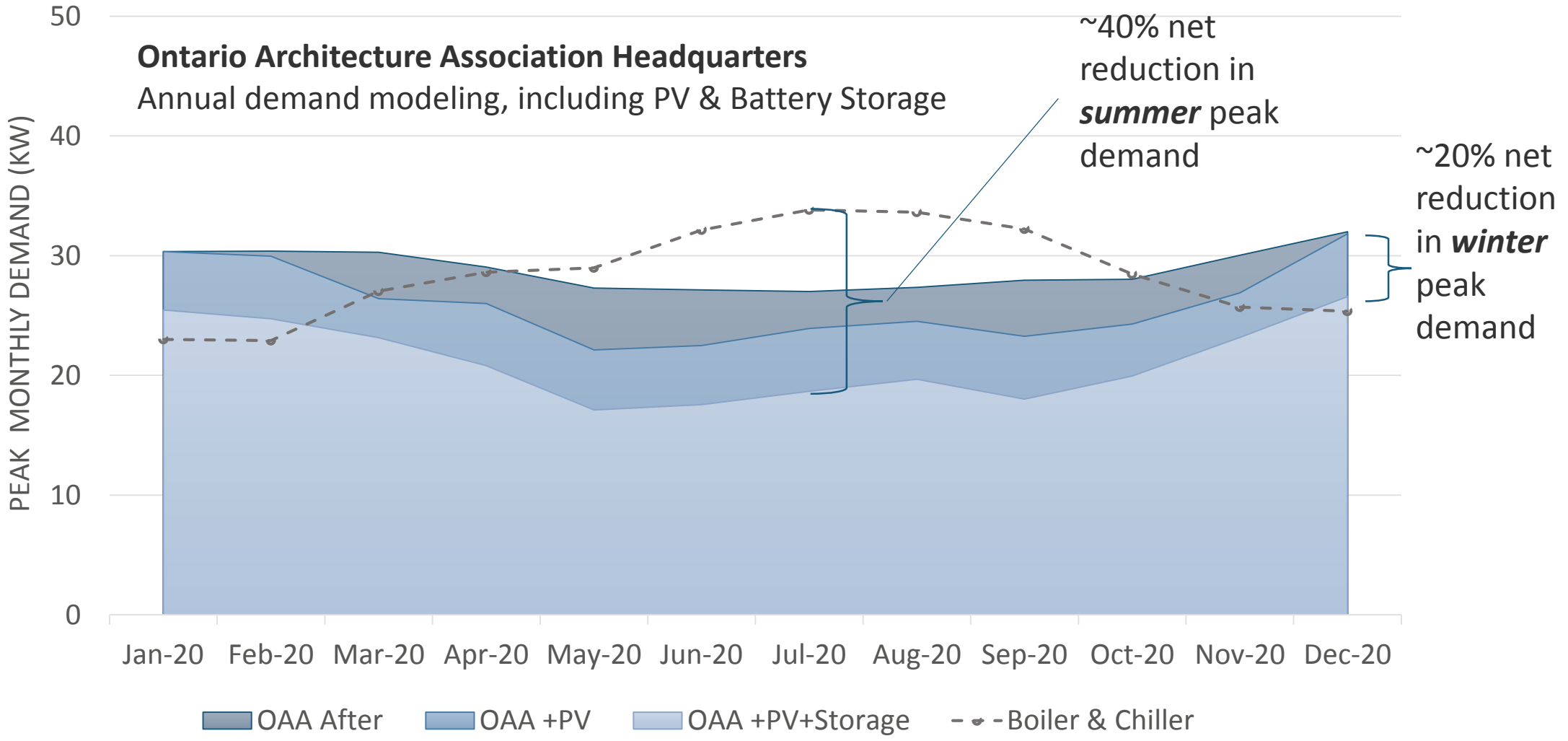


Figure #10: Facility Modeling Problem #2 – Grid Stewardship