

# Cumulative Cost of Ice Resurfacers

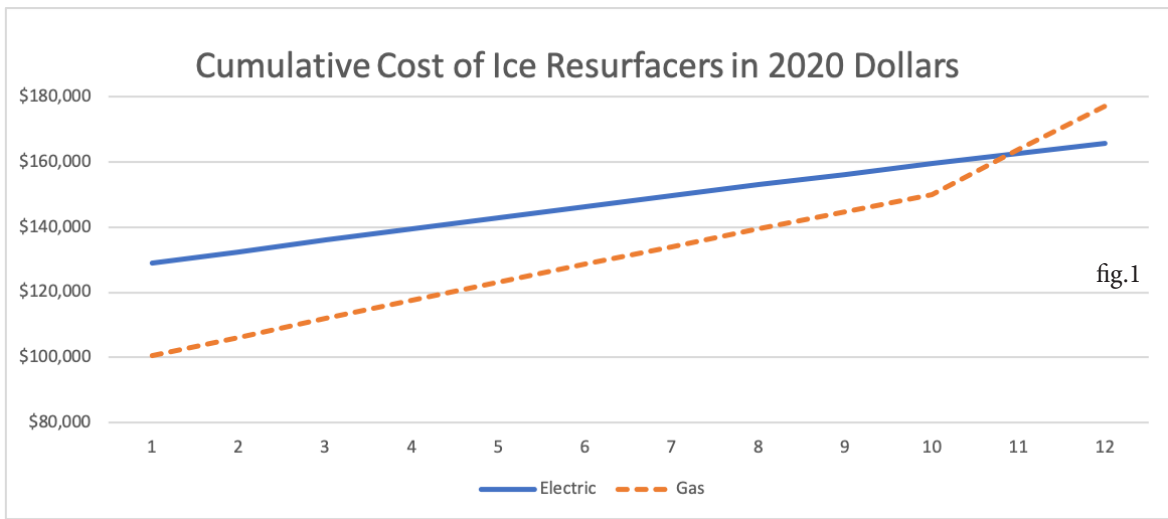


March 31, 2020

Dear Colleagues,

The following data-visualizations make me hesitate to support the purchase of electric ice resurfacers at this time.

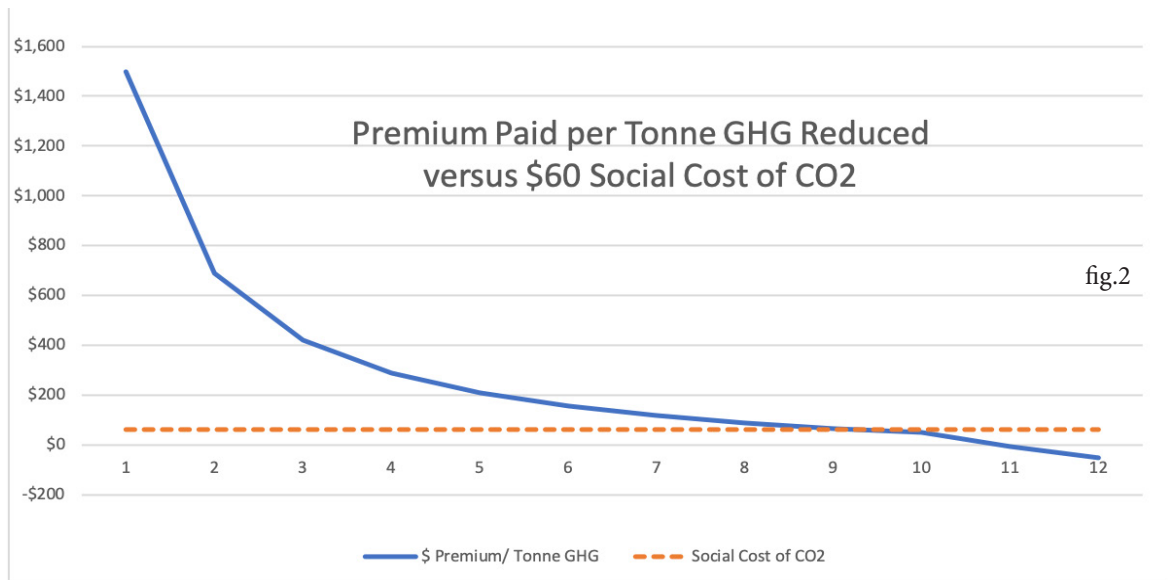
Figure 1 plots the cumulative cost of both the electric and natural gas ice resurfacers for the 12-year expected life of the electric models. It includes both the capital and operating costs given in the staff report. The natural gas models are shown to be less expensive overall for their entire 10-year life. From a purely financial perspective, it might be prudent to purchase the gas units now and wait ten years when the price of electric vehicles comes down, and there is no longer a 32% premium to be paid.



However, the purpose of the proposed switch is to reduce CO2 emissions so that should also be evaluated.

The difference between the two lines above is the premium paid for the electric units. In figure 2 that is divided by the 19 cumulative tonnes of GHG avoided per year. This amount (in \$/tonne) is compared to the social cost of CO2, which is essentially the price to repair or adapt to the estimated environmental damages. Investments below \$60/tonne are sensible ones, and investments above that are poor.

It is not until past the ninth year that electric units are even a viable choice. An unexpected cost, like replacing a \$3500 battery after the 5-year warranty, would have the units exceed the social cost of CO2 for the entire 10 years. Planting \$4000 worth of trees would provide the same environmental benefit as paying \$30,700 extra for an electric ice resurfacer. That would be my preference.



Sincerely,

Michael van Holst  
Councillor Ward 1