

MANITOBA HYDRO

2012/13 & 2013/14 ELECTRIC GENERAL RATE APPLICATION

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Manitoba Hydro Undertaking #68

Manitoba Hydro to file detailed Marginal Resource Cost (MRC), Rate Impact Measure (RIM), and Levelized Utility Cost (LUC) calculations, including all assumptions that were considered as part of the calculations, for both instantaneous electric and tankless natural gas water heaters.

Response:

1. The MRC of installing a natural gas tankless water heater as opposed to a conventional 40 gallon EF 0.57 natural gas water heater is 0.20. Manitoba Hydro does not calculate RIM and LUC values for measures. RIM and LUC values are calculated for program designs which generally include program and incentive costs. In this case, no program design concepts were developed as the measure does not pass the MRC.

Assumptions:

- 2.4 people per household (Manitoba Hydro's average residential household size).
- 1 200 square foot bungalow.
- Energy consumption of a 40 gallon EF 0.57 natural gas water heater is 505 cubic metres annually.
- Energy consumption of a natural gas tankless water heater 348 cubic metres annually.
- Energy savings 157 cubic metres of natural gas annually.
- Product cost of a 40 gallon EF 0.57 natural gas water heater is \$900.
- Product cost of a natural gas tankless water heater is \$3500.
- Incremental product cost is \$2600.
- Energy benefits are based on Manitoba Hydro's 2012/2013 natural gas marginal values.

2. An MRC, RIM and LUC analysis comparing whole-home electric tankless water heaters to a conventional electric water heater has not been undertaken as there are very little to no energy savings associated with this opportunity. In this case, energy savings would result from the elimination of the storage tank and the associated heat loss within a facility. During the heating season, this heat loss displaces heat which would be generated from the home's space heating system and is therefore not entirely lost. It is estimated that the opportunity would save on average approximately \$1-\$2 per month in electricity bill savings. The estimated energy savings relative to the higher capital cost to install whole-home tankless water heaters is so insignificant that Manitoba Hydro has not calculated any of the metrics associated with this opportunity. The capital cost of an instantaneous electric water heater is approximately \$3500 and the much larger heating element requires a 400AMP service. The 400AMP service adds additional initial costs and increases the customer's basic monthly charge.