

# SAMPLE

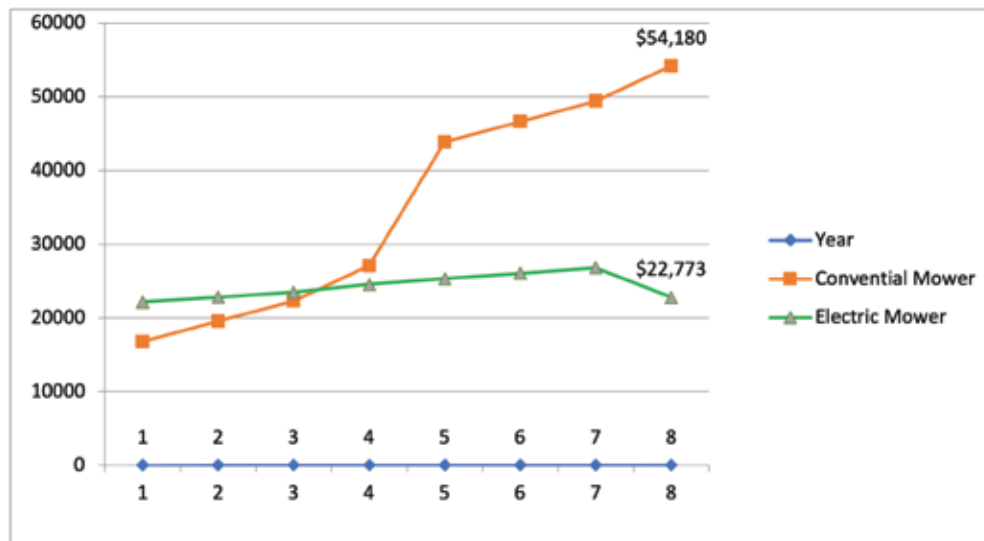
## Comparison of Life-Cycle Costs\* Commercial/Professional RIDING Mower Gas/Diesel vs Battery-Electric

Gas/Diesel Mower		Electric Mower	
Purchase Cost	\$14,000	Purchase Cost	\$24,000
Utility incentive	0	Utility incentive	\$2,500
Annual operating hours	690	Annual operating hours	690
Fuel cost (per gal)	\$2.75	Electricity cost (per kWh)	\$0.16
Annual maintenance cost	\$875	Annual maintenance costs	\$350
Avg. annual repair costs	\$500	Annual repair costs	\$200
Residual value (end of life)	\$0.00	Residual value (end of life)	\$4,800
Fuel consumption per hr (gal)	1	Electricity use per hr (kWh)	2.80
Annual fuel use (gal)	690	Annual electricity use (kWh)	1,932
Annual fuel cost	\$1,750	Annual electricity cost	\$309
Annual operating cost	\$3,125	Annual operating cost	\$859
8-year life-cycle cost	\$54,180	8-year life-cycle cost	\$23,572

**8-YEAR SAVINGS USING ELECTRIC MOWER**

**\$30,607**

**Life-Cycle Cost Comparison Gas/Diesel Mower vs. Electric Mower**



# Notes & Assumptions

**This PDF Sample comparison is for a “Commercial” RIDING Mower:** This SAMPLE calculator compares the life-cycle costs for a COMMERCIAL (aka "professional") RIDING lawn mower, which is considerably more expensive to purchase than a residential RIDING mower. However, an interactive Excel spreadsheet that allows for a detailed comparison of the “Life-Cycle” costs for either commercial or residential battery-electric RIDING mowers and gas-powered RIDING mowers can be found at <https://mowelectric.org/savings-co2-impact-calculators/>.

**Utility Incentives:** As of April 2021, all of Vermont’s electric utilities offer incentives for COMMERCIAL electric riding mowers and residential walk-behind mowers, but NOT for residential RIDING mowers. At this time, the commercial E-mower incentives are \$1,000 (Vermont Electric Co-op, Washington Electric Co-op, Stowe Electric and the 12 member VT Public Power Supply Authority), \$2,500 (Green Mt Power) and \$3,500 (Burlington Electric Department). The incentives for walk-behind residential mowers range from \$50 to \$100 depending on the utility.

**Utility Incentive Payment:** It’s hoped that an incentive from VT’s electric utilities will be available for high-performance electric mowers in 2018. For this analysis, we assumed a conservative incentive amount of \$500.

## **Maintenance Costs:**

### **Gas/Diesel Riding Mowers:**

1. Blade Sharpening and Replacement: This analysis assumes the blade sharpening is done “in-house” every 50 hours at an average cost of \$25 per sharpening – including blade replacement every 300 hours.
2. Oil Changes and Lubrication: This analysis also assumes oil changes and lubrication are done “in-house”, and at 100-hour intervals at a cost of \$75 per oil change/lubrication.

### **Battery-Electric Riding Mowers:**

1. Blade Sharpening and Replacement: Same as gas/diesel mower.
2. Oil Changes and Lubrication: Electric mowers do NOT need any oil changes, and require minimal, or NO lubrication.

**Fuel and Electricity Costs:** This comparison assumes an average consumption of 1 gal/hr at an average cost of \$2.50/-gal for a gas-powered riding mower, and an average use of 2.8 kW/hr of electricity by a battery-electric mower at a cost \$0.16/kWh.

## **Repair Costs:**

### **Gas/Diesel Riding Mowers:**

Gas/diesel mowers typically come with a 3-year limited warranty. And while many contractors replace their mowers at the end of this warranty period (or soon after) because of the relatively high cost of repair, many municipalities and institutions tend to keep their gas/diesel mowers for much longer, which means they accumulate more repair costs.

### **Battery-Electric Riding Mowers:**

Battery-electric mowers also typically come with a 3-year limited warranty. However, because they have so few moving parts to wear out and break, and the lithium ion batteries remain useable for many years, they will have comparatively minimal repair costs over an eight year ownership period.

## **Residual Values:**

### **Gas/Diesel Riding Mowers:**

Because gas/diesel mowers have so many moving parts and are often expensive to repair, they also depreciate relatively quickly. Therefore, this analysis assumes after 8 years the gas/diesel mower will be fully depreciated, and will have ZERO residual value.

### **Battery-Electric Riding Mowers:**

This analysis assumes the electric mower will be kept for eight years and will depreciate an average of 10% per year, or 80% over eight years. This residual value after 8 years of depreciation is subtracted from its total operating costs to obtain the life-cycle cost over 8 years.

## **Comparison of CO2 Emissions:**

An interactive Excel spreadsheet that allows for a detailed comparison of the CO2 Emissions and Electricity/Fuel Costs for a battery-electric RIDING mower and a gas-powered RIDING mower can be found at <https://mowelectric.org/savings-co2-impact-calculators/>