

# Getting TO 80 Calculator User Guide

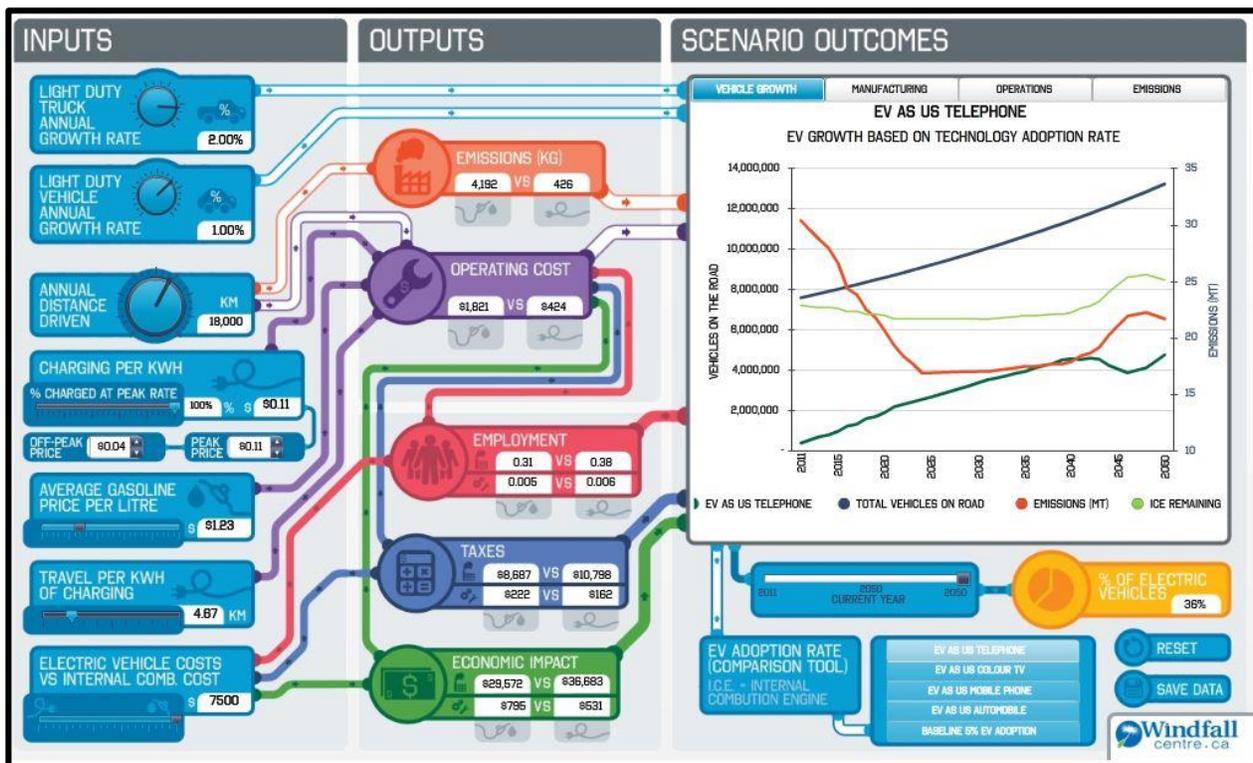
## What is the Getting TO 80 Calculator?

The **Getting TO 80 (GT80) Calculator** uses baseline data from Windfall Centre’s report, “*The Economic Impact of Electric Vehicle Adoption in Ontario,*” and allows you to apply other product adoption rates to EV’s in what-if scenarios. In other words, what would it look like if EVs were adopted at the same rate as the mobile phone or as the colour TV?

From the baseline scenario, the various inputs and outputs from the impact analysis were broken down into per vehicle metrics, comparing gasoline vehicles to electric vehicles. These individual metrics were formulated into a dynamic and interactive model, named the **GT80 Calculator**.

The calculator is not meant to be predictive. Obviously, 2050 is a long way off for accurate forecasting. However, the hope is it will help identify the major drivers of change and guide policy makers to examine various scenarios and engage people in the conversation. We also hope to help policy makers, and the public, see how quickly other technologies have been adopted and ask “what if we could do the same with a transition to EVs?”

### Snapshot of GT80 Calculator Tool



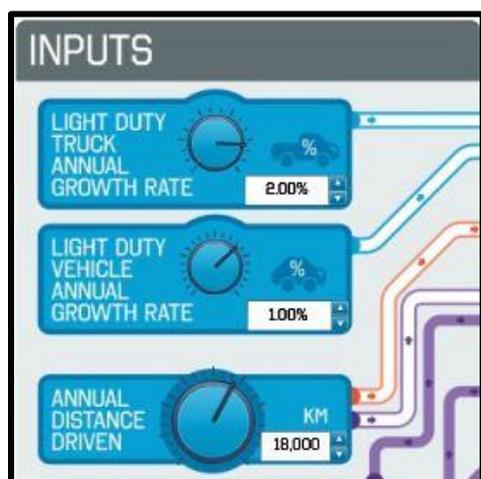
## How does it work?

Before getting started there are several things to keep in mind:

1. When you first enter the Calculator, or when you reset it, all values revert back to the baseline scenario which was used in economic impact analysis. Please see the EV Adoption Impact Study for more information on these values and assumptions.
2. Hover the mouse over the various input and output categories to see a description of what each value represents.
3. Save your data or reset the calculator using the two buttons in the bottom right hand corner.
4. You can only change the input values, by either using the mouse to move the dials or by directly typing into the value box. Each value is set with a minimum and maximum value.

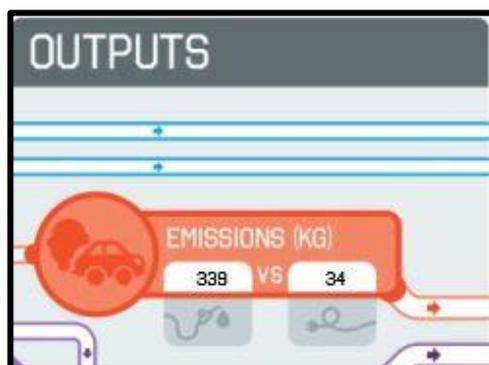
## Understanding the tool

There are 4 main parts to the calculator; **Inputs**, **Outputs**, **Scenario Outcomes** and **EV Adoption Rate Comparison Tool**



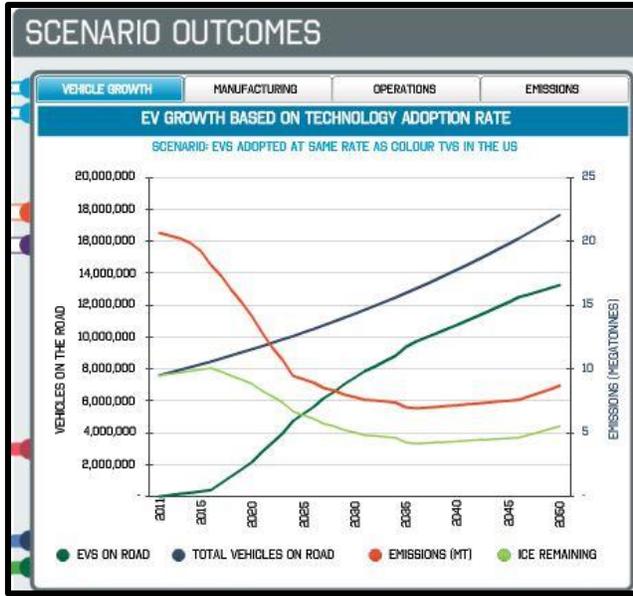
### Inputs

1. The calculator provides the economic impact analysis inputs from the ERL model.
2. Use your mouse to manipulate the value of each input to see its impacts on the outputs and Scenario Outcomes.
3. The coloured pipes let you know which inputs impact each output.
4. The pipes fill with colour depending on which of the four tabs you are viewing in the Scenario Outcomes. See Scenario Outcomes for more detail.



### Outputs

1. When the input values are changed, the output values will be displayed in the output section along with being plotted on the chart on the right; the **Scenario Outcomes** section.
2. Each output value is broken into two columns which compare electric vehicles to light duty gasoline vehicles. You can use these numbers to see how much money and emissions you could save by driving an EV
3. The values in the outputs are represented on a per vehicle basis.
4. Again, the coloured pipes let you know which output is being displayed in the Scenario Outcomes, depending on which tab you are viewing.



### Scenario Outcomes

1. The **Scenario Outcomes** graph displays the impacts from the input values and the EV Adoption Rate Scenarios.
2. There are four tabs along the top; Vehicle Growth, Manufacturing, Operations and Emissions. Select each tab to view the impacts from the corresponding input values or to see how the outputs change based on the various EV adoption rate scenarios you select.
3. Again, depending on which tab you select, the pipes fill with colour to let you know which input and output values are being displayed.

### EV Adoption Rate Comparison Tool

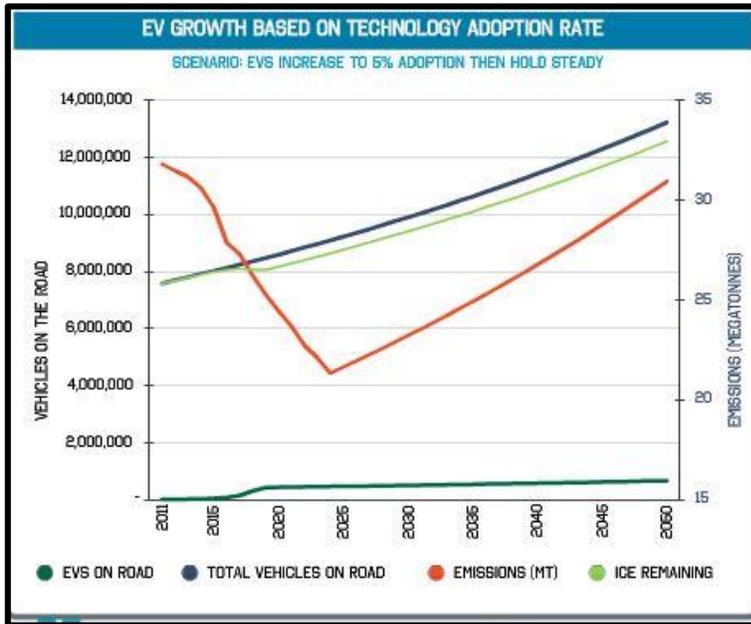
1. In the **GT80 Calculator** you can select 4 different technology adoption rate scenarios using the **EV Adoption Rate Comparison Tool**. We have included: the mobile phone, telephone, colour TV, and the automobile, in addition to the 5% baseline scenario. The tool uses the first 40 years of the U.S adoption rate for the various technologies, starting as early as 1900. (Provide a link to the report where we got the source data)
2. When you select the various scenarios, the scenario outcomes are plotted on a graph in the **Scenario Outcomes** section. For example, if you select the EV adoption as colour TV pre-set, the Calculator will apply the historic TV adoption rate to EV's and display the number of EVs that would displace ICE vehicles, the resulting emissions, the manufacturing and operation economic impacts, etc.
3. Move the Current Year slider to see what percentage of the total vehicle population would be electric vehicles in any given year for each scenario.



Technology adoption rates were sourced from a Harvard Business Review Blog found at: <http://blogs.hbr.org/2013/11/the-pace-of-technology-adoption-is-speeding-up/>.

## Get started with your own scenario

One example is to select the 5% adoption scenario, where 5% of all cars on the road in 2050 are EVs and change the values to achieve an 80% emission reduction, the Provinces reduction goal for 2050. In this



scenario we do see emission reductions until the year 2025, mainly because of the CAFÉ Standards. The number of EVs on the road, however, is such a small proportion of the total number of vehicles on the road that Ontario would not be able to meet the 80% emission reduction target.

However, if you change the average annual distance driven by each vehicle, including ICEs, from 18,000km/year to approximately 3,500km/year we would reach the emission target for 2050. Or if the distance driven remains constant but the annual car and truck growth rate dipped into the negatives, around -2% respectively, we would reach our

emission target in 2050. These outcomes highlight the significant need for increased public transit access and usage, the development of smart city planning and the expansion of car-sharing throughout the province.

This is just a brief summary of some of how to use the **GT80 Calculator Tool**. Get started by creating your own scenario at [www.windfallcentre.ca/drive-electric](http://www.windfallcentre.ca/drive-electric)