

Municipal Fleet Costs and Environmental Impacts Calculator

User Guide

Introduction

South Africa Low Emissions Development (SA-LED) developed an Excel-based calculator for estimating the costs, and greenhouse gas (GHG) and air pollution emissions of fossil fuel, electric, and renewable energy municipal bus fleets. Users of the calculator can customize fuel sources and prices, electricity mixes, discount rates, and other aspects to better understand how these variables can influence overall fleet costs and impacts. The spreadsheet has been unlocked, and allows the user to customize any formulas, constants, or assumptions used throughout the calculations for a deeper level of customization.

Figure 1 shows a summary of the flow of the tool. Each box within the figure represent a different tab in the Excel file. The **dark green** tab holds user inputs, the **yellow** tab holds tool outputs, the **light green** tabs hold calculations, the **orange** boxes tabs hold cost assumptions, and the **blue** tabs hold emissions assumptions.

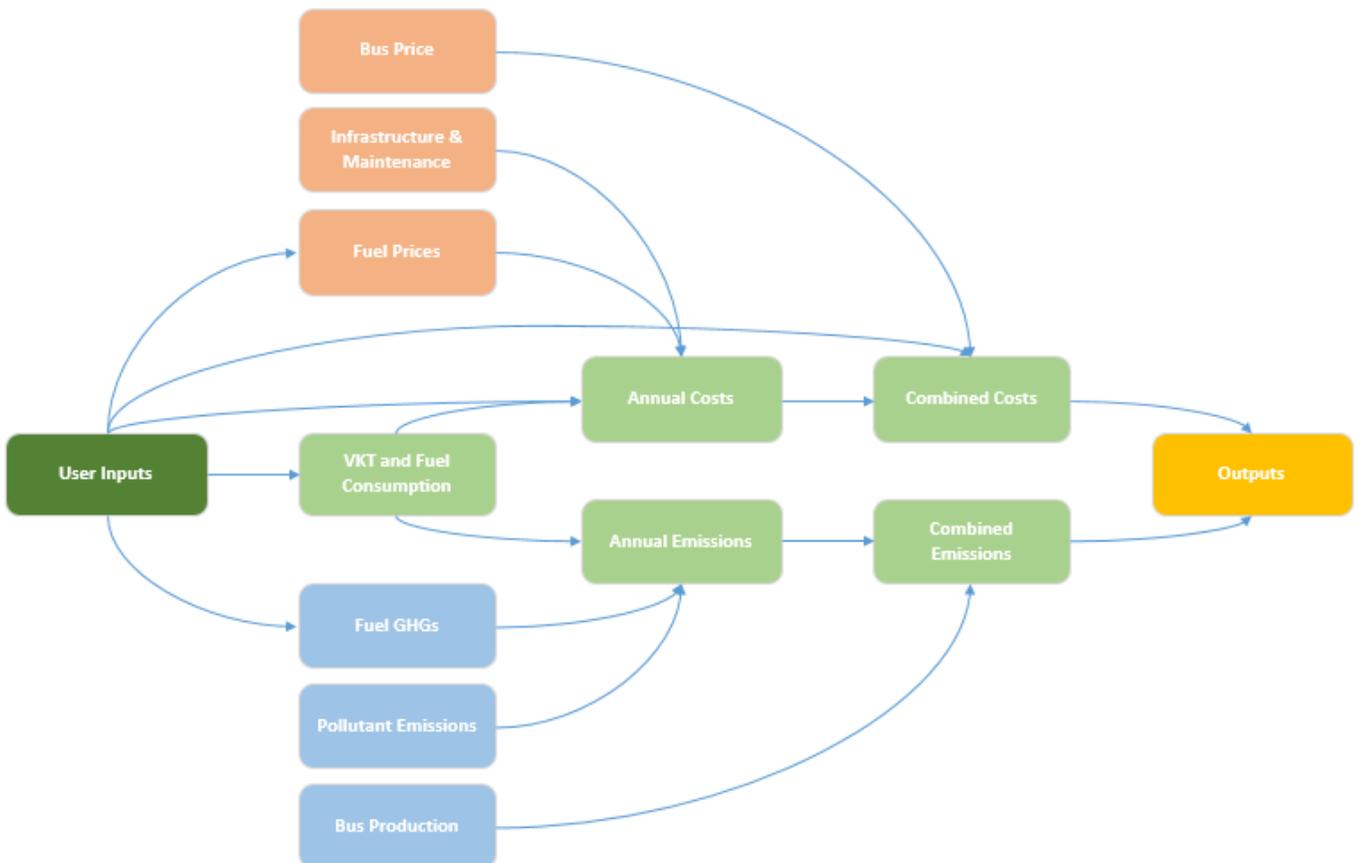


Figure 1. Summary of flow of calculations and tabs within Excel file.

User Inputs

The user should begin by reviewing the default and inputs and customizing any inputs as needed. The user inputs are grouped in the following categories:

- **Municipality and Project Details** – use these inputs to customize project specifics to a local area and transit agency
- **Bus Use** – the inputs allow the user to customize fuel consumption (bus use, fuel economy), fuel types, and fuel price
- **Cost Estimation** – the two inputs in this category control how capital and operational costs increase over time (discount rate), and how GHG emissions are valued (carbon tax)
- **Fuel Production and Other Assumptions** – these inputs primarily control GHG emissions and air pollution emissions through fuel sources and pathways, electricity grid mix, global warming potential factors, and an option to project a decline in GHG intensity of electricity over time
- **Bus Purchase Schedule** – these inputs allow the user to customize a bus purchase schedule over a 10-year period

Outputs

After filling out the User Inputs file, the user can either save the Excel file or click Formulas > Calculate Now to develop the customized results of the estimation calculator. The “Outputs” tab provides both graphical and detailed costs and environmental impacts of the project. Figure 2 shows the graphical results of the default inputs.

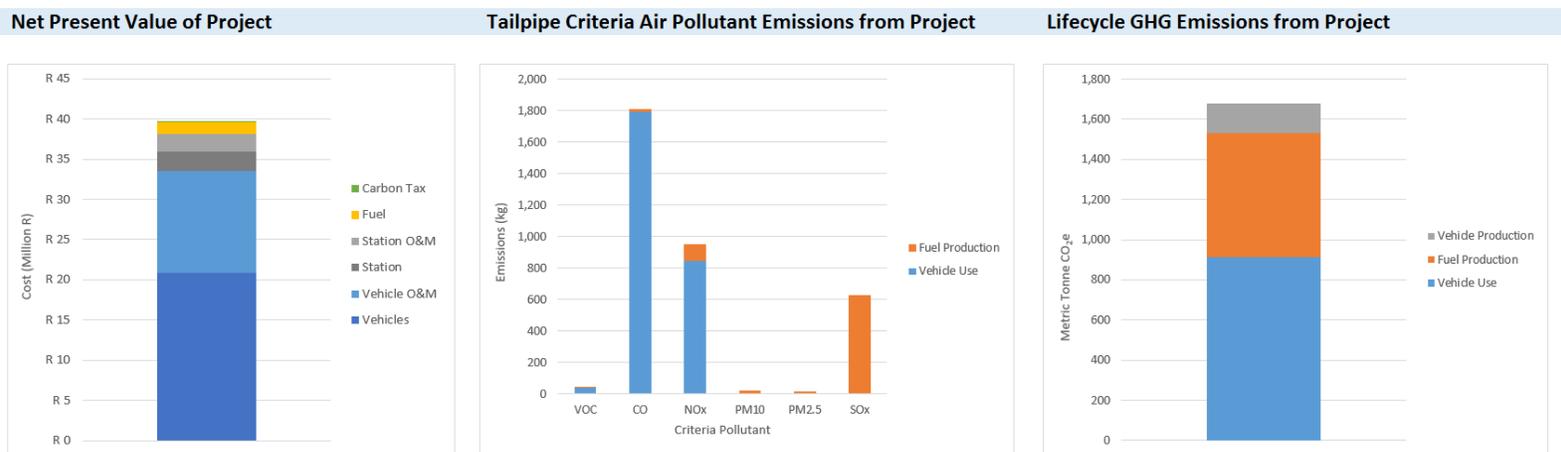


Figure 2. Example outputs from default inputs in calculator.

Questions and Feedback

We would love to hear from you – please contact Melusile Ndlovu (mndlovu@southafricaled.com) or Tommy Hendrickson (tommy.hendrickson@icf.com).