Quick Start Guide for the Street and Parking Facility Lighting Retrofit Financial Analysis Tool

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The Street and Parking Facility Retrofit Financial Analysis Tool provides the ability to perform detailed, relatively complex analysis of the costs and benefits from street and parking facility lighting efficiency projects. As a result, the features and the volume of required inputs may initially seem daunting. However, it is possible to receive useful results from the tool using simplified forms of the analysis. Entire portions of the tool are purely optional. In other cases, certain inputs may either be optional, or may be populated with national-average defaults as reasonable approximations. This Quick Start Guide steps through the inputs required for the most basic analysis, and provides key details on all of the potential inputs.[1]

The key input sheet in the file is the Input Page, which contains all assumptions for a project, except finance and detailed maintenance cost assumptions, both of which are optional[2]. There are three key input sections on the Input Page: Project Inputs, Technology-Specific Inputs – Section One, and Technology-Specific Inputs – Section Two.

The Basic Required Inputs

At a minimum, the following input data, entered on the Input Page, will be required to perform a basic analysis:

Project Inputs

The inputs in this section are global in nature, and affect all analyzed fixtures.

- Sales Tax (%)
- Electricity Rate ($/kWh)
- Annual Change in Electricity Cost (%)
- Nominal Discount Rate (%)
- Last Year of Implementation
- Technology Types

[1] Note that the "Definitions" sheet within the tool provides what is essentially a glossary for all of the inputs in the tool.

[2] The Finance Page and Maintenance Page are optional. The former provides the ability to examine the implications of various project financing scenarios, and the latter may be used to derive maintenance costs, if not known on a $/unit/month basis, and/or to obtain very detailed estimates of maintenance costs for each technology or fixture type examined.

Technology-Specific Inputs – Section One

This section includes input data for all fixtures/technologies, both old (existing) and new.

- Technology Names
- Nominal Lamp Wattage
- Fixture Wattage
- Annual Operating Hours – 100% Output (hrs)
- Fixture Cost ($/unit)

Additional, highly-recommended data include:

- Disposal Cost ($/unit)
- Rebate Value ($/unit)
- User-entered Maint. Cost ($/unit/mo)

Technology-Specific Inputs – Section Two

This section includes data for impacted fixtures only.

- Old Technologies Removed
- New Technologies Installed
- # Of Fixtures Removed

A More Detailed Look at Potential Inputs on the Input Page

The information in the subsequent tables provides some details on all the potential inputs on the Input Page, including information as to when additional data beyond the basic required inputs would be beneficial, and discussion of any provided national-average defaults or links to potential data sources. Each of the tables also clearly identifies required inputs.

Project Inputs

Input Name	Required?	Default Provided?	Other Details
Sales Tax (%)	**Yes**	No	Link to sales tax rate database provided.
Electricity Rate ($/kWh)	**Yes**	No	
Annual Change in Electricity Cost (%)	**Yes**	**Yes**	Link to energy escalation rate calculator provided.
Installation Vehicle Rate ($/hr)	No	No	Required if fixture costs do not include installation costs.
Annual Change in Installation Vehicle Rate (%)	No	**Yes**	Link to inflation forecast provided. Only required if project will be spread across multiple years, and if fixture costs do not include costs of installation.
Installation Labor Rate ($/hr)	No	No	Required if fixture costs do not include installation costs.

Input Name	Required?	Default Provided?	Other Details
Annual Change in Labor Rate (%)	No	**Yes**	Link to employment cost index forecast provided. Only required if project will be spread across multiple years, and if fixture costs do not include costs of installation.
Nominal Discount Rate (%)	**Yes**	**Yes**	Link to discount rate proxy data provided.
Emissions Factor (kg CO_2e/kWh)	No	**Yes**	Link to EPA emissions database provided. Required to estimate greenhouse gas impacts.
Project Overhead Labor (persons)	No	No	
Project Overhead Labor Rate ($/hr)	No	No	
Project Overhead Work Year (hrs/person/yr)	No	No	
Last Year of Implementation	**Yes**	No	Enter 1 (representing first year of analysis period) if project will be completed entirely in one year.
Technology Types	**Yes**	No	List names of all technologies, old and new, to be evaluated.

Technology-Specific Inputs – Section One

Input Name	Required?	Default Provided?	Other Details
Technology Names	**Yes**	No	In-cell drop-down lists are provided to assist in choosing from available technology names.
Additional Description	No	No	Optional.
Nominal Lamp Wattage	**Yes**	No	Used for accurately labeling fixtures.
Fixture Wattage	**Yes**	No	
Dimmed Output Level (% of Full Output)	No	No	Required only if dimming utilized.
Annual Operating Hours – 100% Output (hrs)	**Yes**	No	
Annual Operating Hours – Dimmed Output (hrs)	No	No	Required only if dimming utilized.
Fixture Cost ($/unit)	**Yes**	No	Not required for existing fixtures; only for new fixtures.
Annual Change in Fixture Cost (%)	No	No	Only required if project will be spread across multiple years.
Install Time (min/unit)	No	No	Required if fixture costs do not include installation costs.

Input Name	Required?	Default Provided?	Other Details
Disposal Cost ($/unit)	**Recommended**	No	These costs are typically relatively small, and are unlikely to substantially alter the economics of a retrofit.
Rebate Value ($/unit)	**Recommended**	No	Rebates may substantially improve the economics of a retrofit. Absent this information, the analysis may be conservative.
Maint. Cost – User-entered or from Maintenance Page?	**Yes**	**Yes**	Select one of two options from provided drop-down list. Choosing the default, "User-entered," provides the simplest option.
User-entered Maint. Cost ($/unit/mo)	**Recommended**	No	Maintenance savings often comprise a large portion of the total savings associated with LED retrofits. Absent this information, the analysis will solely be based on energy savings, and thus will likely be conservative.

Technology-Specific Inputs – Section Two

Input Name	Required?	Default Provided?	Other Details
Old Technologies Removed	**Yes**	No	In-cell drop-down lists are provided to assist in choosing fixtures identified in Section One.
New Technologies Installed	**Yes**	No	In-cell drop-down lists are provided to assist in choosing fixtures identified in Section One.
# Of Fixtures Removed	**Yes**	No	