# Cost Estimating (CE) Tool Procedures

It is the intent that the CFWI CE Tool be used to develop project costs estimates for Water Supply Projects. The most current version of the CE Tool is available at the following link: <https://cfwiwater.com/CFWIresources.html>. There are some unique projects that will require a customized approach to costing, for which the CE Tool may need to be expanded or adjusted. The CE Tool was designed to achieve *The Association for the Advancement of Cost Engineering International* (AACE), Class 4 Estimate level. A Class 4 Estimate is considered a “Concept Evaluation” level, with an expected accuracy range of ‑30% to +50%.

The CE Tool is comprised of 27 tabs, the tabs are as follows:

* **Tab 1 - “Summary”**: This tab summarizes the inputs from the System and Component tabs. The only input that you can make on this page is to enter the project name, all other fields are locked.
* **Tab 2 - “Gen Info”**: This covers the CE Tool references, assumptions, and abbreviations, it’s important to review this page.
* **Tabs 3-27 - Systems and Components**: These 25 tabs reflect the base “Systems” and “Components” for the proposed project. All inputs should be entered within these tabs.

Please be aware of the “units”, and be sure to enter the input variables appropriately. For example, there is a significant difference between ‘Average Daily Flow’ (ADF) and ‘Max Daily Flow’ (MDF), and most inputs are in terms of millions of gallons (MG) or million gallons per day (MGD).

### “How to use the CE Tool”

1. Open the “Summary” tab, and type the project name into the “Project Name” cell.
2. Select the “Component” and “System” tabs that apply to the project, and for which costs are to be computed.
3. Input the corresponding project variables (i.e. ADF, MDF, pipe diameters, lengths, depths, etc…) into the corresponding system and component tabs.
4. Confirm that the project cost information in each system and component tab was correctly recorded on the “Summary” tab.
5. The “Summary” tab, beneath the Project Name cell, will provide a composite cost total from each of the system and component tabs.
6. Save the project spreadsheet

The CE Tools primary goal is to provide sub-teams with a “Planning Level Cost Estimating Tool”. The tool’s intended to provide consistent calculation of Capital, O&M, Equivalent Annual Cost (EAC, $/yr), and Unit Production Cost (UPC, $/kgal).

## Background

After a review of various cost estimating data, it was concluded that an existing study, “Engineering Assistance in Updating Information on Water Supply and Reuse System Component Costs”, 2008-SP10, by Black & Veatch for SJRWMD, revised May 2008, comprised a reasonable and well-documented basis for the identified CFWI water resource projects. This document can be located at the following link:

<https://www.sjrwmd.com/documents/technical-reports/special-publications/2015-2009/>

Throughout this document, this SJRWMD study will be referred to as the “Report”. The Report forms the basis for development of the CE Tool. The Report characterizes projects into base “Systems” and “Components”. In order to effectively utilize the CE Tool, projects need to be characterized into their major Systems and Components. “Systems” comprise larger processes or operations (i.e. a treatment processes), while “Components” are infrastructure specific (i.e. piping and valves). All costing information is through March 2014. The Systems and Components information represents true “Construction Costs”, and will incorporate construction markups and contingency allowances. “Non-construction Costs”, such as “facilities planning”, “design”, “permitting”, “services during construction”, and “administration”, have also been incorporated into the CE Tool.

## Systems and Components

Each System or Component is provided with a letter and number designation, along with a brief description (e.g., “S-2.1b Wellfield”). This particular identifier designates that this item is a water infrastructure S*ystem* (S), which is effectively comprised of various *Components,* and can be found in Section 2.1 Wellfield of the Report. This reference was included so that you can read the corresponding item description that was included in the Report. Items with a “C” prefix are a component. Components are found in Section 1 of the Report, and Systems are described in Section 2 of the Report. The Report provides more detailed descriptions for the definitions of the Systems and Components. Below is a list of the major Systems and Components that can be found in the CE Tool:

## *Components*

* Conventional surface water treatment
* Brackish surface water treatment with concentrate mgmt.
* Brackish groundwater treatment with concentrate mgmt.
* Wellfields (UFA and LFA)
* Residual Disinfection for Transmission
* Booster Pump Stations
* Injection Wells Systems, LFA
* Treated ASR
* Modifications to Existing WWTP’s for Public Access Reuse
* RIBs and Reclaimed Ponds

## *Systems*

* Surface water intakes
* Production, injection, and ASR wells
* Pipelines (Urban/Rural)
* Deep Bed Filters
* ASR Monitoring Wells
* Chlorine Disinfection
* Pumps and pump stations (Transfer/Lift and High Service)
* Tanks
* Reservoirs

For questions regarding the use and configuration of the CE Tool, please contact:

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