

Water Supplier Calculator

Technical Documentation

The community water supplier calculator estimates municipal water loss based on user input, supplemented by research-based defaults and national averages when needed. This document provides a technical overview of the calculator's methodology, data sources, equations, and supporting research.

The calculator is organized into three sections, including:

- (1) water supplied to the distribution system
- (2) authorized consumption
- (3) results

The calculator methodology for each section is explained below.

Water Supplied to the Distribution System

This section gathers basic information about the volume of water supply.

Question: Annual volume from own sources

Answer: *Open Entry (Numerical)*

Explanation: Volume from own sources refers to the total amount of water a municipality extracts from its own local sources (wells, rivers, lakes, or reservoirs). Annual refers the fiscal year or any 365-day period. This is a required input for accurate calculation.

Question: Annual water imported

Answer: *Open Entry (Numerical)*

Explanation: Water imports refer to the volume of water brought into a municipality from external sources to meet local demand. This water is typically sourced from neighboring regions, rivers, reservoirs, or inter-basin transfer systems. Annual refers the fiscal year or any 365-day period. This is a required input for accurate calculation.

Question: Annual water exported

Answer: *Open Entry (Numerical)*

Explanation: Water exports refer to the volume of water a municipality sends out to neighboring regions or jurisdictions, often through inter-municipal agreements or regional water-sharing programs. Annual refers the fiscal year or any 365-day period. This is a required input for accurate calculation.

Authorized Consumption

This section gathers basic information about billed and unbilled water.

Billed Authorized Consumption

Question: Billed Annual Metered Consumption

Answer: *Open Entry (Numerical)*

Explanation: Billed metered consumption refers to the total volume of water that is measured through customer meters and billed over the course of a year. This includes all metered water used by residential, commercial, industrial, and institutional customers. Annual refers the fiscal year or any 365-day period. If billed metered consumption is missing then = 99.75% of water supplied volume from [Treatment Plant](#) Page is used in equation.

Question: Billed Annual Unmetered Consumption

Answer: *Open Entry (Numerical)*

Explanation: Billed unmetered consumption refers to the total volume of water estimated and billed to customers who do not have water meters installed. Instead of measuring actual usage, utilities estimate consumption based on factors such as property size, number of occupants, or historical averages. Annual refers the fiscal year or any 365-day period. If billed unmetered water is missing, then = 1.25% of the water supplied volume from Treatment Plant page is used in equation.

Unbilled Authorized Consumption

Question: Unbilled Annual Metered Consumption

Answer: *Open Entry (Numerical)*

Explanation: Unbilled metered consumption refers to the volume of water that is measured through meters but not billed to customers. This typically includes water used for municipal purposes such as firefighting, street cleaning, public parks, or other government facilities where usage is tracked but not charged. Annual refers the fiscal year or any 365-day period.

Question: Unbilled Annual Unmetered Consumption

Answer: *Open Entry (Numerical)*

Explanation: Unbilled unmetered consumption refers to water that is used without being measured by a meter and without generating revenue for the utility. This is usually an estimated value. Annual refers the fiscal year or any 365-day period.

Results

This section shows water loss and non-revenue water.

Water Loss

Total Annual Water Loss = water supplied to the distribution system – authorized consumption

where:

Water supplied to the distribution system = volume from own sources – water exported + water imported

Authorized consumption = billed authorized consumption + unbilled authorized consumption

where:

Billed authorized consumption = billed metered consumption + billed unmetered consumption

Unbilled authorized consumption = unbilled metered consumption + unbilled unmetered consumption

Note: If values are missing, then the default value is unbilled authorized consumption 0.25% of the billed authorized consumption.

Non-revenue Water

Total annual Non-revenue water = unbilled authorized consumption + water losses

where:

Unbilled authorized consumption = unbilled metered consumption + unbilled unmetered consumption

Total Annual Water Loss = water supplied to the distribution system – authorized consumption