

Oklahoma Water Calculator Decision Tool

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Abstract

The historic 5 year drought that hit Oklahoma and ended in 2015 stressed the ability of many water utilities to provide water to their communities. Having cycles of drought interspersed with relative abundance, Oklahomans may not be familiar with the ways in which they may conserve water (Boyer et al. 2015). The Oklahoma Water Calculator is a web based decision tool that allows individuals to estimate their domestic water usage by activity. By selecting the community in which the household is located, the user is able to estimate the approximate monthly cost of water. The tool then calculates the monthly savings that would occur if the household were to reduce water use by 10%. By using the tool users become cognizant of the relative amounts used in each activity and could back out the savings represented by reducing use or by the adoption of water conserving or water sense technologies. Users are also directed toward EPA watersense information and water conservation factsheets available at Oklahoma State Extension.

How It Works

The Oklahoma Water Calculator compiles water usage for different household activities and calculates the cost of total water consumption based on individuals self-reported water use and their local water rates. The water calculator also calculates the savings users can get with a 10% reduction of their total water usage using their chosen local water provider's rates. We encourage users to try out the calculator using all the potential uses or just one to see how much water is typically used in different activities and to determine the what the related cost.

Expected Uses

- Used as a tool for exploring overall household use of water and the users' location specific savings garnered by reducing use by 10%.
- Users may alter inputs by activity and technology to explore potential savings in water use.



Calculator available at:
<https://okepscor.github.io/watercalc/>

The screenshot shows the Oklahoma Water Calculator interface. At the top, it says 'OKLAHOMA WATER CALCULATOR' with the EPSCoR and Oklahoma State University logos. Below this, there are two main sections: 'ESTIMATE WATER BILL' and 'DAILY WATER USE'. The 'ESTIMATE WATER BILL' section has a dropdown menu for 'Select your city' set to 'Oklahoma Average'. The 'DAILY WATER USE' section shows a list of activities with their respective water usage and a '10%' reduction button. The activities and their usage are: Showers (Per day 0), Baths (Per week 0), Toilet flushes (Per day 0), Running water (Minutes per day washing hands, brushing teeth, etc. 0), Dishes by hand (Minutes per day 0), Dishwasher (Loads per week 0), Laundry (Loads per week 0), Lawn watering (Irrigation cycles per week 0), Outside water (Minutes per week washing cars, using the hose, etc. 0), and Pool (Minutes per week filling your pool. 0). At the bottom, there are two buttons: 'entire household' (0 gallons) and 'To Calculate Per Person Water Usage: Select the number of people living in your home' (1 person, 0 gallons).

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Expected Outcomes

As municipalities and rural water districts seek ways to cover increasing supply costs, meet demand, and upgrade infrastructure, consumer prices for water may increase. We expect the water tool to aid users in reducing demand to offset potential future shortages and to lower the financial burden of price changes. Using the tool is expected to increase user's knowledge of how different water consumption activities affect their overall use relatively. In addition, users may find the references for efficient outdoor irrigation through OSU Extension to be the most effective first step for conservation.

Frequently Asked Questions

Where did the data come from?

- Household water rates for all municipalities in Oklahoma except Norman and Stillwater come from the Oklahoma Municipal Utility Cost (2016) provided by the Oklahoma Municipal League.
- Water rates for Norman are provided by the City of Norman (2017).
- Water rates for Stillwater are provided by the City of Stillwater (2017).

How is the water cost calculated?

- Water cost = Sum of (Minimum charge + Water Consumption Block / * Water Rate Block /)
- Where / represents different blocks of water consumption, for example, Block 1=5000 gallons, Block 2= 10,000 gallons, and so on. Different municipalities have different blocks or intervals (2, 3, or 4) for water consumption and their respective water rates.

Why isn't my city included?

- Data is publicly available for the cities listed. Please use the Oklahoma average or multiply gallons used by 0.9 for a 10% reduction and ask your utility for the price per gallon to see how much you save.

Why doesn't the amount match my bill?

- Your self-reported use is an approximation and can differ from your actual use.

References

Boyer, Tracy A., Kanza, Patrick, Ghimire, Monika, and Moss, Justin Q., 2015. Household Adoption of Water Conservation and Resilience Under Drought: The Case of Oklahoma City Water Economics and Policy. *Water Economics and Policy*. Vol 1. No.2. <http://www.worldscientific.com/loi/wep>
City of Norman, <http://www.normanok.gov/finance/utility-service-rates>
City of Stillwater, <http://stillwater.org/files/customer-service/Residential-Water-Rates-Web2017.pdf>
Oklahoma Municipal League, Inc., <http://oml.org/Articles/Utility%20Report%20Final.pdf>

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