# Voluntary Water Credits for Achieving Water Neutrality

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BOUNDLESS IMPACT RESEARCH & ANALYTICS

wacomet

## Introduction

In recent years, although many global companies have committed to being water neutral or water positive, the water neutrality concept, which first appeared at the World Summit on Sustainable Development in Johannesburg in 2002, is still not well defined. It was initially defined as reducing the Water Footprint of an activity as much as reasonably possible and offsetting the negative externalities of the remaining Water Footprint.[1] However, water neutrality does not necessarily mean water use is nullified, or that it's necessarily compensated for with the generation of new water.

As freshwater scarcity grows, we must turn our focus to the salty (or otherwise unusable) water we have in abundance. Desalination, or the process of removing salt and other impurities from saltwater, is already a major source of water for arid but energy-rich regions of the world such as the Middle East and Northern Africa. However, the traditional desalination process (reverse osmosis) requires using lots of electricity to pump high-pressure water through membranes to create drinkable water. This current process requires the use of fossil fuels that have a significant Carbon Footprint and also the discharge of brine concentrate, which negatively impacts marine life.

As new, more efficient, and less harmful desalination technologies emerge, financial incentives must be created to bring them to market faster. For example, using the existing Volumetric Water Benefit (VWB) methodology, a Water Impact Credit (WIC) can be used by companies to reach their water neutrality goals.

## Water Impact Credits

A WIC is a voluntary market-based instrument that represents the property rights to the environmental and other positive attributes of renewable water generation. Each WIC certifies that a unit of additional potable water was generated from a sustainable water source, such as saline groundwater, using renewable-energy-powered desalination. The WIC specifies all the attributes of the water, such as the location, type of water treated, Carbon Footprint, capacity of the desalination plant, delivery point, and quality of the water. Because the physical (metered) water received from the local utility does not specify the water's origin or whether it comes from a sustainable source, WICs serve as an accounting tool to track and assign ownership to the distributed generation and use of sustainable water. WICs are an entirely voluntary instrument for consumers to substantiate additive or water neutrality claims.

WICs work by splitting the value of a unit of water generated into two parts: the physical water and the water impact. The value of the physical water is determined by the water market, wherein the physical water can be distributed to supply the demand for water within the region where it was generated. The water impact is determined by the type of water benefit generated, the benefits of creating an additional source of water, and/or the overall positive impact the water creates. By splitting these attributes, the physical water and water impact can be jointly owned or owned separately by two different parties. For example, a corporate entity may use WICs to become water neutral (by owning the positive impact) but the physical water may be purchased separately by a wholesale water provider and distributed to a local water utility. This creates an additional economic incentive for the generation of water that has a positive, rather than negative, impact. Water credits exist in one of two states: active or retired. An active WIC is a credit that was created when a unit of water was generated. This credit can be owned by anyone and sold or traded to another party. However, once the water credit has been used to offset water or make water neutrality claims, it is officially retired and cannot be used or claimed again. A retired credit is recorded as having been used by the party that retired it, and from that point forward serves only as an informational record of the water and water source that was used to claim its benefit.

As in carbon markets, it is important that the water projects that generate WICs be additional, meaning the production of freshwater is additional if the freshwater production would not have taken place in the absence of the incentive created by the water credit. Most current pathways to reach water neutrality do not include the generation of freshwater, but do include the reduction of water use, the reuse of water, or other offset measures. This additionality can be defined similarly to Renewable Energy Certificates (RECs) that help displace electricity that otherwise would be generated by fossil fuel-powered plants with renewable energy.

[1] https://www.waterfootprint.org/media/downloads/Report28-WaterNeutral.pdf

The concept of additionality now being employed widely by mainstream carbon crediting agencies such as VERRA is a useful reference. Water credits must be able to prove their added value. WICs that are additional help displace water that otherwise would be extracted from freshwater systems and impact water-stressed areas with water generated using sustainable resources such as solar-powered desalination. WICs, therefore, create a strong, market-based economic incentive that displaces water sources that have negative externalities (or unaccounted costs) and replaces them with water sources that mitigate the negative impact (or future cost).

| Difference | Traditional Water Neutrality | Water Impact Credits |
|---|---|---|
| Unit of measure | Multiple indicators measured in volume of water over unit of time | Volume of water |
| Purpose | To modify the hydrology in a beneficial way,r help reduce shared water challenges, and/or help meet UN Sustainable Development Goal (SDGs) | Support the generation of additional potable water from sustainable water sources |
| Consumer Environmental Claim | Reduction of shared water challenges | Direct reduction in the water extracted from freshwater systems by generating potable water from sustainable sources |

## Valuing Water Impact Credits

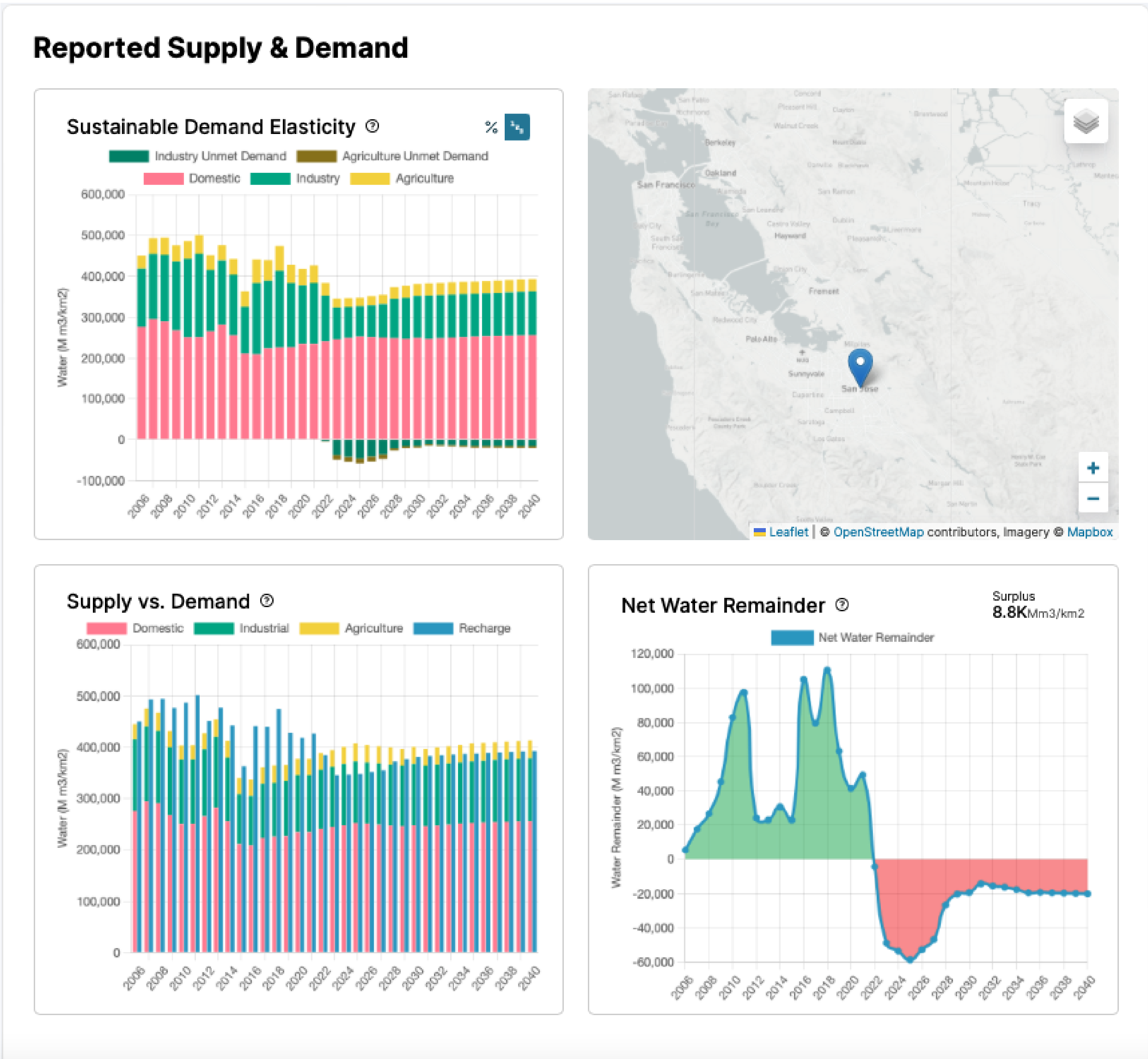
The framework for establishing the value of WICs first involves establishing their credit classification, which determines the types of sustainable desalination projects that qualify for the generation of WICs. The classification is set by establishing the acceptable attributes of the project that determine the type of water credits. For example, Class I sustainable desalination credits are WICs generated from sustainable desalination projects that are powered by clean or renewable energy, do not generate brine concentrate (zero discharge), and have an extremely low environmental impact. Specific metrics, such as creating an acceptable range of carbon emissions, are used to quantify the attributes. Additional classes of WICs can be used to qualify other types of projects that may have different beneficial attributes, such as a credit classification for projects that do not produce potable water and instead generate water for industrial use.

Water impact is regional because the water that is generated by the WICs must go to the benefit of the region where they are to be used. This means each classification must specify the region where the water credits can be applied and that valuing the water credits must be based on the water supply risk within that region. This ensures that the value of the water credits represents the true value of mitigating water risk within the region where the water supply project is constructed.

WICs are valued using a pricing algorithm that analyzes different supply and demand scenarios in order to estimate water risk. Water scarcity risk is defined as a situation in which the available water supply is insufficient to satisfy the long-term, projected water demand. For a given region, data on available water supply (e.g., groundwater or imported water) and projected water demand are used to generate pricing scenarios, while a risk assessment determines the likelihood of each scenario. This creates a price estimation that represents the value of the water risk.

Wacomet has partnered with WaterPlan to develop a transparent and replicable methodology to estimate future water supply and demand. The platform scans and collects historical data from scientific sources, watershed authorities, and utility, industry, agricultural, and government reports of an area. Moreover, WaterPlan developed its proprietary risk framework based on the research of NASA's Jay Famiglietti, which utilized satellite and meteorological local data. The Risk Framework ultimately combines several standard sources such as existing flood and drought indices, and importantly, key, novel methodologies for analyzing and interpreting data from NASA satellites (e.g., GRACE). Collecting both historical local and satellite imagery data, the platform's methodology estimates water supply and demand.

The methodology consists of running multiple scenarios based on the water risk assessment of each of the sources of water in the area, creating different scenarios modeling the failure of these water sources based on the probability of occurrence. Based on the Risk Framework and a delivery capability report from the California Department of Water Resources showing that during dry periods (whose probability of occurrence is estimated at 23%), the water supply can drop to 50% below normal, WaterPlan conducted different scenarios that offered multiple supply and demand projections for Santa Clarita Valley, as summarized in the following figures.



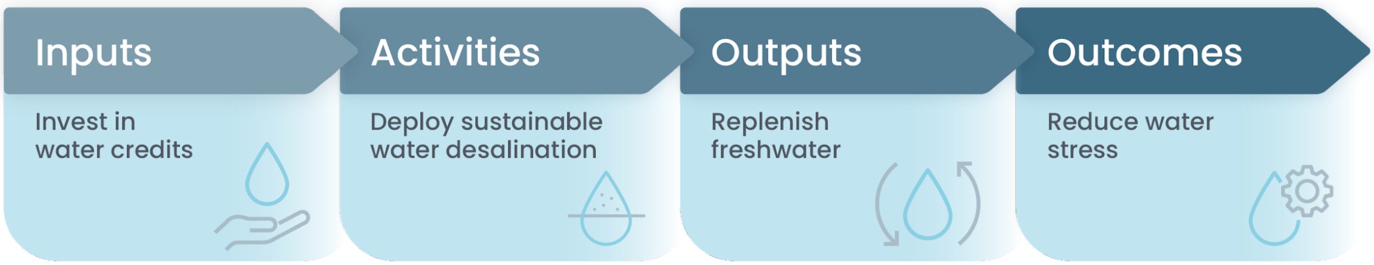

Source: WaterPlan

## Sustainable Water Desalination Using Volumetric Water Benefits

The Volumetric Water Benefit Accounting (VWBA) method, developed by the World Resources Institute (WRI) and partners, provides a standardized approach and set of indicators to quantify and communicate VWBs. VWBs are defined as the volume of water resulting from water stewardship activities that modify the hydrology in a beneficial way and/or help reduce shared water challenges, improve water stewardship outcomes, and meet the targets of SDG 6.

Water credits from sustainable water desalination can be used as part of a VWB, following the VWB method to directly calculate and demonstrate water stewardship.

<u>Application of the VWB Methodology to Sustainable Desalination WICs</u>




### Step 1. Identify shared water challenges and understand local context

Initially, existing or future shared water challenges need to be identified. Six shared water challenges, based on the SDGs, are listed as part of this first step:

- Water quantity
- Water quality
- Water governance
- Important water-related ecosystems
- Water, sanitation, and hygiene
- Extreme weather events

The WIC for water desalination focuses on the water quantity challenge and what companies can do to address this issue directly. This challenge is based on SDG 6.4: "By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity." By generating freshwater, sustainable water desalination directly addresses the water quantity challenge by displacing the need to withdraw water from water-stressed areas. This makes the water desalination WIC a very appropriate option for attaining the goals of SDG 6.4.

### Step 2. Define water stewardship project

The second step is to select a project that addresses a particular shared water challenge (i.e., water quantity). There are seven activities outlined as part of this step. Within these categories, the activities that address the water quantity challenge can be categorized according to water supply reliability. Most of the activities in this category are focused on reducing water use (e.g., leak repairs, rainwater collection, etc.) However, none of these measures are additional, meaning they do not add new freshwater to the system.

Companies using large amounts of freshwater that have already done what is possible to reduce their usage can address the water quantity challenge with WICs, which directly enable the deployment of desalination projects that will add more freshwater to the system, thereby displacing the need to withdraw water from water-stressed areas.

### Step 3. Gather data and calculate VWB

The third and final step consists of documenting the water benefit goal and selecting the VWB indicators and complementary indicators. The water benefit goal sets a point at which the variables measured with the VWB indicator will be monitored. According to the VWB guidelines, this point can be obtained from publicly available information.

The VWB indicators provided in their guidelines mostly apply to water reduction or other stewardship activities, such as decreasing runoff. It is recommended to use a new indicator for WICs that reflects the generation of freshwater entering the system. Boundless proposes the development of a Water Additionality Indicator that measures the volume of freshwater entering the system and factors the water scarcity risk of the location where the water is generated.

## About Boundless Impact Research & Analytics

Boundless Impact Research & Analytics is a market intelligence and impact analytics firm that provides quantitative and evidence-based research and data for investors, companies, and funds. Driven by the latest research from independent industry and academic experts, Boundless Impact Research & Analytics offers analysis, market trends, and evidence of best practices in a growing number of emerging sectors that address significant environmental and health challenges. Our research into emerging technologies, impact assessment of companies, and thought leadership provide investors with the latest and most relevant information to drive their investment decisions.

## About Wacomet Water

Wacomet Water is a provider of distributed desalination technology to regenerate water. Wacomet was founded in 2022 to redesign our water infrastructure by pioneering the integration of advanced desalination and sustainable energy. Wacomet believes that humanity's greatest scientific achievement will be the conversion of unlimited saltwater into clean, affordable, scalable freshwater. Wacomet aims to achieve this by reimagining distributed water generation, advancing the frontier of desalination process innovation, and creating a platform where anyone can benefit from additional water. Wacomet believes in the relentless pursuit of water abundance and our capacity to permanently eliminate global water scarcity.

## Contact Us

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