

Nasdaq Veles California Water Index

Index Description

The Nasdaq Veles California Water Index (NQH2O) seeks to track the spot rate price of water rights in the state of California. The goal of the index is to represent the current valuation of water as determined by water entitlement transactions from California's surface water market and selected adjudicated groundwater basins. The prices reflect the commodity value of water at the source, and do not include additional costs associated with transportation or losses. The data are limited to transactions resulting from market negotiations, and exclude transactions involving non-financial consideration. The index is priced in U.S. Dollar per Acre Foot (\$/AF).¹

Index Calculation

The Nasdaq Veles California Water Index is a modified volume-weighted average index. The value of the index equals the volume-weighted average of the prevailing prices in the underlying markets after adjusting for idiosyncratic pricing factors specific to each of the eligible markets and transaction types. The Index began on October 31, 2018 at a value of 306.56 \$/AF.

The Index is calculated and disseminated once per week after the close of business on Wednesday. If Wednesday is a market holiday, the index value will be disseminated after the close of business on Thursday. The index value is representative of all data through the end of the prior week.

Eligibility Criteria

Index eligibility is limited to the five largest and most actively traded markets in California.² Within each market, there are select types of transactions deemed eligible. The combinations of permissible markets and transactions are as follows.

- Central Basin
 - o Market Definition
 - The Central Basin comprises 227 square miles in southern Los Angeles County, including portions of the cities of Los Angeles, Compton, East Los Angeles, Downey, and Norwalk.
 - o Market Regulation
 - In 1965, the Central Basin final Judgment was entered, which limited total pumping in the Basin, issued Allowed Pumping Allocation (APA) to groundwater users, and authorized the trading of APA.
 - Water users that do not use the entirety of their APA in an administrative year may carry unused volume into the next administrative year subject to timing and volumetric limitations set forth in the Judgment. Carryover water may be bought and sold.
 - o Eligible Transactions
 - Leases: Temporary transfers of APA for single or multi-year terms. Transfers of carryover water are also considered to be leases.

¹ An acre-foot is defined as the Volume of water required to cover 1 acre of land (43,560 square feet) to a depth of 1 foot, equivalent to 325,851 gallons.

² Market size is measured by aggregate U.S. Dollars per Acre Foot (\$/AF) transacted.

- Sales: Permanent transfers of APA.
- Chino Basin
 - Market Definition
 - The Chino Basin encompasses approximately 235 square miles of the upper Santa Ana River watershed and lies within portions of San Bernardino, Riverside, and Los Angeles counties. The cities of Chino, Ontario, Pomona, Jurupa Valley, and Fontana are all located within the Basin.
 - Market Regulation
 - The Chino Basin adjudication was finalized in 1978 to address groundwater overdraft and established a basin-wide safe yield, the volume of water that could be withdrawn from the aquifer on an annual basis without long-term depletion. A number of subsequent agreements have modified the Judgment.
 - The adjudication established three types or “pools” of groundwater rights:
 - Agricultural (Ag Pool): The Ag Pool consists of 1,180 water producers who use water for purposes other than industrial and commercial. Transfers are not permitted in the Ag Pool, instead, unused water is made available to appropriators on an annual basis.
 - Overlying Non-Agricultural Pool (Non-Ag Pool): The Non-Ag Pool consists of 24 water producers (12 of which own safe yield rights) who produce water for industrial or commercial purposes. Both permanent and temporary transfers are allowed within the pool, and water may be transferred to the Appropriative Pool on an annual basis through the Exhibit G process.
 - Appropriative Pool: The Appropriative Pool consists of 24 water producers (19 of which own safe yield rights), primarily municipal water providers. Both permanent and temporary transfers are allowed within the appropriative pool.
 - Non-Ag Pool and Appropriative Pool members that produce less than their assigned share of operational safe yield may carry over the unexercised right for use in subsequent years subject to some limitations. This unused portion is called “carryover”, and in any subsequent year, the first water to be produced will be using the carryover right.
 - Similarly, producers can be authorized to store supplemental water supplies, for example imported surface water in the Chino Basin aquifer for later use. Both carryover and storage water can be transferred following the same rules as the groundwater rights within each pool.
 - Eligible Transactions
 - Leases: Temporary transfers within the Appropriative Pool and Non-Ag Pool, and Exhibit G transfers from the Non-Ag Pool to the Appropriative Pool. Temporary transfers include those with single or multi-year terms. Transfers of carryover and storage water are also considered to be leases.
 - Sales: Permanent transfers of Appropriative Pool or Non-Ag Pool rights.

- Main San Gabriel Basin
 - o Market Definition
 - The Main San Gabriel Basin occupies most of San Gabriel Valley located in the southeasterly portion of Los Angeles County, east of Los Angeles. It encompasses approximately 107,000 acres, including the cities of Claremont, Irwindale, Azusa, and West Covina.
 - o Market Regulation
 - The Main San Gabriel Basin Judgment was entered in 1968, but has been amended several times, most recently in 2012.
 - The Watermaster was formed in 1973, and its responsibilities include determining the Operating Safe Yield (OSY), the amount of groundwater that can safely be withdrawn without long-term detriment to the aquifer. The OSY is determined on an annual basis for the following fiscal year.
 - Prescriptive pumping rights (and other types of rights in select circumstances) were allocated to groundwater producers in the Basin in the original Judgement, which determined each producer's share of the OSY. Each year, the Watermaster determines the OSY, and each producer is allocated their percentage of the total volume as a production right.
 - Groundwater producers that use less than their share of the OSY in a fiscal year may carry over the unused portion for one fiscal year. The first water used by producers in the following year is considered consumption of their "carryover" rights.
 - o Eligible Transactions
 - Leases: Temporary transfers of production rights for single- or multi-year terms. Transfers of carryover water are also considered to be leases.
 - Sales: Permanent transfers of water rights.

- Mojave Basin (Alto Subarea)
 - o Market Definition
 - The Mojave Basin is comprised of five distinct but hydrologically interrelated "Subareas," the largest of which is the Alto Subarea, which encompasses approximately 300,000 acres.
 - The Alto Subarea is located in southwestern San Bernardino County, approximately 15 miles north of the City of San Bernardino. It includes the cities of Victorville, Apple Valley, and Hesperia.
 - o Market Regulation
 - The Mojave Basin Judgment was substantially completed in 1993, the final Judgment was entered by court in 1996, and the last appeals were resolved in 2002. The Judgment established Base Annual Production (BAP) rights based on historic use from 1986-1990.
 - To achieve safe yield within the Basin, the Judgment required a rampdown of pumping allocations from 1993-2004 to achieve safe yield.
 - Currently, the Watermaster reviews and adjusts the volume of water allocated to water producers in the form of a Free Production

