

**SUBMISSION COVER SHEET**

**IMPORTANT:** Check box if Confidential Treatment is requested

Registered Entity Identifier Code (optional): 20-399

Organization: Chicago Mercantile Exchange Inc. ("CME")

Filing as a:  DCM  SEF  DCO  SDR

Please note - only ONE choice allowed.

Filing Date (mm/dd/yy): 11/19/20 Filing Description: Initial Listing of the Nasdaq Veles California Water Index Futures Contract

**SPECIFY FILING TYPE**

Please note only ONE choice allowed per Submission.

**Organization Rules and Rule Amendments**

- |                          |                                     |            |
|--------------------------|-------------------------------------|------------|
| <input type="checkbox"/> | Certification                       | § 40.6(a)  |
| <input type="checkbox"/> | Approval                            | § 40.5(a)  |
| <input type="checkbox"/> | Notification                        | § 40.6(d)  |
| <input type="checkbox"/> | Advance Notice of SIDCO Rule Change | § 40.10(a) |
| <input type="checkbox"/> | SIDCO Emergency Rule Change         | § 40.10(h) |

Rule Numbers: See filing.

**New Product**

Please note only ONE product per Submission.

- |                                     |                                       |            |
|-------------------------------------|---------------------------------------|------------|
| <input checked="" type="checkbox"/> | Certification                         | § 40.2(a)  |
| <input type="checkbox"/>            | Certification Security Futures        | § 41.23(a) |
| <input type="checkbox"/>            | Certification Swap Class              | § 40.2(d)  |
| <input type="checkbox"/>            | Approval                              | § 40.3(a)  |
| <input type="checkbox"/>            | Approval Security Futures             | § 41.23(b) |
| <input type="checkbox"/>            | Novel Derivative Product Notification | § 40.12(a) |
| <input type="checkbox"/>            | Swap Submission                       | § 39.5     |

Official Product Name: Nasdaq Veles California Water Index Futures

**Product Terms and Conditions (product related Rules and Rule Amendments)**

- |                          |   |                      |
|--------------------------|---|----------------------|
| <input type="checkbox"/> | Certification   | § 40.6(a)            |
| <input type="checkbox"/> | Certification Made Available to Trade Determination     | § 40.6(a)            |
| <input type="checkbox"/> | Certification Security Futures                          | § 41.24(a)           |
| <input type="checkbox"/> | Delisting (No Open Interest)                            | § 40.6(a)            |
| <input type="checkbox"/> | Approval  | § 40.5(a)            |
| <input type="checkbox"/> | Approval Made Available to Trade Determination          | § 40.5(a)            |
| <input type="checkbox"/> | Approval Security Futures                               | § 41.24(c)           |
| <input type="checkbox"/> | Approval Amendments to enumerated agricultural products | § 40.4(a), § 40.5(a) |
| <input type="checkbox"/> | "Non-Material Agricultural Rule Change"                 | § 40.4(b)(5)         |
| <input type="checkbox"/> | Notification  | § 40.6(d)            |

Official Name(s) of Product(s) Affected:

Rule Numbers:

November 19, 2020

**VIA ELECTRONIC PORTAL**

Mr. Christopher J. Kirkpatrick  
Office of the Secretariat  
Commodity Futures Trading Commission  
Three Lafayette Centre  
1155 21st Street, N.W.  
Washington, D.C. 20581

**Re: CFTC Regulation 40.2(a) Certification. Notification Regarding the Initial Listing of the Nasdaq Veles California Water Index Futures Contract. CME Submission No. 20-399**

Dear Mr. Kirkpatrick:

Chicago Mercantile Exchange Inc. (“CME” or “Exchange”) is certifying to the Commodity Futures Trading Commission (“CFTC” or “Commission”) the initial listing of the Nasdaq Veles California Water Index futures contract (the “Contract”) for trading on the CME Globex electronic trading platform (“CME Globex”) and for submission for clearing via CME ClearPort effective on Sunday, December 6, 2020 for trade date Monday, December 7, 2020 as provided in the table below.

<b>Contract Title</b>	Nasdaq Veles California Water Index Futures
<b>Rulebook Chapter</b>	CME 417
<b>Contract Unit</b>	10 acre feet times Nasdaq Veles California Water Index (NQH2O)
<b>Minimum Price Fluctuation</b>	\$1.00 per acre foot (\$10 per contract) in outrights \$0.25 per acre foot (\$2.50 per contract) in calendar spreads
<b>Commodity Code</b>	CME Globex: H2O CME ClearPort: H2O Clearing: H2O
<b>Listing Schedule</b>	Eight consecutive quarterly contracts (Mar, Jun, Sept, Dec) plus nearest two non-quarterly serial months
<b>First Listed Month</b>	January 2021
<b>Termination of Trading</b>	Business Day prior to Final Settlement Day
<b>Settlement Method</b>	Financial
<b>Final Settlement</b>	Third Wednesday of the contract month if a CME Business Day, otherwise the next CME Business Day
<b>CME Globex Matching Algorithm</b>	First In First Out (FIFO)
<b>Block Trade Minimum Threshold</b>	25 contracts – subject to a 15-minute reporting window
<b>Trading and Clearing Hours</b>	CME Globex: 5:00 p.m. - 4:00 p.m. Central Time (CT) Sunday - Friday CME Globex Pre-Open: Monday - Friday 8:30 a.m. – 9:00 a.m. CT CME ClearPort: Sunday 5:00 p.m. - Friday 5:45 p.m. CT with a 15-minute maintenance window Monday - Thursday from 5:45 p.m. to 6:00 p.m. CT

California has an intricate and multifaceted system of water management, where demands between public and private goods compete for a relatively concentrated supply of water. This disconnect between supply and demand is both geographic and seasonal. First, most of the surface water in the state is found north of Sacramento, while demand is not as concentrated. Secondly, the highest demand for water takes place in the summer months when traditional water sources like precipitation and snow melt are at their lowest. The

chasms between supply and demand paved the way for a system of water allocation, whereby owners of water rights are entitled to a certain amount of acre feet delivered per year. While the trading of California water rights is complex and highly regulated, it allows the California water market to allocate water supply to the sources of demand that need it most.

### **Nasdaq Veles California Water Index**

The Contract is financially settled based on the value of the Nasdaq Veles California Water Index (“NQH2O” or “Index”), as calculated by Nasdaq Global Indexes, a division of Nasdaq, Inc. (“Nasdaq”) and as based on data provided by WestWater Research, LLC’s (WestWater) Waterlitix™ database. WestWater is a leading advisory services firm for the valuation and transaction of water rights in the United States and has collaborated with Nasdaq in the creation of the Index.<sup>1</sup> The Index methodology was developed by Nasdaq and Veles Water Limited (“Veles”), a UK-based company. Veles is a financial products company specializing in water valuation and economic analysis. NQH2O has been published since October 2018.

With regard to pricing, NQH2O seeks to track the spot rate price of water rights in the state of California. The Index represents the current valuation of water as determined by water entitlement transactions from the state of California’s surface water market and the four most actively traded adjudicated groundwater basins.<sup>2</sup> In particular, the index considers at surface water transactions conducted via the State Water Project (SWP), the Central Valley Project (CVP), and the Colorado River, as well as groundwater transactions from the Central Basin, Chino Basin, Main San Gabriel Basin, and Mojave Basin. The Index consequently is based on actual transactions from major regulated surface water and groundwater sources.

The Index uses a volume-weighted average price index methodology, whereby transactions are capitalized to a twelve-month lease value and normalized<sup>3</sup> to a geographic average to adjust for idiosyncratic pricing factors specific to eligible markets and transactions.<sup>4</sup> The transactions are confirmed and verified by WestWater prior to Index inclusion. The Index is priced in dollars per acre feet<sup>5</sup> and is published weekly every Wednesday morning and represents all eligible transaction price data through the end of the prior week. For example, the Index value of \$371.11 per acre feet on October 31, 2018 is a representative value of the adjusted weighted-average price of qualified water entitlement transactions from Monday, October 22, 2018 through Friday, October 26, 2018.

### **Additional Product Terms**

The final settlement will be the Index price published on the Wednesday immediately following the Last Trade Date of the contract. If Wednesday is a not a CME Business Day, the Index value will be disseminated after the close of business on the next CME Business Day.

The Exchange is also certifying block trading of the Contract with a minimum block threshold of 25 contracts. This minimum level represents a notional value of approximately \$125,000 at the time of submission. This block minimum represents 250 acre feet, which West Water advises is a routine transaction size.

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<sup>1</sup> Additional information regarding the Index is available at <https://www.nasdaq.com/solutions/nasdaq-veles-water-index>.

<sup>2</sup> Adjudicated basins are basins where a court has resolved water rights disputes. In addition to identifying water rights owners, the adjudication process establishes rules and procedures for extracting water from the basin.

<sup>3</sup> Capitalizing a lease value is an accounting approach which takes into consideration appreciation/depreciation of an asset, with the asset value on the balance sheet being the lesser of the fair market value or the present value of the lease payments. This capitalization is applied to permanent sale and multi-year lease transactions, which allows the price of these transactions to be normalized to a one-year lease value.

<sup>4</sup> Nasdaq provides additional information on eligible market and transaction types at [https://indexes.nasdaqomx.com/docs/methodology\\_NQH2O.pdf](https://indexes.nasdaqomx.com/docs/methodology_NQH2O.pdf).

<sup>5</sup> An acre foot is equal to the volume of water required to cover one acre of land (43,560 square feet) by a depth of one foot, equivalent to 325,851 gallons.

The Exchange reviewed the designated contract market core principles (“Core Principles”) as set forth in the Commodity Exchange Act (“CEA” or “Act”) and identified that the following Core Principles may be impacted by this initiative as follows:

- **Compliance with Rules:** Trading in the Contract will be subject to all CME Rules, including prohibitions against fraudulent, noncompetitive, unfair and abusive practices as outlined in CME Rule Chapter 4, the Exchange’s trade practice rules, the majority of which are contained in Chapter 5 and Chapter 8 of the CME Rulebook, and the dispute resolution and arbitration procedures of CME Rule Chapter 6. As with all products listed for trading on one of CME Group’s designated contract markets, trading activity in the Contract will be subject to monitoring and surveillance by CME Group’s Market Regulation Department. The Market Regulation Department has the authority to exercise its investigatory and enforcement power where potential rule violations are identified.
- **Contracts not Readily Subject to Manipulation:** The Contract is based on a transaction-based Index that is reflective of the underlying cash market. All transactions are confirmed and verified prior to their inclusion in the Index. Furthermore, the Index is supported by a governance and control framework overseen by Nasdaq’s US Oversight and Index Management Committees.
- **Prevention of Market Disruption:** Trading in the Contract will be subject to the rules of the Exchange, which include prohibitions on manipulation, price distortion, and disruption to the cash settlement process. As with any new product listed for trading on a CME Group designated contract market, trading activity in the option contract proposed herein will be subject to monitoring and surveillance by CME Group’s Market Regulation Department.
- **Position Limitations or Accountability:** The speculative position limits for the Contract as demonstrated in this submission are consistent with the Commission’s guidance.
- **Emergency Authority:** As with all CME Group futures and options product, the Exchange shall have full authority to act appropriately and as necessary in emergency situations.
- **Availability of General Information:** The Exchange will publish on its website information in regard to contract specifications, terms, and conditions, as well as daily trading volume, open interest, and price information for the Contract. The Exchange will issue a Special Executive Report (“SER”) regarding the launch of the Contract. The SER will also be posted on the CME Group website.
- **Daily Publication of Trading Information:** The Exchange will publish contract trading volumes, open interest levels, and price information daily on its website and through quote vendors for the Contract.
- **Execution of Transactions:** The Contract will be listed for trading on the CME Globex and for submission of clearing through the CME ClearPort platform. The CME Globex trading venue provides for competitive and open execution of transactions and affords the benefits of reliability and global connectivity.
- **Trade Information:** All requisite trade information for the Contract will be included in the audit trail and is sufficient for the Market Regulation Department to monitor for market abuse.
- **Financial Integrity of Contracts:** The Contract will be cleared by the CME Clearing, a derivatives clearing organization registered with the CFTC and subject to all CFTC Regulations related thereto.
- **Protection of Market Participants:** CME Rulebook Chapters 4 and 5 set forth multiple prohibitions that preclude intermediaries from disadvantaging their customers. These rules apply to trading in all of the Exchange’s competitive trading venues.

- **Disciplinary Procedures:** Chapter 4 of the Rulebook contains provisions that allow the Exchange to discipline, suspend or expel members or market participants that violate the Rulebook. Trading in the Contracts will be subject to Chapter 4, and the Market Regulation Department has the authority to exercise its enforcement power in the event rule violations in these products are identified.
- **Dispute Resolution:** Disputes with respect to trading in the Contract will be subject to the arbitration provisions set forth in Chapter 6 of the Rulebook. Chapter 6 allows all non-members to submit a claim for financial losses resulting from transactions on the Exchange to arbitration. A member named as a respondent in a claim submitted by a non-member is required to participate in the arbitration pursuant to Chapter 6. Additionally, the Exchange requires that members resolve all disputes concerning transactions on the Exchange via arbitration.

Pursuant to Section 5c(c) of the Act and CFTC Regulation 40.2(a), the Exchange hereby certifies that the listing of the Contract complies with the Act, including regulations under the Act. There were no substantive opposing views to this proposal.

The Exchange certifies that this submission has been concurrently posted on the Exchange's website at <http://www.cmegroup.com/market-regulation/rule-filings.html>.

Should you have any questions concerning the above, please contact the undersigned at 212-299-2200 or via e-mail at [CMEGSubmissionInquiry@cmegroup.com](mailto:CMEGSubmissionInquiry@cmegroup.com).

Sincerely,

/s/ Christopher Bowen  
 Managing Director and Chief Regulatory Counsel

Attachments: Exhibit A – CME Rulebook Chapter 417  
 Exhibit B – Position Limit, Position Accountability, and Reportable Level Table in Chapter 5 of the CME Rulebook (attached under separate cover)  
 Exhibit C – CME Rule 588.H. – (“Globex Non-Reviewable Trading Ranges”) Table  
 Exhibit D – CME Rule 589. – Special Price Fluctuation Limits and Price Limits Table  
 Exhibit E – Exchange Fees  
 Exhibit F – Cash Market Overview and Deliverable Supply Analysis

## **Exhibit A**

### **Chapter 417 Nasdaq Veles California Water Index Futures**

#### **41700. SCOPE OF CHAPTER**

This chapter is limited in application to Nasdaq Veles California Water Index Futures contract (“futures”). In addition to this chapter, futures shall be subject to the general rules and regulations of the Exchange as applicable.

#### **41701. CONTRACT SPECIFICATIONS**

Each futures contract shall be valued at 10 acre feet times the value of Nasdaq Veles California Water Index (NQH2O).

#### **41702. TRADING SPECIFICATIONS**

##### **41702.A. Trading Schedule**

Futures contracts shall be scheduled for trading during such hours and for delivery in such months as may be determined by the Exchange.

##### **41702.B. Trading Unit**

The unit of trading shall be 10 acre feet times Nasdaq Veles California Water Index (NQH2O).

##### **41702.C. Price Increments**

The minimum price increment shall be \$1.00 per acre foot, equal to \$10.00 per contract, except for intermonth spreads executed pursuant to Rule 542.A., for which the minimum price increment shall be \$0.25 per acre foot, equal to \$2.50 per intermonth spread.

##### **41702.D. Position Limits, Exemptions, Position Accountability and Reportable Levels**

The applicable position limits and/or accountability levels, in addition to the reportable levels, are set forth in the Position Limit, Position Accountability and Reportable Level Table in the Interpretations & Special Notices Section of Chapter 5.

A Person seeking an exemption from position limits for bona fide commercial purposes shall apply to the Market Regulation Department on forms provided by the Exchange, and the Market Regulation Department may grant qualified exemptions in its sole discretion.

Refer to Rule 559 for requirements concerning the aggregation of positions and allowable exemptions from the specified position limits.

##### **41702.E. Daily Price Limits**

At the commencement of each trading day, the contract shall be subject to special price fluctuation limits and daily price limits as set forth in Rule 589 and in the Special Price Fluctuation Limits Table in the Interpretations & Special Notices Section of Chapter 5.

##### **41702.F. Termination of Trading**

Trading in expiring futures shall terminate at 4:00 p.m. Chicago time on the Business Day preceding the third Wednesday of the contract month, otherwise the next CME Business Day.

#### **41703. SETTLEMENT PROCEDURES**

Delivery shall be by cash settlement.

##### **41703.A. Final Settlement Price**

For a futures contract for a given delivery month, the Final Settlement Price shall be the Nasdaq Veles California Water Index (NQH2O) price published on the next Business Day following the Last Trade Date (Rule 41702.F.).

In the event that the Nasdaq Veles California Water Index (NQH2O) is not publishable or published on the Business Day following the Last Trade Date, and therefore, the Exchange cannot determine the futures contract’s Final Settlement Price, then final settlement of the futures contract will be at the discretion of the Exchange and may be deferred or postponed for up to 14 consecutive calendar days.

##### **41703.B. Final Settlement**

Clearing members holding open positions in an expiring futures contract at its termination of trading (Rule 41702.F.) shall make payment to or receive payment from the Clearing House in accordance with normal variation margin procedures based on such expiring contract’s Final Settlement Price (Rule 41703.A.).

**41704.       DISCLAIMER**

The Nasdaq Veles California Water Index Futures are not sponsored, endorsed, sold or promoted by Nasdaq, Inc. (including its affiliates) (Nasdaq, with its affiliates, are referred to as the Corporations). The Corporations have not passed on the legality or suitability of, or the accuracy or adequacy of descriptions and disclosures relating to, the Nasdaq Veles California Water Index Futures. The Corporations make no representation or warranty, express or implied to the owners of the Nasdaq Veles California Water Index Futures or any member of the public regarding the advisability of investing in securities generally or in the Nasdaq Veles California Water Index Futures particularly, or the ability of the Nasdaq Veles California Water Index™ to track general stock market performance. Nasdaq has no obligation to take the needs of the CME or the owners of the Nasdaq Veles California Water Index Futures into consideration in determining, composing or calculating the Nasdaq Veles California Water Index™. The Corporations are not responsible for and have not participated in the determination of the timing of, prices at, or quantities of the Nasdaq Veles California Water Index Futures to be issued or in the determination or calculation of the equation by which the Nasdaq Veles California Water Index Futures are to be converted into cash. The Corporations have no liability in connection with the administration, marketing or trading of the Nasdaq Veles California Water Index Futures.

THE CORPORATIONS DO NOT GUARANTEE THE ACCURACY AND/OR UNINTERRUPTED CALCULATION OF THE NASDAQ VELES CALIFORNIA WATER INDEX™ OR ANY DATA INCLUDED THEREIN. THE CORPORATIONS MAKE NO WARRANTY, EXPRESS OR IMPLIED, AS TO RESULTS TO BE OBTAINED BY CME, OWNERS OF THE NASDAQ VELES CALIFORNIA WATER INDEX FUTURES, OR ANY OTHER PERSON OR ENTITY FROM THE USE OF THE NASDAQ VELES CALIFORNIA WATER INDEX™ OR ANY DATA INCLUDED THEREIN. THE CORPORATIONS MAKE NO EXPRESS OR IMPLIED WARRANTIES, AND EXPRESSLY DISCLAIM ALL WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE WITH RESPECT TO THE NASDAQ VELES CALIFORNIA WATER INDEX™ OR ANY DATA INCLUDED THEREIN. WITHOUT LIMITING ANY OF THE FOREGOING, IN NO EVENT SHALL THE CORPORATIONS HAVE ANY LIABILITY FOR ANY LOST PROFITS OR SPECIAL, INCIDENTAL, PUNITIVE, INDIRECT, OR CONSEQUENTIAL DAMAGES, EVEN IF NOTIFIED OF THE POSSIBILITY OF SUCH DAMAGES.

(End Chapter 417)

**Exhibit B**

**CME Rulebook  
Chapter 5  
("Trading Qualifications and Practices")**

**Position Limits, Position Accountability and Reportable Level Table**

(attached under separate cover)

**Exhibit C**

**CME Rulebook  
Chapter 5  
("Trading Qualifications and Practices")**

**CME Rule 588.H. – ("Globex Non-Reviewable Trading Ranges") Table**

Instrument	Globex Symbol	Outrights			Spreads	
		Globex Non-Reviewable Ranges (NRR)	NRR: Globex Format	NRR: Minimum Ticks	NRR: Globex Format	NRR: Minimum Ticks
<u>Nasdaq Veles California Water Index Futures</u>	<u>H2O</u>	<u>15 index points</u>	<u>1500</u>	<u>15</u>	<u>Each leg evaluated as an outright</u>	

**Exhibit D**

**CME Rulebook  
Chapter 5  
("Trading Qualifications and Practices")**

**CME Rule 589 – Special Price Fluctuation Limits and Price Limits Table**

Product	Rulebook Chapter	Commodity Code	PRIMARY/ASSOCIATED	ASSOCIATED WITH	Daily Price Limit	Dynamically Calculated Variant
<u>Nasdaq Veles California Water Index Futures</u>	<u>417</u>	<u>H2O</u>	<u>Primary</u>	<u>Primary</u>	<u>Daily Price Limit Table</u>	<u>10% of Dynamically Calculated Reference Price</u>



**Exhibit E**  
**Exchange Fees**

<b>Membership Type</b>	<b>Venue/Transaction Type</b>	<b>Futures*</b>	<b>Futures**</b>
Individual Members Clearing Members Rule 106.J Equity Member Firms & Rule 106.J Qualified Subsidiaries Rule 106.I Members & Rule 106.I Qualified Affiliates Rule 106.S Member Approved Funds	CME Globex	\$1.00	\$2.00
	EFP EFR Block BTIC TACO	\$1.50	\$3.00
	Delivery	\$0.50	
Rule 106.D Lessees Rule 106.F Employees	CME Globex	\$1.30	\$2.60
	EFP EFR Block BTIC TACO	\$1.95	\$3.90
	Delivery	\$0.65	
Rule 106.R Electronic Corporate Members (For other than CME Globex - Non-Member rates apply)	CME Globex	\$1.33	\$2.66
Rule 106.H and 106.N Firms Clearing Non-Equity Member Firms	CME Globex	\$1.43	\$2.86
	EFP EFR Block BTIC TACO	\$2.15	\$4.30
	Delivery	\$0.72	
International Incentive Program (IIP) and International Volume Incentive Program (IVIP) Participants (For other than CME Globex - Non-Member rates apply)	CME Globex	\$1.50	\$3.00
Central Bank Incentive Program (CBIP), Emerging Markets Bank Incentive Program (EMBIP), Latin American Fund Manager Incentive Program (FMIP), Participants (For other than CME Globex - Non-Member rates apply)	CME Globex – Outrights	\$1.50	\$3.00
	CME Globex - Spreads	\$1.50	\$3.00
Non-Members	CME Globex - Outrights	\$1.50	\$3.00
	CME Globex – Spreads	\$1.50	\$3.00
	EFP EFR Block BTIC TACO	\$2.25	\$4.50
	Delivery	\$0.75	

\*All contract months executed with fewer than 18 months to expiration

\*\*All contract months executed with 18 months or more to expiration

<b>Processing Fees</b>	<b>Fee</b>
106.D Lessee/106.H Brokerage	\$0.13
106.F Employee Brokerage	\$0.13
Floor / "New" Brokerage	\$0.04
Position Adjustment/Position Transfer	\$0.10
Give-Up Surcharge	\$0.05
Facilitation Fee	\$0.40

**Exhibit F**  
**Cash Market Overview and Deliverable Supply Analysis**

**Cash Market Overview**

The climate of the Western United States is marked by a scarcity of freshwater, both in terms of rainfall and natural stores of water. A booming population and agricultural production have placed added pressure on already constrained resources, at times causing extreme duress. In response, state and local governmental authorities have allocated water rights based on land ownership, beneficial use, and observed hydrologic conditions – and in doing so, created water markets. These water markets, coupled with public policy, provide the regional and local authorities with the means to supply water under a variety of conditions and respond to growing and changing demands across the region.

Water market transactions involve the sale or lease of a wide range of ownership interests in water. Water rights are the most commonly traded category of ownership interest. A water right entitles the owner to appropriate water by diverting or pumping water from rivers, streams, and groundwater basins for use away from the source. Other commonly traded entitlements/allotments include shares in groundwater banks, surface reservoir storage rights, and entitlements to treated water.<sup>6</sup> In the US, water rights and similar large-scale entitlements are accounted for using Acre Feet (AF). As it suggests, one AF is equal to the volume of water required to cover one acre of land (43,560 square feet) by a depth of one foot, equivalent to 325,851 gallons.

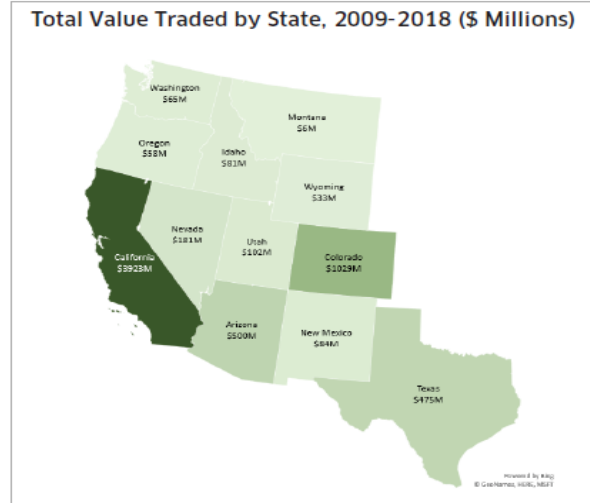
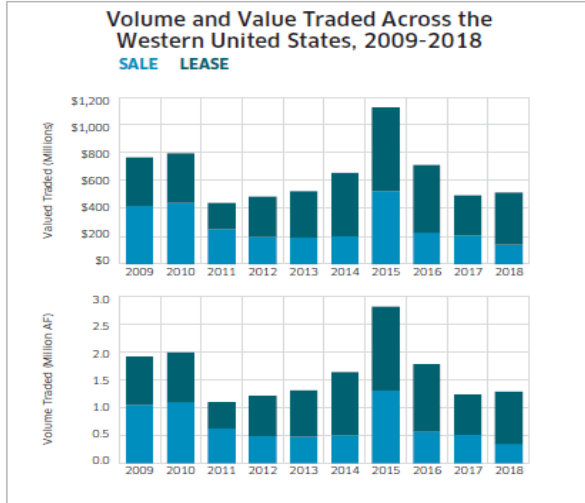
Typically, water market participants can be grouped into three categories: Urban (municipal/Industrial), Agricultural, and Environmental (NGOs/government agencies).<sup>7</sup> Across the Western states the agricultural sector is the primary stakeholder of traded water transactions, accounting for approximately 67% of total volume transacted over the last 10 years as a seller. The next major stakeholder on the supply side are municipalities at 16%. On the demand side, municipalities are the largest buyer category with 44% of the total market, followed by environmental buyers at 26%, and the agricultural sector at 15%. Driven by expansion of higher valued specialty crops in California, the agricultural sector has seen the largest growth with purchases doubling in the last 10 years.

Water trading occurs in every Western state, with more than 20 district regions where market activity routinely occurs. The largest markets are in Southern California, the Front Range of Colorado, and Central Texas near Austin and San Antonio. Of these, the California water market is the largest with almost four times the value and volume of water traded in other states.

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<sup>6</sup> For the purposes of calculating deliverable supply, the terms entitlements and allotments are meant to be used interchangeably as both terms identify saleable ownership or rights to use a given source of water supply.

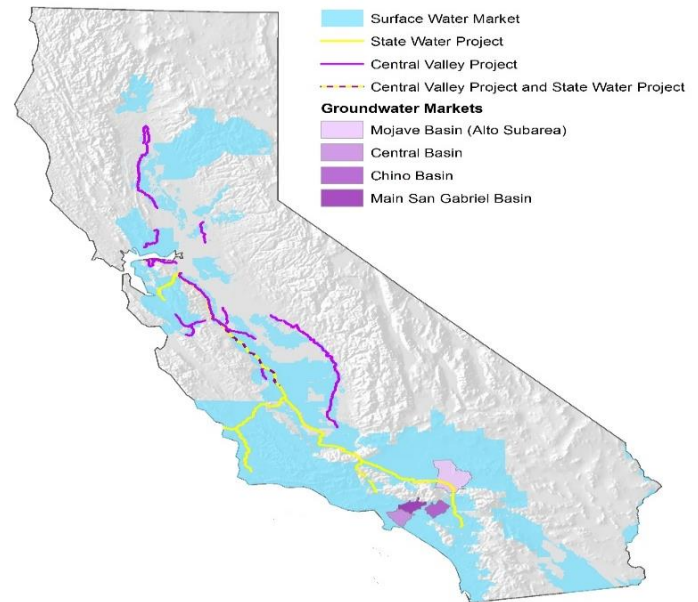
<sup>7</sup> Environmental use consists of water in designated protected areas, water needed to maintain ecosystems in habitats and wetlands, and water needed to maintain quality for agricultural and human use.



Source: WestWater Research Waterlitix Database

Within California the five largest and most actively traded regions include:

- California's Surface Water Market** – which includes appropriative water rights, constitutes most of the tradeable water rights in California, and almost running the length of the entire state, this large network of water conveyance and storage infrastructure is supported by state, federal, and locally funded projects, including the Colorado River, the State Water Project (SWP) and the Central Valley Project (CVP).<sup>8</sup> In particular, the SWP and CVP enable the conveyance of water transfers across a large region and vast distance as the majority of California's surface water resources originate north of the Sacramento-San Joaquin River Delta (Delta), while the majority of water demand is located south of the Delta.



Source: NASDAQ

- Central Basin** – comprising 227 square miles in southern Los Angeles County, including portions of the cities of Los Angeles, Compton, East Los Angeles, Downey, and Norwalk.

<sup>8</sup> Appropriative water rights represent water rights permits and licenses issued by the State Water Board and its predecessors in the state of California. Appropriative rights allow users to take water from non-riparian land or use water that would not be on riparian land under natural conditions. The SWP, supervised by the California Department of Water Resources (DWR), and CVP, supervised by the U.S. Bureau of Reclamation, are built up of hundreds of miles of water storage and delivery systems of reservoirs, aqueducts, and pumping plants stretching almost the entire length of the state. The infrastructure is used to convey water from its origin in the north to demand in the south.

- **Chino Basin** – encompassing 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 located within the Basin.
- **Main San Gabriel Basin** – occupying 168 square miles mostly in San Gabriel Valley, and located in the southeast portion of Los Angeles County, including the cities of Claremont, Irwindale, Azusa, and West Covina.
- **Mojave Basin (Alto Subarea)** – the Mojave Basin is comprised of five distinct but hydrologically interrelated “Subareas”, the largest of which, Alto Subarea, encompasses 469 square miles in southwestern San Bernardino County and includes the populous cities of the area, Victorville, Apple Valley, and Hesperia.

## Assessment & Data

Nasdaq Veles California Water Futures will be based on the Nasdaq Veles California Water Index (NQH2O) which tracks the spot rate price of water in the state of California using data sourced from WestWater’s Research, LLC’s (WestWater) Waterlitix™<sup>9</sup> database. The NQH2O Index, priced weekly in U.S. Dollar per Acre Foot (\$/AF), represents the current valuation of water as determined by water entitlement transactions from California’s surface water market and four adjudicated groundwater basins. For this reason, deliverable supply in acre feet (43,560 square feet by a depth of one foot, equivalent to 325,851 gallons) per month is based on historic water entitlement/allotment data as determined using yearly allotment/entitlement data from the sources identified in the table below:

*Table 1. Constituent California water markets and source references*

Market	Source
Surface Water	
Appropriative Water Rights <sup>10</sup>	<a href="#">Electronic Water Rights Information Management System (eWRIMS)</a> – this source is a computer database developed by the State of California Water Resources Control Board to track information on water rights in California. eWRIMS

<sup>9</sup> Waterlitix™ is the largest and most comprehensive pricing source of water transactions in the US. The database has detailed market and price information on over 20,000 transactions within the United States and is updated daily to provide up-to-date and comprehensive coverage on all established and emerging markets where water entitlements are traded.

<sup>10</sup> The following search assumptions were used to distinguish appropriative water rights from other forms of entitlements/allotments for calculating deliverable supply from eWRIMS data. The assumptions for the search categories below ensure that the rights considered for inclusion in the deliverable supply estimate reflect and can reasonably be assumed to be part of California’s surface water market: (1) Water Rights Status: Included Claimed, Licensed, and Permitted statuses – these reflect statuses recognized by an adjudicated water rights authority that can be exchanged for financial value; (2) Water Right Type: Included Appropriative and Statement of Diversion and Use type – a diversion is a structure used to divert water from its natural source and typically includes pumps, dams, ditches, and/or pipelines and is generally required to establish a water right that can be exchanged for financial value; (3) County: Excluded water rights in North Coast counties – these water rights are generally excluded as their geographic location prevents them from participation in California’s surface water market; (4) Beneficial Use: Included Irrigation, Industrial, Municipal, and Stockwatering uses – these uses reflect the accepted uses of water rights that are reasonable and appropriate under reasonably efficient practices to accomplish without waste the purpose for which the appropriation has been lawfully granted. Stockwatering is indicative of a use towards commercial livestock production; and (5) CVP/SWP: Excluded water rights servicing the CVP and SWP (to avoid double-counting).

	contains information on Statements of Water Diversion and Use that have been filed by water diverters, as well as registrations, certificates, and water right permits and licenses that have been issued by the State Water Resources Control Board and its predecessors.
Central Valley Project (CVP)	<a href="#">United States Bureau of Reclamation – CVP Historical Water Allocations</a> - this report represents yearly water allocations supervised and under the jurisdiction of the The Bureau of Reclamation, a federal agency under the U.S. Department of the Interior and the nation's largest wholesale water supplier.
State Water Project (SWP)	<a href="#">Department of Water Resources – SWP Historical Water Allocations</a> - this report represents yearly allocations administered by the California Department of Water resources to the 29 local water agencies with which it has long-term supply agreements.
Adjudicated Basins	
Central Basin	<a href="#">Central Basin Watermaster Allowed Pumping Allocation (APA) from 2020 Engineering Survey and Report</a> - the report reflects the annual Allowed Pumping Allocation (APA), which represents a yearly entitlement, to all approved parties adjudicated by the Central Basin Watermaster Administrative Body.
Chino Basin	<a href="#">Chino Basin Watermaster Operational Safe Yield (OSY) from 2015 Reset Agreement</a> - the report reflects the Operational Safe Yield (OSY), which represents a yearly entitlement, to all approved parties adjudicated by the Chino Basin Watermaster Administrative Body.
Main San Gabriel Basin	<a href="#">Main San Gabriel Basin Watermaster Operational Safe Yield (OSY) from Final Determination Reports</a> - the report reflects the Operational Safe Yield (OSY), which represents a yearly entitlement, to all approved parties adjudicated by the Main San Gabriel Basin Watermaster Administrative Body.
Mojave Basin (Alto Subarea)	<a href="#">Mojave Basin Area Watermaster Free Production Allowance (FPA) from Annual Reports</a> - the report reflects the Freed Production Allowance (FPA), which represents a yearly entitlement, to all

	approved parties adjudicated by the Mojave Basin Watermaster Administrative Body.
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The NQH2O Index reflects the seasonal changes in the relative scarcity of water, and thus, transaction activity is sensitive to scarcity of water and exhibits distinct seasonality. To determine seasonal availability of water in California, two sets of data were used. Three years of annual entitlements were used from data gathered from the Index's constituent California water markets and related source references in Table 1 above, as well as three years of total monthly transaction volume (in acre feet) provided by the California Department of Water Resources for the State Water Project.

To ascertain total annual deliverable water, data from the following sources listed above was aggregated: Appropriative Water Rights, State Water Project, Central Valley Project, Central Basin, Chino Basin, Main San Gabriel Basin, and Mojave Basin (Alto Subarea). When added together, total deliverable supply of applicable water was 26,117,034 acre feet in 2017, 18,825,864 acre feet in 2018, and 19,681,753 in 2019 as seen in Table 2.

*Table 2. Annual California water market deliverable supply*

Market	2017	2018	2019	Avg. Deliverable
<b>Surface Water</b>				
Appropriative Water Rights (AF)	13,184,080	10,560,251	8,324,894	10,689,742
Central Valley Project (AF)	8,810,909	6,230,126	7,657,796	7,566,277
State Water Project (AF)	3,546,868	1,460,475	3,129,590	2,712,311
<b>Surface Water Total (AF)</b>	<b>25,541,857</b>	<b>18,250,852</b>	<b>19,112,280</b>	<b>20,968,330</b>
<b>Adjudicated Basins</b>				
Central Basin (AF)	217,367	217,367	217,637	217,457
Chino Basin (AF)	135,000	135,000	135,000	135,000
Main San Gabriel Basin (AF)	150,000	150,000	150,000	150,000
Mojave Basin (Alto) (AF)	72,810	72,645	66,836	70,764
<b>Adjudicated Basin Total (AF)</b>	<b>575,177</b>	<b>575,012</b>	<b>569,473</b>	<b>573,221</b>
<b>Annual Total (Surface Water + Adjudicated Basins) (AF)</b>	<b>26,117,034</b>	<b>18,825,864</b>	<b>19,681,753</b>	<b>21,541,551</b>

To estimate the seasonal use of water, the Exchange calculated the percentage of total acre feet volume for each of the last 36 months by taking the volume of monthly SWP deliveries and dividing it by the annual

total delivered SWP volume.<sup>11</sup> Those percentages were then applied to the total annual entitlements numbers to estimate monthly use of water for the water markets included in the Index above for the last three years. For example, in January 2017, monthly deliveries from through the SWP totaled 220,954 acre feet, and total 2017 transaction volumes were 3,732,527 acre feet. Therefore, January represented 5.92% of SWP's 2017 water market transaction volumes. In 2017, total representative California water entitlements equaled 26,117,034 acre feet. To obtain an approximate volume of deliverable water for accounted for by the Index in January 2017, the Exchange took 5.92% of the 26 million acre feet and arrived at a value of 1,546,047 acre feet. These calculations were done for the years covering 2017, 2018, and 2019, as found below in Table 3:

	2017	2018	2019	Average
<b>January</b>	1,546,047	1,662,494	519,443	1,242,661
<b>February</b>	1,921,682	1,437,491	959,686	1,439,620
<b>March</b>	1,426,165	776,161	2,026,337	1,409,554
<b>April</b>	1,664,915	1,149,771	1,458,445	1,424,377
<b>May</b>	1,904,623	1,363,448	1,559,679	1,609,250
<b>June</b>	2,169,332	1,888,341	1,679,170	1,912,281
<b>July</b>	2,637,826	2,468,837	2,338,034	2,481,566
<b>August</b>	3,174,255	2,331,309	2,675,720	2,727,095
<b>September</b>	2,827,588	1,907,122	1,990,745	2,241,818
<b>October</b>	2,710,680	1,638,961	1,739,564	2,029,735
<b>November</b>	2,203,037	1,268,376	1,492,579	1,654,664
<b>December</b>	1,930,883	933,552	1,242,348	1,368,928
			<b>Average</b>	1,795,129

As shown, the transaction volumes reflect the seasonal changes in the relative scarcity/demand of water. The seasonally hot summer months of July through October account for the greatest proportion, while cooler months beginning in November and lasting through April have traditionally lower proportions of allotment use.

### **Deliverable Supply**

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<sup>11</sup> The monthly volume percentages are derived from the monthly State Water Project (SWP) deliveries divided by annual SWP deliveries. These values were used as a proxy for total monthly water usage because SWP, with its conveyance structures covering the highest density water usage population centers of the state, represents one of the largest and most reliable indicators of monthly total water supply and demand fundamentals in California. Monthly water use data is not publicly available for all sources included in the index.

The NQH2O Index underlying the NQH2O Index futures contract represents the current valuation of water rights in the state of California and is based on the volume-weighted average of prevailing prices in California's surface water market and four adjudicated groundwater basins. Therefore, water allocations/entitlements from these markets were used as the basis for the determination of deliverable supply.

Using the average of the last three years of available data, the deliverable supply of water in these California water markets averages 1,795,129 acre feet per month, which is equivalent to 179,512 contracts (using a contract size of 10 acre feet). Using the spot-month speculative position limit formula of 25 percent of deliverable supply, the maximum deliverable supply for the NQH2O Index futures contract supports spot position limits of 44,878 contracts ( $179,512 \text{ contracts} \times 0.25$ ). However, the Exchange recommends a conservative spot month position limit of 35,000 contracts, which represents approximately 19 percent of the estimated average deliverable supply and is intended to ensure the limit's consistent alignment with Commission guidance.

The 'Initial Spot-Month Limit Effective Date' will be the opening of trading on the first business day of the contract month. For example, the March 2021 contract will have an initial spot month limit effective date of March 1, 2021. The Exchange also recommends a single-month Accountability Levels set at 35,000 contracts, all-month Accountability Level set at 50,000 contracts, and a reportable level of 25 contracts.