BlueCert

Blockchain-Enabled Water Credit Offset Bonds

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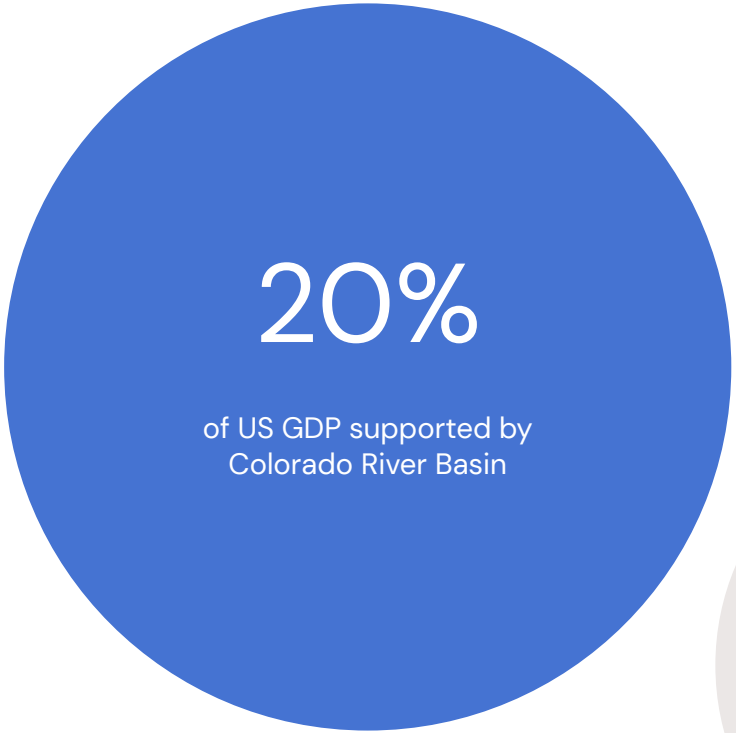
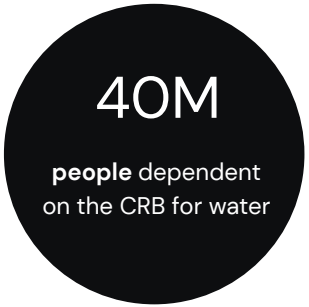
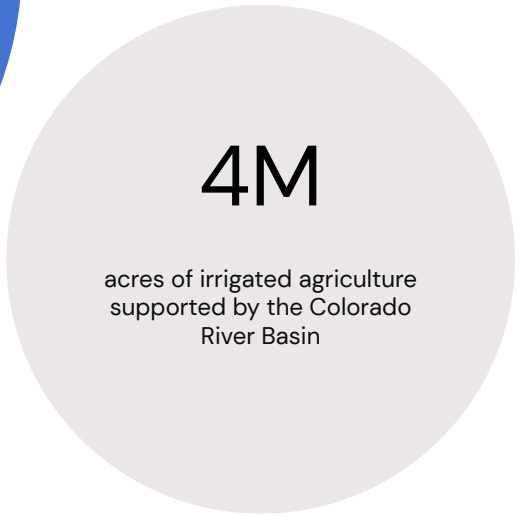
The Colorado River Basin is really, **really** important

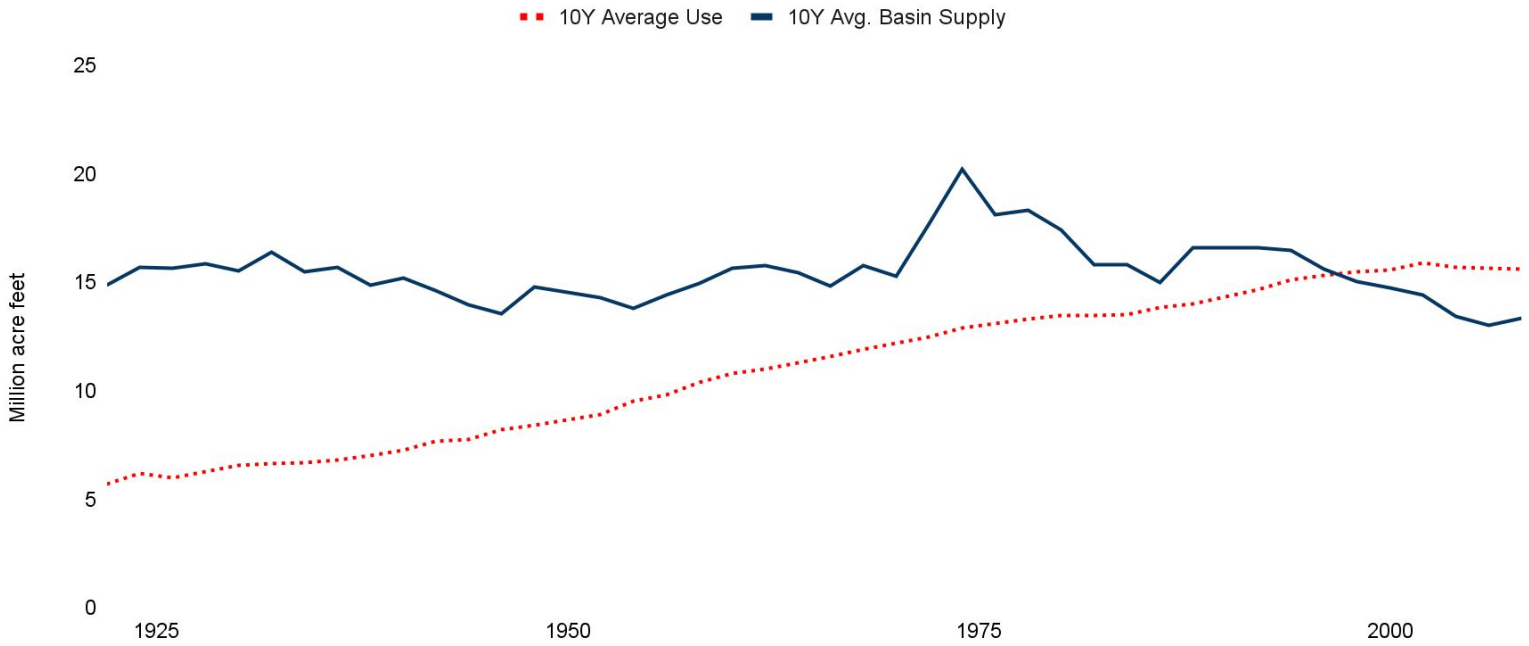






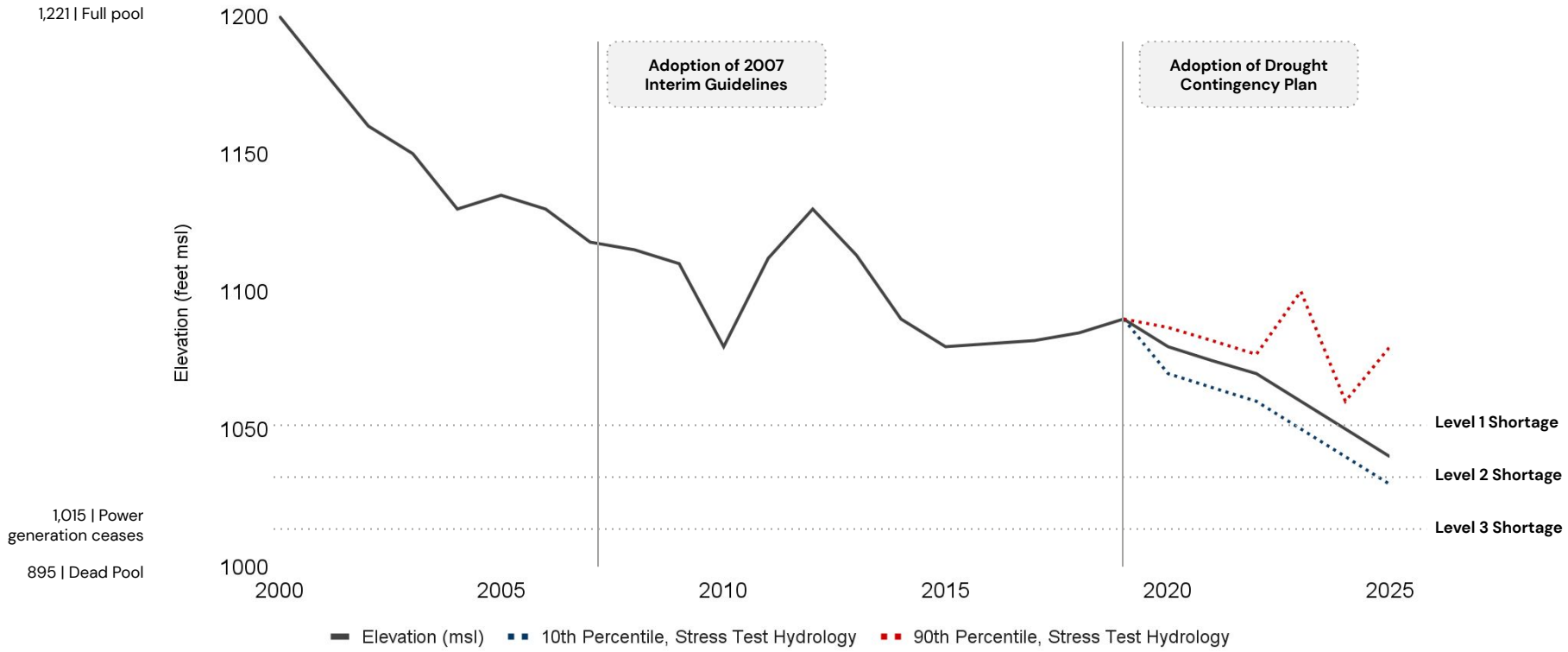
Source: US Bureau of Reclamation, Colorado River Basin Executive Summary, December 2012

A Critical Resource for the Southwest



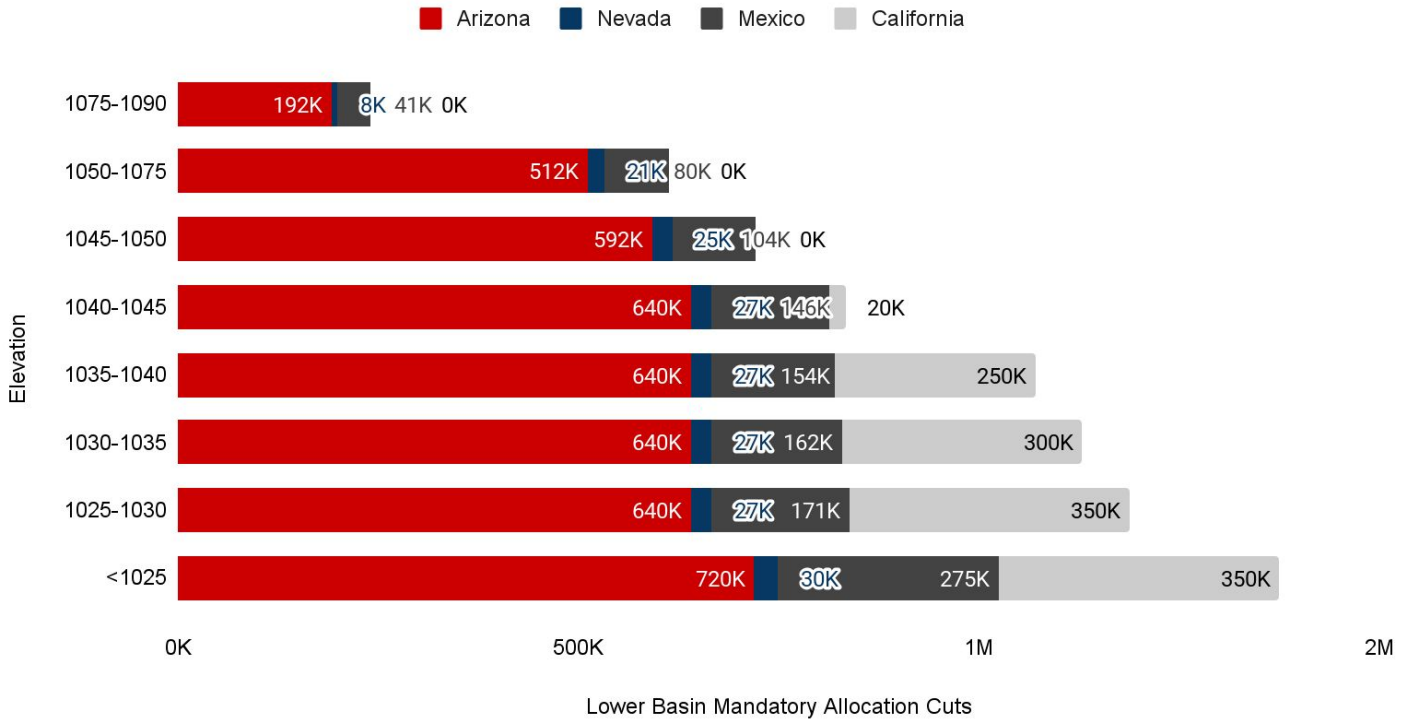
Source: US Bureau of Reclamation, December 2012. Since 2003, the demand for surface water has consistently surpassed the naturally available supply and the historical average supply every year

Elevation of Lake Mead



Source: US Bureau of Reclamation, August 2020. The Stress Test hydrology scenario omits the earlier part of the natural flow record and concentrates on the more recent hydrology (around 30 years), which has an average flow that is 11% drier than the Full hydrology. The adoption of the Stress Test scenario is backed by numerous research studies, which found a change in temperature patterns in the Colorado River Basin during the late 1980s. This shift impacted runoff efficiency, leading to reduced average flows despite consistent precipitation levels.

Allocation Cut Trigger Points



Source: US Bureau of Reclamation, Lower Colorado River Basin Drought Contingency Plan, 2019

Impact of Water Cuts

Economic

% Decline in CRB Water	GDP State Impact (US$ Billions)	Employment Impact (Millions)	Labor Income ($B)
10%	143.4	1.6	87.1
15%	215.1	2.4	130.7
20%	358.5	4	217.9
25%	717.1	8	435.7

Source: The Economic Importance of the Colorado River to the Basin Region. Tempe: Arizona State University, Dec 2014

Environmental

- ✖ Forest Health Issues
- ✖ Poor Grassland Health
- ✖ Invasive Riparian Vegetation
- ✖ Habitat Destruction Due to Channelization
- ✖ Invasive/Non-Native Aquatic Species
- ✖ Dust on Snow
- ✖ Depleted Stream Flow from Groundwater Pumping
- ✖ Out-of-Basin Diversions
- ✖ Changes in Stream Flow due to Dam Operations
- ✖ Changes in Water Temperature
- ✖ Shortage Risks Due to Local Runoff Shortfalls
- ✖ Shortage Risks due to Structural Deficit
- ✖ High Salinity

→ Incentivizes water saving

Offers additional monetization

Allows for scale

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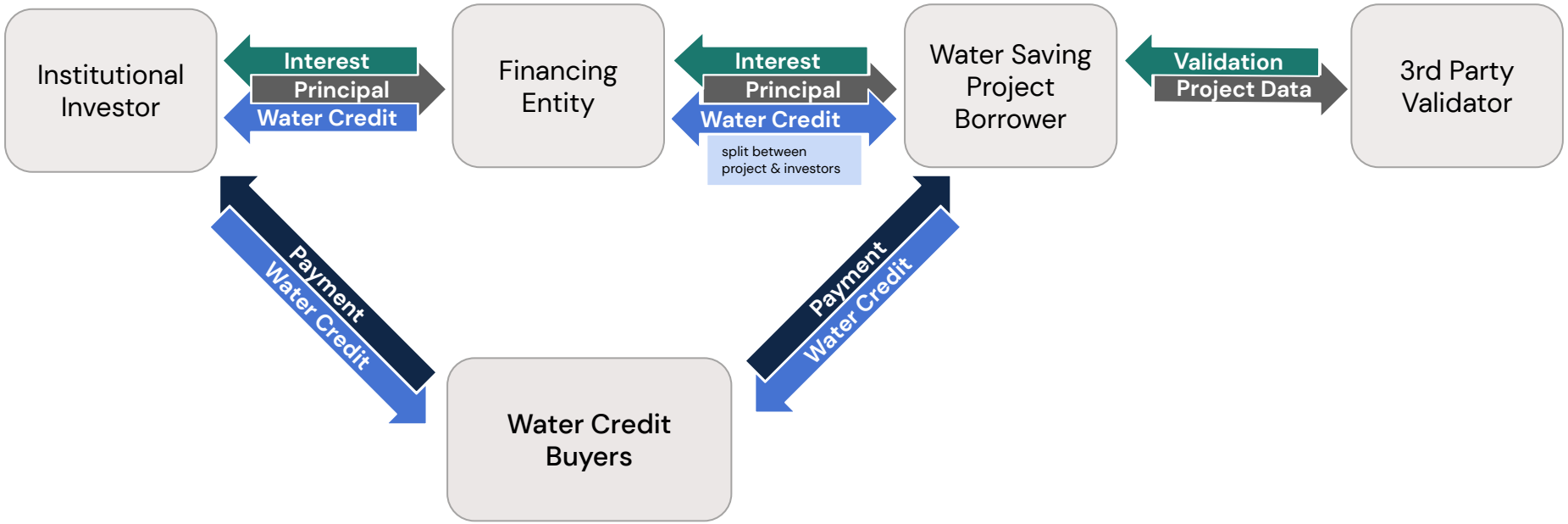
BlueCert: Flow of Funds



Hypothetical Bond Terms & Payoff for Investors

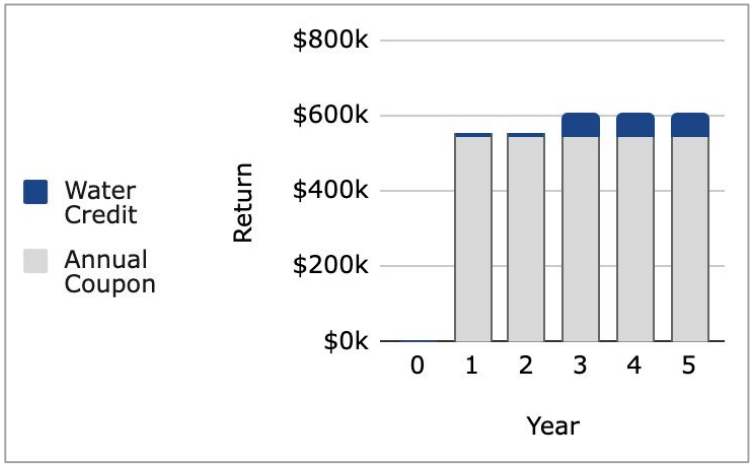
Hypothetical Terms

Maturity	5 years
Coupon Rate	5.50%
Face Value	$10 Million

Hypothetical Returns at Maturity

Projected Nominal Bond Return	$12,750,000
Minimum Water Credit Payout	$163,556
Projected Bond + Water Credit Return	$12,913,556
Yield to Maturity Range (Bond Value $12.75M - $12.91M)	5.50% - 5.83%

Hypothetical Payoff Profile



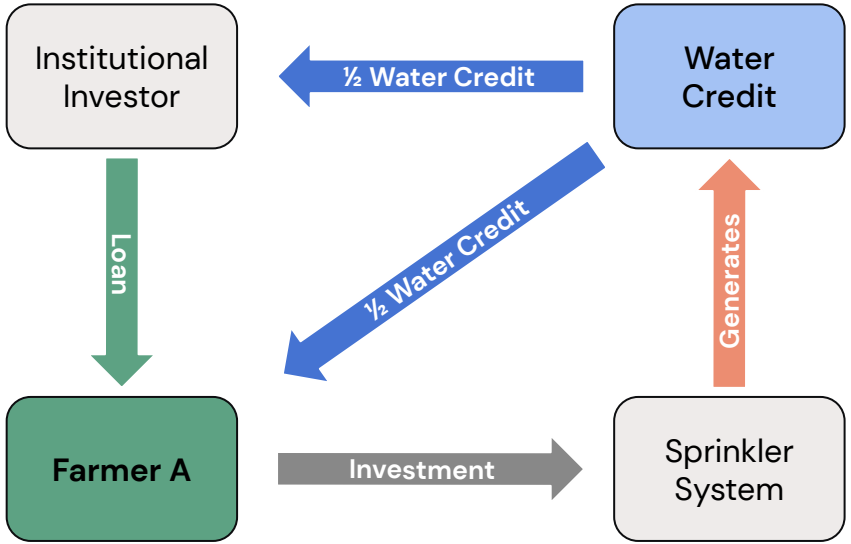
Illustrative Example

Farmer A grows in Colorado's Grand Valley Water Users Association

Farmer A borrows $10 million from BlueCert

After investment in a new sprinkler system, the farmer reduces water usage by 15% by year 3 after the project is completed in year 2

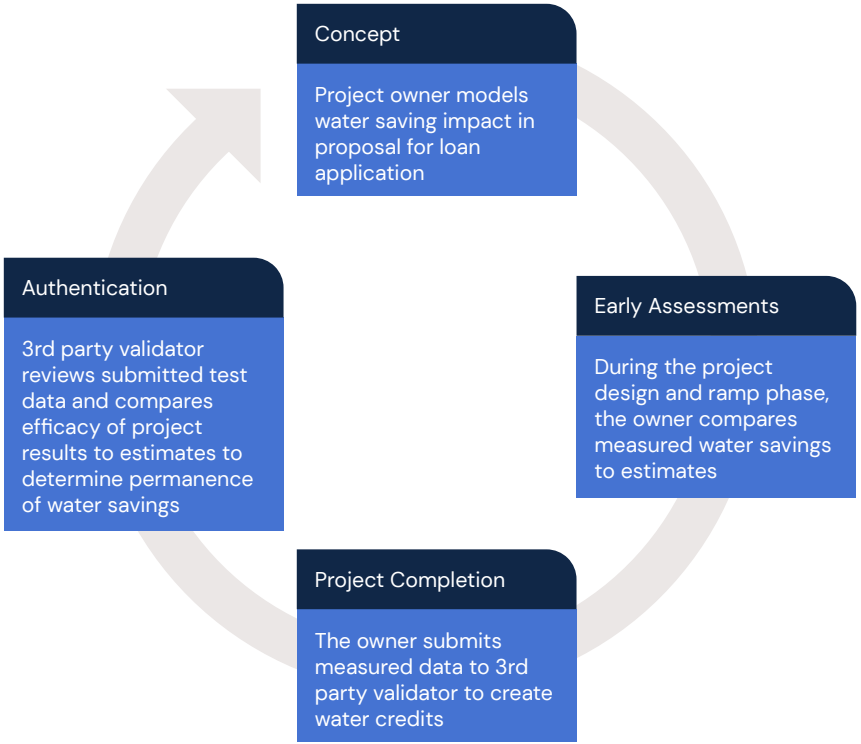
- **~990 water acre feet saved and credits generated**
- **~$300k in earnings from water credits split between farmer and investor**



Water Credit Validation

Ensuring a uniform validation process is performed for each project is critical for the impact of a water credit to be realized. Unlike a carbon offset credit, water is a more tangible resource to track in terms of flow and volume.

- The project owner will model their water savings when applying for the loan and include how they plan to track progress
- A 3rd party validator will review the project and suggest additional monitor techniques
- During the project implementation process the project owner will assess if the current progress is matching their estimates
- Once the project is completed, the project owner submits test data to the validator to authenticate the generation of a water credit

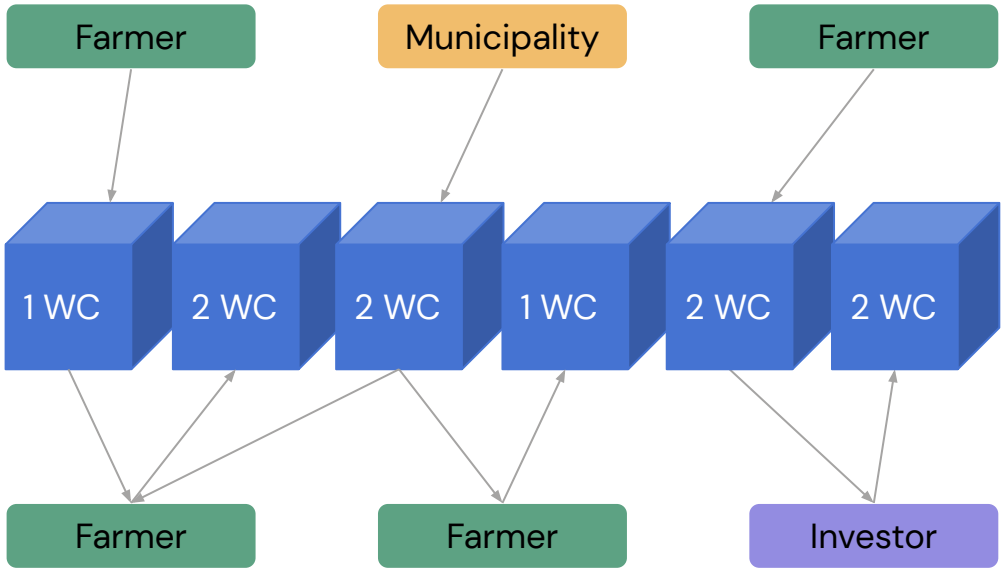


Creating a Market for Water Credits

Buyers and sellers of water credits need a place to transact.

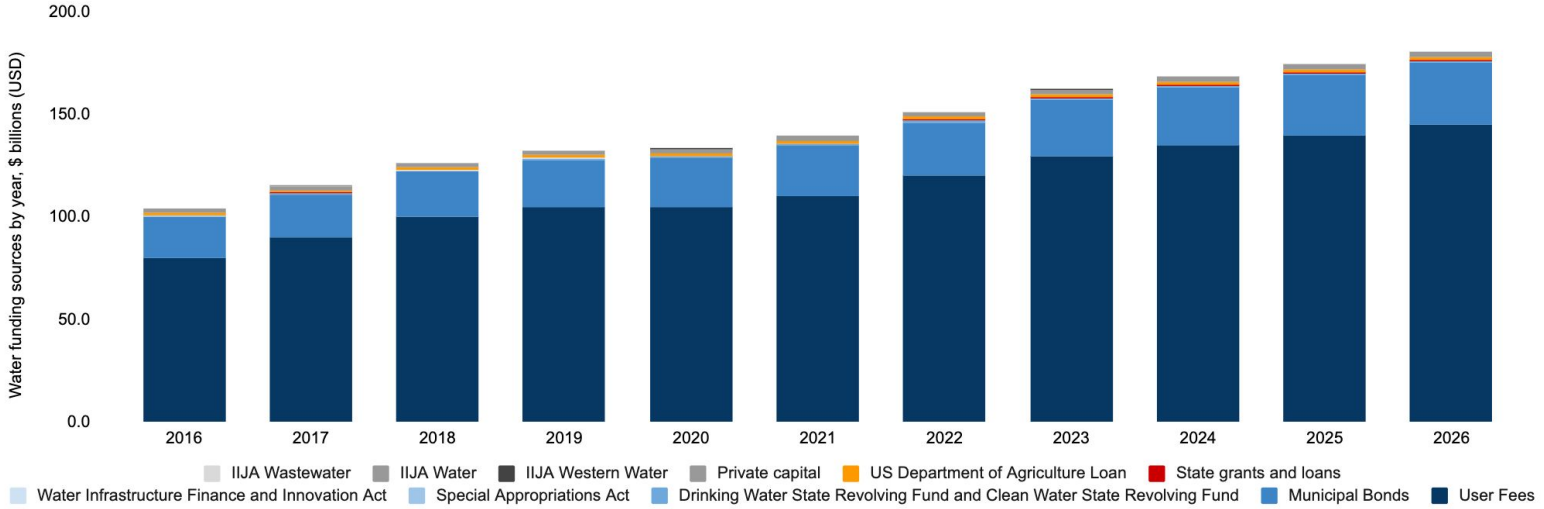
- Borrowers generate water credits
- Buyers of water credits, whether for their own use or as an investment, buy credits.
- As credits are bought, sold or retired, a market maker tracks each party's activities.

Blockchain is one of many mechanisms that can serve as a marketmaker, creating shared record of credit ownership across disparate stakeholders.



The Need for Private Capital

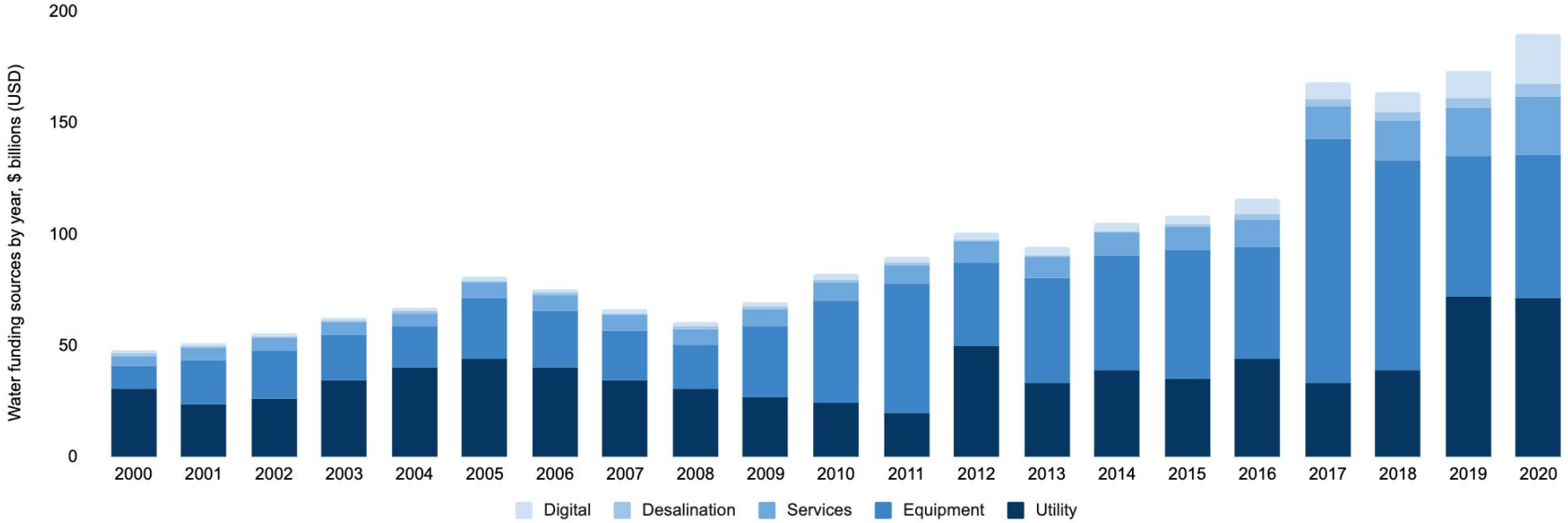
A 4x in federal financial support could boost the industry's overall funds by approximately 5 percent in the short run; however, this increase would **still leave a 22 percent gap in the required capital**



Source: Congressional Research Service; Global Water Intelligence; Statista; US Environmental Protection Agency

Exponential Growth in Water-Related Transactions

Following a relatively stagnant period of growth between 2012 and 2017 (2 percent), the growth rate of water sector M&A transactions has significantly risen to **16 percent annually**. The growth has been particularly driven by PE and infrastructure funds, with their activity experiencing an annual increase of **26 percent during the same timeframe.**



Source: Global Water Intelligence's WaterData market intelligence platform

Risks and Assumptions

Risks	Mitigation Strategies
Market Risk The demand for water credits may not be sufficient to ensure their marketability, which could impact expected returns for investors	**Inflation Reduction Act** Government subsidies valuing water savings at a floor of $330 per acre-foot per year
Counterparty Risk Borrowers may default on their obligations, leading to losses for lenders / investors	**Due Diligence** Credit assessments and due diligence on borrowers, as well as diversification of the lending portfolio
Verification Risk The accuracy of third-party verification of water conservation efforts are crucial for the credibility of the financial instrument	**Third-Party Verification and Audits** Third-party verification and audits maintain the integrity of the system; blockchain as a transparent reporting mechanism
Liquidity Risk The market for water credits may not be sufficiently liquid, making it difficult for holders to sell their water credits at a fair price	**Secondary Market Development** Partnership with established exchanges (ex. Morgan Stanley ETrade, NASDAQ Veles) to facilitate water credit trading
Regulatory Risk Changes in regulations could impact the feasibility or attractiveness of the proposed financial instrument	**Public Private Partnerships** Collaboration with regulatory bodies during the development and implementation of the financial instrument to ensure compliance

Appendix

Using Blockchain to Manage Water Credits

What is blockchain?

A record ('ledger') of security ownership that is created, owned and maintained by shared stakeholders.

Traditionally, individuals validate transactions on the chain by 'mining.' In the BlueCert model, there will no 'mining.' Water credits will be validated by off-chain parties prior to entry onto the chain.

Why use blockchain for this use case?

1. **Transparency** of ownership
2. **Standardization** across stakeholders
3. **Efficiency** through cross-border ownership
4. **Scalability** beyond the Colorado River Basin

Who would own and run the blockchain?

We propose a consortium model of ownership. **Owner/Operators** in a consortium model would be participants stakeholders in the river.

Examples would be borrowers, lenders, validators, regulators and governments

Considerations

1. Energy use of maintaining the blockchain **mitigated** because no 'miners' are required to continuously validate transactions on the blockchain
2. Low uptake amongst participants a risk that can be mitigated through other ownership records/non-blockchain technologies

Water Credit Marketplace

Water Credit Lifecycle:

- Once generated, credits can be used to increase water consumption within a year.
- When the credit is used when reporting water consumption for the year, the credit is then retired
- Retired credits are unable to be used again

Price and Transfer of a credit:

- 1 water credit is the right to consume 1 acre feet of water
- The price of the credit will be determined by supply and demand for the credits but have a floor of $330
- If an owner of a credit does not need it for their own consumption, they can either save it or sell it on an exchange
- A water user in need of a credit is able to purchase a credit for sale on an exchange to offset their water usage