Yakima Basin Water Market Strategy

Kititttas Reclamation District in partnership with Trout Unlimited

September 2022

Acknowledgements

Trout Unlimited (TU) in partnership with the Kittitas Reclamation District (KRD) prepared this Water Market Strategy for the Yakima Basin to advance the Market Reallocation element of the Yakima Basin Integrated Plan. The partners relied on technical expertise from Mammoth Water (now part of ERA Economics), Peter Dykstra (TU's outside legal counsel), Jeff Slothower (KRD attorney), Jacobs Engineering, Walt Larrick and Joel Hubble, Univ. of Washington Evan's School of Public Policy, Washington State Univ. Water Research Center, and Trout Unlimited.

The core project team (TU staff, KRD staff, Mammoth, Dykstra, and Slothower) worked closely with a Technical Work Group ("TWG," member list in Appendix 2) composed of Yakima Basin stakeholders to discuss and vet technical steps and conclusions during the process.

This project was made possible through funding from the US Bureau of Reclamation's WaterSMART program and the Washington Department of Ecology's Water Resources Program and Office of Columbia River for the Yakima Basin Integrated Plan.

Contents

What Is a Water Market Strategy?

A water marketing strategy describes a proposed approach to establish or expand a new water market or water marketing activities based on the results of the outreach, scoping, and planning activities that are performed. In different areas, a water market strategy will take different forms and provide varying location-specific solutions. Strategies may be compared but ultimately should be basin-specific.

Purpose

The purpose of this document, the Yakima Basin Water Market Strategy, is to provide a strategy to improve upon existing water market activities in the Yakima Basin. These activities are the result of a mix of market-based transactions, shifting water needs, and natural water shortages.

The reader should consider this document as a part of a broader effort to address climate change impacts on the Yakima Basin ecosystem as described in detail in the Yakima Basin Integrated Plan. The authors recognize that many types of water resource projects in the Yakima Basin are underway, ranging from conservation measures to new groundwater and surface water storage to habitat improvement, and they may impact parts of this strategy. As these projects are more certain or complete, then the plan can be updated accordingly.

The specific water marketing strategy advanced in this document is the development of a smart market which would improve water market efficiencies by streamlining and automating key steps. It should be noted that this type of approach will not be appropriate for all types of water transfers. With various water resources projects underway and Yakima Basin market activity evolving, this smart market strategy can be updated accordingly.

The strategy is the result of significant technical evaluation of the transfer process, identification of inefficiencies, and recommendations for improvement. The objectives for the technical analyses, and drivers behind the strategy, are:

- Research past market-based transactions and efforts to identify tools and mechanisms to reduce barriers to water transactions to identify the positives and negative attributes of those efforts.

- Analyze and synthesize water marketing/banking research to develop mechanisms that increase market access and facilitate water transfers for all interested stakeholders.
- Develop a framework that will advance market-based transactions that include environmental benefits in the Yakima Basin by reducing systemic inefficiencies.
- Provide recommendations for increased stakeholder participation in market-based transactions for surface water rights in the Yakima Basin.

Analytical Exclusion

Please note, we did not consider and specifically excluded from the market strategy analysis water rights (both district and non-district) on the Yakama Nation reservation. The Yakama Nation reservation water rights are the subject of complicated treaty, congressional and Yakama Nation water code laws, rules and regulations. As a result, Yakama Reservation water rights are not subject to being transferred and traded in a market-based setting such as the smart market.

Executive Summary

For much of the 20th century, water rights in the Yakima Basin came with a degree of uncertainty that limited their transferability and helped create conflicts around legal water availability, which has been exacerbated by reoccurring drought. In 1977, the Acquavella Adjudication began and, over the next 40-plus years, helped clarify water rights—ownership and attributes—and provide an opportunity for easier water exchanges and transfers.

An active but limited water market currently exists in the Yakima Basin. Since the early 2000s, the water market has grown and shifted over time due to pressure from the basin-wide adjudication, multiple droughts, streamflow issues, and permit-exempt well issues. Over time, the water market has evolved and market-based transfers became more common, especially during drought years. However, the rules to transfer water remain relatively rigid and continue to pose limitations to market participation.

Improving market access will require efforts to streamline inefficiencies and grow confidence in the water market. Currently, inefficiencies exist around buyers and sellers identifying each other, proving the validity of a water right, quantifying the transferable amount, clarifying the role of third parties such as adjacent water users, lienholders, and tenants, water transfer review and processing, and the ability to manage and protect transferred water. Based upon the technical analyses and stakeholder outreach conducted as part of this effort, opportunities exist to improve market-based reallocations through implementation of a smart market strategy to streamline transfers.

A smart market is an electronic clearinghouse that matches eligible buyers and sellers of water and consolidates protocols for transactions. The rules governing eligibility are derived from the local water transfer rules, requirements, and procedures. Importantly, a smart market administrator is not a manager/regulator of water or a water banker. Instead, a smart market is a tool to streamline certain processes of water transfers, such as search, price discovery, review and approval, and executing the final contract and transaction. Streamlining these processes is expected to reduce transaction costs and increase market participation, particularly in drought years.

We propose development of a smart market that would focus on single-year transfers (leases). This is a conservative approach to ensure that if there are any errors or omissions in the rules or process governing the smart market, that the

resulting transfers will expire in one year. Multi-year and permanent transfers could still be pursued outside of the smart market through the current transfer process. The smart market could be modified to include longer-term and permanent transfers in the future.

We further propose that the smart market address two scenarios: (1) intra-district, or within-district, trading and (2) trading of privately held water rights. No inter-district trading scenario for the smart market is proposed at this time, though it could be considered again in the future. Like multi-year and permanent transfers, inter-district trading could still be pursued through the current transfer process, outside of the smart market.

We further propose a number of other initial limitations, including requiring all transfers to be downstream and prohibiting so-called "stacked water rights" from participating. Such rules for a smart market would provide a conservative but viable strategy for reducing transaction costs associated with water transfers in the Basin. During implementation, these could be refined to include more sophisticated scenarios and rules as needed and/or desired by stakeholders.

The proposed smart market strategy that follows presents a framework for multi-benefit transfers. The strategy is designed to allow environmental buyers to participate in non-environmental transfers to help complete the transfer and achieve the desired environmental benefit.

This water market assessment and proposed strategy was informed by the insights of stakeholders and the project's Technical Work Group, whose deep expertise and experience with water transfers in the Yakima Basin were critical to identifying challenges and opportunities. The assessment and proposed strategy were further informed by technical analyses and research pertaining to the Yakima Basin. The culmination of these insights is encompassed in the Yakima Basin Water Market Strategy, with the aforementioned supporting technical, legal, and policy research attached as appendices. These include the following:

1. **Outreach**: Outreach and partnership building efforts.
2. **Literature Review**: Review of relevant water marketing and water banking literature.
3. **Geospatial Database**: Development of a database for water rights analyses and data evaluation.
4. **Streamflow Needs**: Identification and prioritization of instream flow needs in the Yakima Basin based on subbasin water rights.

5. **Crop Water Needs and Values**: Calculation of the crop water demands and values across the Basin.
6. **Legal and Policy Review**: Review of the relevant water right rules, regulations, and policies pertaining to Yakima Basin water transfers.
7. **Water Management and Protection**: Identification of water management and protection constraints and limitations.
8. **Market Simulations**: Simulation development and results of a smart market for the Yakima Basin.

Successful implementation of the smart market strategy will require additional work beyond this strategy. Key next steps include:

- Coordination with the Washington Department of Ecology (Ecology) to develop a clear pathway to protect water and enforce transfers as completed through the smart market.
- Outreach with basin-wide stakeholders to grow awareness of and confidence in the strategy.
- Coordination with the US Bureau of Reclamation (Reclamation) and Washington state-based Natural Resources Conservation Service (NRCS) staff to ensure water supply information is timely and correctly conveyed to allow market administrators sufficient time to implement annual market protocols.
- Coordination and agreement with Ecology on the smart market rules, with an annual audit to ensure the rules perform as expected and desired.
- Coordination and agreement with Ecology on a water right's eligibility to enter into the smart market, ensuring that it sufficiently meets extent and validity standards
- Coordination and agreement with Ecology on the framework for determining the transferrable quantity of the water right (e.g., consumptive use) and resultant diversion authority.
- Coordination and agreement with Ecology, Reclamation, counties, and any other relevant agencies on the reporting and documentation of executed trades, and any other terms of transfer. This includes reporting and documentation from the market participants to the relevant water agencies and vice versa.
- Coordination and agreement with Ecology, Reclamation, counties, and any other relevant agencies on access to relevant and up-to-date data and records.

- Coordination with one or more interested irrigation districts for development of an intra-district smart market.
- Development of the online market platform and any necessary data tools or integrations.

Water Supply Rules

The water supply in the Yakima River Basin has been established by a treaty, acts of Congress, prior appropriation, and litigation, which began in 1855 and continued until 2019. Taken together, the rights of the various water users to the water within the Yakima River Basin are now relatively certain. The water supply available to satisfy those water rights is entirely dependent on natural moisture and is therefore always uncertain.

In the Treaty of 1855, the Yakama Nation's time immemorial water right was recognized. Shortly after the Treaty of 1855, settlement of the Yakima River Basin began and between 1860 and 1905 water rights were established by a variety of individuals and entities based on territorial and State law.

In 1905, the United States Department of Interior, through the United States Bureau of Reclamation (hereinafter "USBR"), withdrew all of the unappropriated water and began the development of the Yakima Irrigation Project (hereinafter the "Project"). Over time, five different divisions of the Project were developed. In 1945, the United States District Court entered a Consent Decree in Kittitas Reclamation District, et al. v. Sunnyside Valley Irrigation District, Civil No. 21 (ED WA, 1945) (hereinafter the "Consent Decree"). The Consent Decree established two classes of non-Indian[1] water users; to wit, senior users, whose use commenced prior to May 10, 1905, and junior users, whose use commenced after May 10, 1905. The Consent Decree also established the concept of Total Water Supply Available ("TWSA") and defined it as follows:

> ... "total water supply available" is defined as that amount of water available in any year from natural flow of the Yakima River, and its tributaries, from storage in the various Government reservoirs on the Yakima watershed and from other sources, to supply the contract obligations of the United States to deliver water and to supply claimed rights to the use of water on the Yakima River, and its tributaries, heretofore recognized by the United States.

The Yakama Nation was not a party to the Consent Decree and, as a result, the Consent Decree failed to adequately deal with and allocate tribal water rights. From 1945 until 1976 the water users operated under the Consent Decree with USBR

[1] The Consent Decree designated Indian water rights. The term Indian is used for consistency with court documents.

controlling the amount and timing of flows in the Yakima River and some of its tributaries through the storage and release of water stored in five (5) reservoirs. The KRD v. SVID court determined in the Consent Decree that TWSA is in part comprised of the water stored in those five (5) reservoirs.

In 1977 the Washington State Department of Ecology (Ecology), under the authority of Chapter 90.03 RCW, commenced an adjudication of all surface water rights to the Yakima River and its tributaries. The Yakama Nation joined the case and from 1977 until August 9, 2019, the Yakima County Superior Court adjudicated the rights of all water users in and to the Yakima River and its tributaries in State of Washington, Department of Ecology v. James J. Acquavella, et al., Yakima County Superior Court Cause No. 77-2-01484-5 ("Acquavella").

On August 9, 2019, the Acquavella court entered its Final Decree, which incorporated a 2,477-page Schedule of Rights (>2,300 water rights). The effect of the Final Decree is that every water user's rights are fixed—quantified and prioritized by date. The Final Decree was appealed. The Washington State supreme court issued a decision which finalized all but two issues. The two unresolved issues were remanded to the Yakima County Superior Court. On April 14, 2022, the Yakima County Superior court issued two orders amending the schedule of rights on the issues which were the subject of appeal. Entry of those orders officially completed the adjudication.

What started in 1977 and continued for nearly four decades as an acrimonious and protracted legal battle over water rights settled into a realization by the parties that it is in their best interests to cooperate on water rights issues. As a result, in 2013 the Washington legislature authorized the Yakima Basin Integrated Plan (YBIP) that was developed by and among one-time courtroom adversaries.

According to https://yakimabasinintegratedplan.org/vision/#goals, the goals of the YBIP are as follows:

- "Provide opportunities for comprehensive watershed protection, ecological restoration, and enhancement addressing instream flows, aquatic habitat, and fish passage;
- Improve water supply reliability during drought years for agricultural and municipal needs;

- Develop a comprehensive approach for efficient management of water supplies for irrigated agriculture, municipal and domestic uses, and power generation;
- Improve the ability of water managers to respond and adapt to potential effects of climate change; and
- Contribute to the vitality of the regional economy and sustain the riverine environment."

The effect of litigation over the last half of the twentieth century was to create a river basin where water rights are known with certainty and reduced to writing. This created a certain group of water users who may benefit from participating in a formalized water market. However, several factors will impact how much water may be available to be reallocated through a market of any kind.

Yakima Basin Water Market Activity

The basic premise of a market-based water right transfer is the exchange of value between buyers and sellers that allows the buyer access to the sellers' water in exchange for compensation. There is some evidence that neighboring water users in the Yakima Basin have conducted a simple, grassroots form of market-based transfers for a long time. Neighbors informally transferred water on a local (e.g., water right source) level at times of water shortages. Evidence of these transfers may not have been recorded, nor documentation even considered, by the water users.

The Acquavella proceedings helped landowners become better aware of procedural steps for water transfers. As water right holders became more educated and competing demands on water increased, a market developed. Periodic droughts underscored the need for: temporary transfers; robust investment by public agencies and nonprofit conservation organizations in purchasing senior water rights and changing their purpose of use to instream flow; Ecology's closure of the Upper Kittitas County area of the Yakima Basin to new groundwater uses; and a 2014 settlement agreement over permit-exempt water uses in Kittitas County further evolved the market.

Market participants have limited ability to accurately identify past market activity and use it to help predict future activity. Past market activity, particularly for permanent transfers, may prove a poor indicator of future activity. However, we

may make several general conclusions on potential market activity based on water right transfer information from the Water Transfer Working Group ("WTWG", see Definitions, Appendix 1).

First, transfer activity increased in drought years (2005, 2015, 2019), after passage of the 2009 water banking legislation (RCW 90.42), after the closure of the Upper Kittitas County portion of the basin in 2011 (WAC 173-539A), and after settlement of litigation of permit exempt water uses in Kittitas County (2014).

Activity in non-drought years was present but the number of transfers for agriculture were fewer than in drought years. An increase in the creation of water banks after and an increase in TWSA water budget neutral (WBN) applications occurred following adoption of Ecology's Upper Kittitas County rule. Depending on the year, WBN transfer applications can even dominate the number of transactions. WBN and water banking transfers are typically permanent.

These results suggest the presence of an ongoing water market more focused on (1) temporary transfers for agriculture driven by water shortages and (2) permanent transfers from agriculture for water banking, domestic, and municipal purposes.

Second, inter-district transfers are prevalent in drought years but seem non-existent in non-drought years. With proratable irrigation districts, the need for water in a drought year is dictated by the amount of prorationing. In severe years, we expect more water moved from senior to junior districts.

Third, environmental and municipal buyers are active in the Yakima Basin. The level of activity varies. This activity may increase as climate changes threatens the Basin's water supply.

Finally, transfers that involve donations are not easily captured by the WTWG data. Permanent donations are uncommon but temporary donations are present and may be the result of market activity. For example, a landowner may get an irrigation system upgrade through a grant program and need less water to irrigate. The grant program may require that the water is protected for a term of years. A temporary donation is a logical step to achieve the desired result.

Current water transfer activity requires resources from Ecology. The more complex transfers require more resources and may take more time to process. The commitment of finite resources to complex transfers may come at the expense of simpler transfers that may be suitable for a smart market approach. As such, even

if an individual water transfer doesn't occur through a smart market, other water market activity may benefit by increasing market confidence by increasing the number of successful transfers and focusing limited Ecology staff time on those transfers that require individual review.

In summary, a water market exists in the Yakima Basin. The market is more active in drought years and for short-term transfers for agricultural purposes. The shortage of water for instream flow, growing population, and ongoing agriculture sharpens competing water demands that will likely benefit from a structured market framework that would sustain market activities well into the future.

Smart Market Strategy

Selecting a Smart Market

The presence of a Yakima water market creates an opportunity for evaluations and improvements. Various steps in the process demonstrate inefficiencies that may frustrate stakeholders and impact market activity. The goal of this water market strategy is to improve upon the existing market through streamlined functionalities, namely through the development of a smart market.

A smart market is an electronic clearinghouse that matches buyers and sellers of water by price point and regulatory constraint. Use of a smart market, as proposed in this strategy, will help reduce transaction costs, therefore improving market access and providing a pathway for greater stakeholder participation.

The water market strategy described here hinges upon the ability to streamline and ultimately automate several key processes in transferring water rights. These processes include but are not limited to:

- Identifying a party with which to trade water,
- Negotiating terms of the water transfer,
- Evaluating the extent and validity of a water right,
- Calculating the consumptive use of the water right, and
- Determining whether the transfer will cause third-party impacts.

Such processes currently require substantial time, effort, and money to complete. Further, delays in administrative processing or in an ultimate approval could delay the transfer of the water right beyond the time of need and render a shorter-term lease infeasible or moot even where the above processes have been satisfactorily addressed.

As part of the strategy's development, we considered several potential trading scenarios: (1) intra-district, or within-district, trading only; (2) trading of privately held water rights; and (3) inter-district trading, or the trading of water between districts. Note that all three of these are already occurring in the Yakima Basin. Intra-district trades are common in several of the irrigation districts. Market-based transfers of privately held water rights are handled by buyers and sellers and often involve Ecology. Water trading between districts can and has happened, such as Roza Irrigation District leasing water from Sunnyside Valley Irrigation District during the 2015 drought.

Smart markets tend to provide more value in thicker markets where large numbers of potential buyers and sellers exist. This works well for individuals: within irrigation districts that may trade district allotments, or outside of irrigation districts that may trade privately held water rights. However, because there are both a relatively small number of irrigation districts and myriad district-level constraints (e.g., operational and institutional), it was decided that the smart market strategy would not include inter-district trading at this time. It is conceivable that inter-district trading could be added to the functionality of the smart market in the future. For example, a smart market could help districts identify and pool bids and offers from district customers who are interested in leasing water. The current smart market strategy focuses on the trading of (1) intra-district water and (2) privately held water rights.

Smart Market Operations

At the guidance of the TWG, the market rules were prepared both to align with the WTWG existing criteria for recommending transfers and to lend themselves to automation by a smart market. These rules are intended to identify transfers that can meet the WTWG's water budget neutral criterion and avoid impairment to the rights of third parties or existing operations.

As previously described, the smart market strategy is to streamline and automate key processes in water right transfers. It is noted that these rules are for smart market transfers only. Outside a smart market, individualized review, rather than these smart market rules, ensure that there is no increase in consumptive use and no impairments to third parties or existing operations.

As a result, the following three primary market rules were developed.

1. Consumptive use of the water right may not be increased by the transfer.
   The consumptive use was calculated through two methodologies: the Washington Irrigation Guide (WIG) and the VIC-CropSyst model. Ultimately, the WIG was selected for consistency with water transfer policy.
2. No stacked water rights may be traded.
   A stacked water right is one in which the same place of use receives water from multiple sources, such as an irrigation district allotment and a privately held water right. Any privately held water right within an irrigation district's boundary is assumed to be stacked, making the estimate of unstacked water rights in this report conservative.

3. For privately held water rights, only downstream transfers of water use are considered. In other words, the analysis limits an individual to only buying from someone whose diversion point is upstream of theirs. Within an irrigation district, it is assumed that allotments may be freely moved within that district's boundary or authorized place of use.

These were the rules that ultimately governed the development of the simulated smart market (see the attached technical report, "Market Simulations and Water Rights"). Additional rules may be necessary for an implementable version. Parties then would be matched based on (1) their eligibility to trade per these three constraints and (2) their price point. A price point is typically the marginal value of water for that particular purpose and place of use. Marginal values of water are heterogeneous and, for agriculture, affected by factors such as crop prices, crop yields, soil types, irrigation technology, and any specific water costs such as wheeling, among others.

Market Workflow

The following is a description of process and roles for sellers, buyers, market administrators, and regulatory authorities like Ecology or irrigation districts.

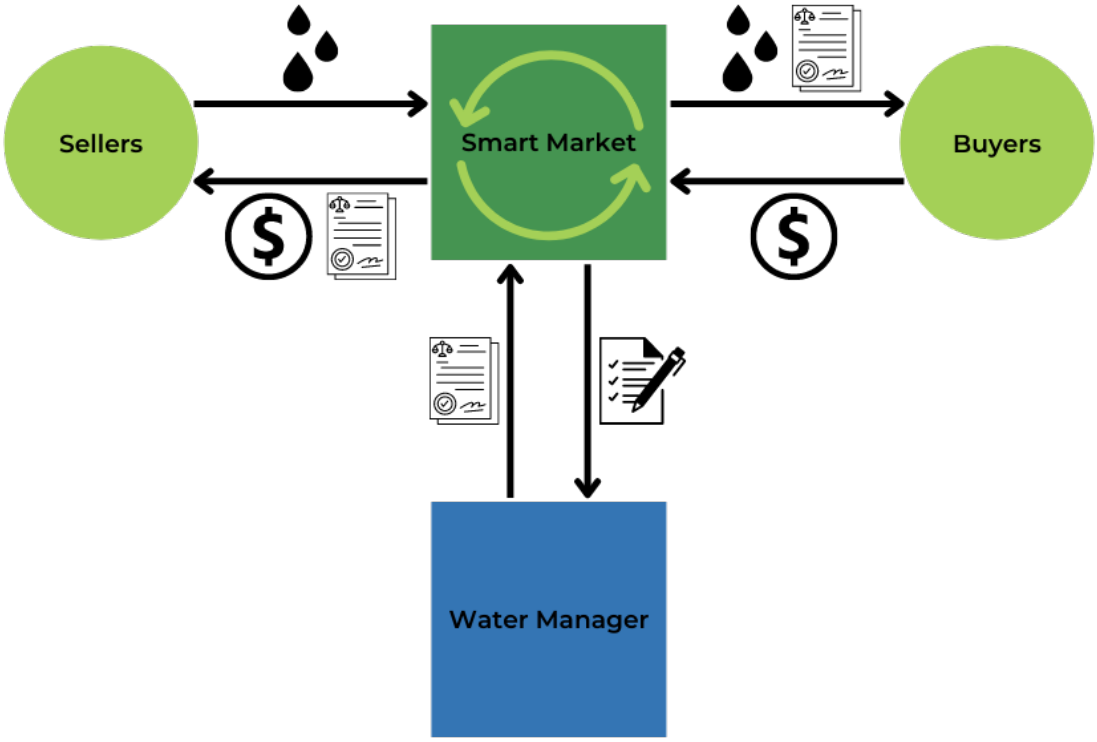

Fig 1. Simplified view of a smart market that identifies the relative roles of the smart market, buyer, seller or lessor, and market administrator/manager.

Seller Workflow

Prospective sellers would create an account and add the parcel description and water right number for which they would like to sell or lease all or a portion. They would specify how much water they want to sell or lease, up to their full consumptive use (calculated by the market platform using the WIG), as well as their price floor. Sellers would agree to terms and conditions as part of submitting an offer. Such terms would include those required from the appropriate regulator (e.g., Ecology or water purveyor), which could include additional monitoring and enforcement agreements should the transfer be approved.

After the clearing cycle, the seller would be informed whether their offer was matched. If not, they could keep their offer in the next clearing cycle unchanged; sellers could edit their offer (e.g., lower their price); or they could remove their offer altogether. If their offer was matched, they would be informed of the approval process. Once approved, funds would be transferred from an escrow account, less market administration fees, to the seller, and the final pieces of the transaction would be finalized. Clearing cycles are typically set a fixed interval, such as once per week.

Buyer Workflow

Prospective buyers would create an account and add the property and diversion point for the location for which they would like to buy or lease water. They would specify how much water they are looking to purchase or lease, as well as their price ceiling. Buyers would agree to terms and conditions as part of submitting a bid. Such terms would include those required from the appropriate regulator (e.g., Ecology or water purveyor), which could include additional monitoring and enforcement agreements should the transfer be approved.

After the clearing cycle, the buyer would be informed whether their bid was matched. If not, they could keep their bid in the next clearing cycle unchanged; they could edit their bid (e.g., increase their price); or they could remove their bid altogether. If their bid was matched, they would be informed of the approval process. Once approved, funds would be transferred to an escrow account, including market administration fees, and the final pieces of the transaction would be finalized.

Environmental Buyer Workflow

The water market allows environmental buyers to acquire water rights to improve stream flow. Should an environmental buyer participate, they would set a total budget, a price ceiling in dollars per acre-foot of consumptive use, and select from a checklist the streams of interest. There would also be the option to select whether the streamflow would be bundled with other buyers' bids to allow that water to be consumptively used farther downstream) or if that water should be protected as instream flow. The environmental buyer would agree to terms and conditions as part of submitting a bid.

After the clearing cycle, the buyer would be informed whether their bid was matched. If not, they could keep their bid in the next clearing cycle unchanged; they could edit their bid; or they could remove their bid altogether. If their bid was matched, they would be informed of the approval process. Once approved, funds would be transferred to an escrow account, including market administration fees, and the final pieces of the transaction would be finalized.

Workflow and Roles for the Market Administrator and the Water Regulators

The smart market administrator would:

- Offer customer support to market participants (customers);
- Clear the market on its clearing schedule;
- Communicate with trading parties;
- Submit transfer applications to and work with Ecology or the respective irrigation district;
- Upon approval, execute the transaction by transferring funds and finalizing documentation; and
- Handle any maintenance and updates to the smart market.

The smart market administrator would largely be responsible for the financial, contractual, and technical aspects of trading, along with providing the supporting documentation. Note that a market administrator does not have legal authority to review or approve/deny a transfer, manage or update water rights records, or monitor and enforce deliveries; these are public agency functions. The updating of the water rights records, or water accounting systems, as well as monitoring and enforcement, is a role for Ecology for private water rights or the respective irrigation district for district allotments.

Public Versus Private Data

The proper handling of data is important for generating confidence in a marketplace. Data that must be made public are limited to the parties who executed transfers, and in what volumes. Other information about the prices bid, offered, or executed are private and confidential. Parties that participate (submit a bid or offer) and are not matched are also kept private.

Administrative Structure

A key factor for market success is participant confidence in the administration. Stakeholder confidence in the market requires transparent and consistent application of rules and processes.

A smart market may be administered by a private or public entity. However, prices are disclosed and public agencies such as Ecology are past and potential future market participants, which could foster stakeholder skepticism about the market. Moreover, the literature suggests administration by a trusted, transparent entity. As such, we propose running the market through a private, non-governmental entity (not-for-profit or for-profit). A private NGO, if properly setup, may help avoid actual or perceived conflicts of interest and encourage stakeholder confidence.

Initially, the workload may not demand full-time staffing. As such, the smart market strategy can be incorporated as a special project for a period of years by an existing private NGO. A predetermined period, for example 10 years, will allow the administrators to establish the smart market and evaluate the platform's robustness as its own entity.

It is expected that market administration for the Yakima Basin would not initially require year-round full-time employee(s), but that the employee(s)'s time would ramp up seasonally with the irrigation season or in drought years. Conversely, the administrative needs would diminish during the off season or in non-drought years. The professionals supporting the water market would need a combination of skills in water trading, technology, Washington real estate or water rights law, and financial transactions. Depending on the revenue model, a real estate broker or individual licensed to practice law may need to be involved in market administration.

Costs to develop and implement the smart market include a range of upfront and ongoing development costs. Development costs may increase as more complexity is added to the market. Seasonal customer support, outreach and engagement,

and market administration are ongoing costs, as are maintenance of the platform and supporting technologies. Some funding is expected in all years to handle maintenance and ongoing platform costs, with variable funding to support staffing capacity for administration—expected to be minor in wet years, but major in drought years. Funds could come from a combination of public funding (e.g., federal USBR funds or state YBIP funds) and private funding (e.g., administration fees paid by water market participants or private foundations).

Stakeholders and Water Rights

The water rights involved in the proposed smart market can be any[2] surface water rights adjudicated in Acquavella (and subsequent transfers/partitions). Groundwater rights were not adjudicated and present significant challenges to trading, especially relating to uncertainty about quantification.

The type of water right ownership[3] may change the steps necessary to enter the smart market. The decision to enter a market is left to each water right owner but this strategy allows each to participate to their desired extent.

A future unknown is the presence of additional surface water storage in the Yakima Basin. Presently, there are five large reservoirs that store water for irrigation, fish, and flood control purposes. The YBIP is actively engaged in efforts to develop additional surface water storage facilities. Any additional stored water could enter the market according to the terms of use for that water. Also, the Integrated Plan includes an element supporting market-based water reallocation. Potential opportunities and partnerships between the smart market manager and YBIP participants may emerge as YBIP implementation proceeds.

Implementation Approach

Phased Market Rollout

Market Rollout

The proposed market strategy recommends a phased rollout: first, with interested irrigation districts who wish to run pilot smart markets in their districts; next, working with Ecology to launch a smart market for privately held water rights; and finally, working collaboratively with YBIP stakeholders to expand, adapt, and refine the smart market as needed.

[2] Excluding Yakama Nation water rights as stated earlier.

[3] Publicly owned water rights will likely require additional steps to position them for entry into the smart market.

Scaling the Smart Market

The Yakima Basin's water market currently serves a variety of water trades, including lease and permanent transfers and transfers across sectors (e.g., agricultural to municipal use). However, long-term leases (>5 years) and permanent transfers require significant regulatory involvement from Ecology. Addressing these inefficiencies would require statutory changes that may be difficult to achieve, particularly in the near-term. Therefore, rather than attempting to handle all of the current trades, the strategy for implementation is designed to handle short-term trades first, with the ability to adapt and add different types of trades or more complex trades as policy allows.

In particular, this strategy focuses on one-year leases, essentially creating a pilot program for the smart market. Addressing single-year leases should still generate significant basin-wide benefits. Lease transfers have large transaction costs, with a short horizon of benefits. While lease transfers may have a short-term impact, there can be a large number of trades for leases, particularly in drought years, that would benefit from the economies of scale that a streamlined water market would offer. Handling lease transfers only also minimizes risks, as any transfers executed will expire and are not permanent should there be any unforeseen outcomes or consequences of trading. This combination of being simple, high-impact, and low-risk makes leases the perfect starting place for smart market development.

As there is comfort, interest, and funding to do so, the market can be adapted to add more functionalities. This modular strategy will maximize opportunity for continued outreach to, and feedback from, stakeholders. It will also allow the market to scale and grow in the ways that are best suited to Yakima stakeholders over time.

Tracking Market Success

While the strategy for smart market development includes an NGO market administrator, it is important for there to be transparency of the market's performance. Important metrics to track performance include:

1. Transaction Costs. What were the transaction costs associated with trading? What percentage was covered by public funding versus market participants? How are transaction costs changing over time?

2. Market Participation: How many individuals created accounts? How many new bids were submitted? How many new offers were submitted?

3. Market Efficiencies: Was there a surplus or deficit of water available through the market? What factors affected surpluses and deficits?

4. Traded Quantities: How many trades were executed? How much water was traded in each month and year? What quantities of water rights are being traded in whole versus in part?

5. Stream Flow Benefits: Which streams were augmented with instream flow, and for how many river miles?

6. Trading Benefits: What are the approximate benefits or gains (e.g., acres kept irrigated) of trade in each year?

These metrics will help monitor market performance and highlight any gaps that should be addressed. If and when the market is expanded to include multi-year or permanent transfers, tracking the proportion of durations that market participants are trading water (single-year, multi-year, and permanent) will also be an important metric.

Legal Framework

Smart Market Strategy and Washington Water Law Requirements

Water right transfers in Washington are regulated by Ecology under RCW 90.03.380. Permanent and temporary transfers follow the same pathway except when a drought is declared. A temporary transfer may receive priority processing in a drought year compared to standard processing for permanent transfers. Each type of transfer within the smart market will require different levels of involvement from the market administrator and Ecology. These levels will be resolved as the market develops.

Water trading through the smart market is required to follow state water right transfer rules. The first requirement to participate in the smart market is that the seller has a valid water right. Currently, there is no "simple" review of a water right to confirm current ownership, and beneficial quantities and uses of a water right.

Absent a pathway for a simplified review of the water right, sellers will need to show a valid water right. A seller could use the pathway of adding a purpose of use for instream flow and mitigation to their water right. Although this step comes with risks because of required analysis of annual consumptive quantities, the resulting water right would be more suitable for future transfer because: (1) the right has undergone a recent tentative determination of extent and validity; and (2) the instream flow and mitigation portion of the right can be exercised in any given year in coordination with Ecology. The second reason provides a further measure of protection for the water right and would facilitate easier transfers according to the smart market and Yakima Basin rules.

Another place the smart market fits within Washington's water code (RCW 90.38.040, 90.42.110 – .130, 90.03.380) is through the Trust Water Rights Program (TWRP). In some cases, the TWRP may improve the transfer efficiency when a willing seller has their water rights within the TWRP; however, those rights not in the TWRP may be directly transferred and will not involve the TWRP. [4] This allows the state flexibility to manage water rights and operate as a market participant. Water acquired by the TWRP program may be redistributed under a Trust Water Rights Agreement ("TWRA"). As such, a water right holder could enter their water rights into the TWRP and the TWRA terms would help define how the

[4] The TWRP is not being considered for smart market administration because of actual and potential conflicts of interest that may undermine public confidence in the market.

owner could sell/lease the water. However, a water right holder does not need to engage the TWRP to participate in the smart market.

USBR-Ecology Storage and Exchange Contract

USBR and Ecology have an existing storage contract ("the Storage Contract") that impacts the existing market and any future smart market. This contract is for storage of water within unused capacity of the existing reservoirs and release it for later use before the following irrigation season. The contract allows Ecology to acquire storage space from USBR and for USBR to store water for Ecology. The significant benefit of the Storage Contract is that it allows, so long as some unused USBR reservoir capacity is available, trust water rights to be "retimed" and thus extend seasonal water rights to be used outside of the water right season of use. Water transferred through the market could, if managed within the Trust Water Right Program and agreed upon by Ecology and USBR, make use of the Storage Contract. Most, if not all, transfers of a seasonal use water right to a year-round use would require the use of either the Storage Contract or a new storage facility to allow the period of use to shape across the entire year.

Rules and Requirements Governing Implementation of Smart Market

Mentioned above, water transfers in Washington are governed by the Water Code (RCW 90.03.380). A water right holder may initiate a transfer by applying to Ecology or a Conservancy Board. As part of the transfer process, a seller may need to complete a SEPA checklist and follow the Washington SEPA process if the transfer is above the threshold for being exempt (WAC 197-11-800 (4)). If the transfer meets the requirements, then there is a SEPA process that will be followed.

Water Transfer Working Group

In the Yakima Basin, transfers typically require approval of the Water Transfer Working Group (WTWG) to also get Ecology's approval. The 2001 drought spurred creation of the WTWG by the Conservation Advisory Committee to the Yakima River Basin Water Enhancement Project and the Superior Court during the Acquavella adjudication. In March 2001, representatives from the USBR, Yakama Nation, WDFW, USFWS, NMFS, Ecology, and irrigation districts developed a set of criteria to streamline evaluation of temporary transfers and make recommendations on the transfer to Ecology. The criteria and the WTWG are valuable tools to streamline transfers in the Yakima Basin.

The basis of WTWG's process is a checklist of the legal and operational requirements for approval of a transfer. Transfers that fit the checklist's "boxes" are approved but transfers that do not fit are subject to further scrutiny. The checklist approach was originally intended for drought years; however, its success made it useful for all transfers. It was ultimately adopted by the Adjudication Court as a form of primary review of transfers.

As identified in the Recommendations, the continued presence and input of the WTWG is key to the smart market strategy. We envision that the rules governing the smart market would be pre-approved and annually audited by the WTWG and Ecology, such that parties matched in the smart market implicitly meet the criteria of the WTWG checklist.

Agreements for Smart Market Participation

Participation in the smart market will likely require at least two forms of agreement. The first is acceptance of the terms and conditions to participate in the smart technology. This is similar to the requirements of buying many physical forms of technology that require users to first accept basic terms and conditions before they may use the technology. A draft of the Terms and Conditions are included in Appendix 3.

The second form of agreement is between the buyer and seller. This may take the form of a Purchase and Sale, Lease, or other suitable form of agreement between the water right owner and the successful buyer. No detailed example is provided in this strategy as the actual forms will be developed either by the market administrator, closing agent, or between individual buyers and sellers, who must inform that market administrator that such an agreement has been executed.

Issues to Resolve for Implementation

Water Right Ownership

To participate in any water market, the seller must bring a validly owned water right (or right to irrigation district water allotments) with known attributes to the market. Most water right holders in the Yakima Basin own their water rights and generally know the key attributes of their rights. However, for some users a critical step in the market/transfer process is identification of the water available for transfer. This requires evidence of actual ownership (including limitations on ownership like a mortgage) and then what water uses are authorized. This step is

not possible through the smart market and could be a significant hurdle to market participation. However, ownership may be proven through a title policy.

Streamlined Processing

Validity of a water right must be established before a trade can occur. Ecology's process for changing a water right includes an extent and validity determination and takes about a year to complete. This process could be streamlined similar to the drought year process and Ecology could provide a letter affirming the basic water right attributes. We recommend coordination and agreement with Ecology to develop a standardized and streamlined process to determine extent and validity.

Another possibility is to have the smart market administrator contract with (or staff internally) a Certified Water Right Examiner to facilitate investigation of the extent and validity of the water right and create efficiencies in the transfer process. This may require a statutory change or rulemaking to allow. The statutory change to formalize its use would be a simple extension of the proof examination purpose described in RCW 90.03.665(1).

Legal Needs

A closing may be required for each transaction. The market administrator may develop an agreement with a title company to complete the closing process (including any Real Estate Excise Taxes). A closing does not necessarily require a licensed real estate professional or attorney.

Transaction Tracking and Water Monitoring

Transaction Tracking

Water market participants would have records of their submitted bids and offers, as well as executed transfers, contracts, financial transactions, documentation from the water manager (such as an approval decision), and terms and conditions. After participants are matched with other trading parties, they would receive updates and documentation for each step of the process, such as submitting a transfer application, receiving the Report of Examination (ROE), and finalizing the lease contract and financial transaction.

The water market administrator would submit the necessary records to the respective water manager, Ecology or the irrigation district, such as the transfer applications. Any approved transfers would require the water manager to coordinate with Ecology to update the water records so that the correct diversions and deliveries are made.

Monitoring and Enforcement

The monitoring and enforcement of a water transfer would be managed as part of the current Yakima Basin monitoring and enforcement practices. If an irrigation district water right is traded, the responsibility falls upon the respective district(s) to update records and monitor and enforce water use. If a privately held water right, then Ecology is responsible for updating water rights records, monitoring diversions, and enforcing water rights.

State law requires that water users meter and record water diversions. Measuring of all water rights over 1.0 cfs also comes with a requirement to report the diversion records to Ecology. Rights less than 1.0 cfs require that diversion records are kept on a 5-year rolling basis.

Presently, Ecology employs 1.5 Water Masters for the Yakima Basin. These Water Masters receive assistance from a limited number of Stream Patrollers. Additional staff may be necessary to monitor market-based transfers.

In drought years the need for monitoring is likely greater than non-drought years due to the sheer number of potential transfers. Moreover, the transfer location and type will greatly influence the need for monitoring. For example, a transfer of a single water right that results in fallowed acreage (temporary and permanently) will likely reduce the burden at the fallowed acreage (assumes remote sensing to

simplify monitoring) but may result in additional burden at the new acreage depending on the water use.

The Water Resources staff in Ecology's Central Region Office is responsible for water management beyond the Yakima Basin. This could strain staff resources in water short years. A 2005 report from the YRBWEP CAG provides recommendations for water management and enforcement. A key strategy from that report is the use of Stream Patrollers; however, this step would require additional funding and is likely impractical to roll-out only during periods of water shortages.

Recommendations for Implementation

Successful implementation of the smart market strategy will require additional work beyond this report. Key steps include the following:

- We recommend a simplified process for determining the tentative extent and validity of water rights for the purpose of entering the smart market. Determining water right extent and validity is necessary for confidence in the market. Streamlining this determination step will allow potential market participants to gage how much time and cost is required. Coordination and agreement with Ecology on a water right's extent, validity, and eligibility to enter into the smart market are foundational to streamline transfers.
    - Example 1. To the extent possible, Ecology could adopt a policy that allows a certified water rights examiner to conduct a review of the water right and water use to produce a statement of water use[5] for review, modification, and acceptance by Ecology water resource permitting staff. Ecology will have a limited time to review and modify or reject the water use amounts. Ecology can accept the water use amounts by taking no action within a reasonable time. Smart market administrators can allow Ecology's acceptance/approval of the water use amounts as the first step to entering the smart market.
    - Example 2. To the extent possible, Ecology could adopt a policy that allows the WTWG members to conduct a limited review of the statement from Example 1. The WTWG review would contain a recommendation to Ecology on the water right's use. Based upon past approaches, the WTWG has been open to streamlining their processes depending upon the ability to ensure the box criteria are still met. Ecology will have a limited time to review and modify or reject the water use amounts. Ecology can accept the water use amounts by taking no action within a reasonable time. Smart market administrators can allow Ecology's acceptance/approval of the water use amounts as the first step to entering the smart market.
- A part of the review of water for entry into the smart market may require water diversion records. We recommend coordination and agreement with

[5] A CWRE process can improve efficiencies but will likely require statutory changes or rulemaking. A coordination agreement for streamlining would be helpful.

Ecology, Reclamation, counties, and any other relevant agencies on access to relevant and up-to-date data and records.

- To further streamline the processing and eliminate review of individual water rights, we recommend that Ecology, in coordination with the WTWG, should annually audit the smart market rules for consistency with Yakima Basin transfer rules and requirements. Upon approval and before the market begins, that year's smart market matches will be considered to have no third-party impacts (no impairment to other water rights). The particular details and timing would need to be coordinated and agreed upon by Ecology, the WTWG, and the market administrator.

- In non-drought years, there is a public notice requirement for Ecology to approve water right transfers. Ecology could adopt a practice and policy that allows a programmatic public notice approach of all potential water rights.

- We further recommend coordination and agreement with Ecology on the framework for determining the transferrable quantity of the water right (e.g., its consumptive use) and the resultant diversion authority. Consumptive use calculations must be standardized and easily determined, such as using the Washington Irrigation Guide and WSDA crop data layer. The framework should include consumptive use values for drought years.

- Monitoring and Protection of transferred water must be a priority. We recommend Ecology request assistance to develop and support more stream patrollers. If annual funding is not possible, a Stream Patroller reserve program could be developed and implemented during drought years. Coordination with Ecology will be required.

- To assist with monitoring and protection, we recommend greater reliance on remote sensing technologies (e.g., satellite imagery such as OpenET or telemetered devices on diversions) to reduce burden on existing Ecology staff resources.

- Market-based transactions exist but are limited by inefficiencies (statutory constraints and competing workload priorities for water managers). We recommend development and implementation of a smart market, in addition to any necessary data tools or integrations, tailored to the Yakima Basin.

- Outreach with basin-wide stakeholders to grow awareness of and confidence in the strategy.

- Coordination and agreement with Ecology on the framework for determining the transferrable quantity of the water right (e.g., consumptive use) and resultant diversion authority.

- Coordination and agreement with Ecology, Reclamation, counties, and any other relevant agencies on the reporting and documentation of executed trades, and any other terms of transfer. This includes reporting and documentation from the market participants to the relevant water agencies and vice versa.

- Coordination with one or more interested irrigation districts for development of an intra-district smart market.

- Development of the online market platform and any necessary data tools or integrations.

Stakeholder Support

The project team used a Technical Work Group (TWG) for feedback on the strategy development process. The TWG was composed of basin stakeholders and included representatives from Yakama Nation, Kittitas Reclamation District, Roza Irrigation District, Naches-Selah Irrigation District, the Washington Department of Ecology, private water right holders, Kittitas County, and retired technical experts on water transfers in the Yakima Basin. A full list of TWG members is found in Appendix 1.

During the course of this project, different elements of the market strategy were presented to the TWG and their feedback solicited. The project team incorporated the feedback and modified the approach to address TWG member concerns and recommendations. The entire strategy was presented to the TWG group in early May of 2022 for review and discussion. At that time, the project team solicited and incorporated feedback on the entire strategy. The project team presented an updated draft strategy to basin stakeholders in May, June, and July 2022 to receive feedback. TWG feedback was incorporated into the revised drafts.

The draft strategy and accompanying Technical Report were also released for public comment in July. The draft Technical Report with draft market strategy were also provided to U.S. Bureau Reclamation staff in spring and summer 2022. Comments/feedback were received from Ecology and the executive director of the Yakima Basin Fish & Wildlife Recovery Board. A comment tracking table is included as Appendix 4.

As a key part of meeting the Market Reallocation Element of the Yakima Basin Integrated Plan, this strategy has generally received support from the TWG, which includes irrigation districts, private water users, Ecology, and the Yakama Nation. TU supports this project as an environmental group and discussions with local USBR staff have demonstrated general support.

Appendix 1: Technical Work Group Members

The Technical Work Group was a subset of Yakima Basin stakeholders and the project team. The TWG provided feedback and guidance on the project. Members and their affiliations include:

- Bob Barwin, (ret) former water resources professional
- Jeff and Jackie Brunson, private water right owners
- Michael Callahan, WA Department of Ecology
- Kelsey Collins, WA Department of Ecology
- Peter Dykstra, TU's outside legal counsel
- Urban Eberhart, Kittitas Reclamation District
- Justin Harter, Naches-Selah Irrigation District
- Kevin Haydon, WA Department of Ecology/USBR
- Trevor Hutton, WA Department of Ecology
- Lisa Pelly, Trout Unlimited
- Nick Plath, private water right holder/user
- Scott Revell, Roza Irrigation District
- Tom Ring, (ret) former water resources professional
- Kat Satnik, Kittitas Reclamation District
- Jeff Slothower, Lathrop, Winbauer, Harrel, Slothower & Denison L.L.P., attorney for Kittitas Reclamation District
- Danielle Squeochs, Yakama Nation
- Arden Thomas, Kittitas County
- Cory Wright, Kittitas County
- Richael Young, ERA Economics and Mammoth Water

Appendix 2: Definitions

1. Clearing Cycle: the period between when the market is run and matches are made. It can be longer (monthly, weekly) or shorter (daily, near real-time).

2. Water Transfer Working Group: a voluntary team of agency representatives, water managers, and water users who provide technical review of proposed water right transfers in the Yakima River basin. The group identifies water right transfers that could be quickly and easily approved. (from Ecology's website)

3. Proratable irrigation entity: a district, project, or State-recognized authority, board of control, agency, or entity located in the Yakima River basin that: manages and delivers irrigation water to farms in the basin; and possesses, or the members of which possess, water rights that are proratable during periods of water shortage. (from YRBWEP Phase 3 legislation -- https://www.govinfo.gov/content/pkg/CRPT-115srpt107/html/CRPT-115srpt107.htm)

4. Proratable water supply: means that portion of the total water supply available that is subject to proration in times of water shortage. (from YRBWEP Phase 3 legislation -- https://www.govinfo.gov/content/pkg/CRPT-115srpt107/html/CRPT-115srpt107.htm)

5. Stakeholders: all parties with an actual or potential interest in water use in the Yakima Basin. (Internal definition)

6. Smart market: a smart market is an electronic clearinghouse that matches buyers and sellers of water by price point and regulatory constraints. (ERA Economics)

7. Conservancy Board: a board created by the local county legislative authority, subject to approval by the director of Ecology, for the purpose of expediting voluntary water transfers within the county. (RCW 90.80.020)

Appendix 3: Terms & Conditions

TERMS AND CONDITIONS OF YAKIMA BASIN SMART WATER RIGHTS MARKET PARTICIPATION

If you are interested in being a purchaser in the Smart Market, please complete Sections 1, 4, and 5 below.

If you are interested in being a seller in the Smart Market, please complete Sections 2 and 3 below.

SECTION 1

Purchaser Name:_____

Purchaser Address:_____

Purchaser Phone Number:_____

Purchaser Email Address:_____

SECTION 2

Seller Name:_____

Seller Address:_____

Seller Phone Number:_____

Seller Email Address:_____

SECTION 3

Water Right Information:

Claimant Name: _____

Court Claim No. _____

Certificate Number: _____

Subbasin: _____

Source: _____

Use: _____

Period of Use: _____

Quantity: _____

Priority Date: _____

Point of Diversion: _____

Place of Use: _____

_____

_____

Limitations of Use: _____

SECTION 4

Legal Description of Purchaser's Property on Which Water Right Will be Used: _____

_____

_____

SECTION 5

Description of Use Purchaser Intends to Put Purchased Water to: _____

_____

_____

Terms and Conditions:

1. Not all water rights are capable of being bought and sold through the Smart Market. The undersigned acknowledges that the market coordinator will make the final decision on whether this application may be accepted for participation in the market.

2. The undersigned acknowledges that if the undersigned is matched with a willing Purchaser or Seller, as the case may be, that the market coordinator is not responsible for negotiating and preparing a water purchase agreement. The parties are responsible for negotiating and consummating any transaction arising out of the Smart Market. The undersigned acknowledges and agrees that all such transactions must be reduced to writing.

3. Closing of a transaction may be contingent upon the timely satisfaction of one or more of the following events, which events may be referred to as "contingencies".

3.1 Purchaser's Review of Water Rights. Purchaser's determination, in Purchaser's sole discretion, of the condition of title for the Water Rights and such other information as may be reasonably necessary to confirm Seller's ownership of the Water Rights and showing title to the Water Rights to be free and clear of all encumbrances, which determination and approval shall be made or waived by Purchaser within sixty (60) days of the mutual execution of an Agreement.

3.2 Purchaser's determination and approval, in Purchaser's sole discretion, of the extent, validity, and prior use of the Water Rights. Seller shall undertake and diligently pursue the reasonable confirmation to Purchaser of the validity, prior use and freedom from defect of the Water Rights; provided that all costs of such confirmation shall be the responsibility of Purchaser. In the event Purchaser reasonably determines, in Purchaser's

sole discretion, that such confirmation cannot be obtained, then Purchaser may terminate this Agreement whereupon the earnest money shall be returned to Purchaser.

3.3 Title Insurance. On or before the date of closing, Purchaser's review and approval of Seller's title to the Property, which shall be free and clear of all encumbrances or defects except for those which are acceptable to Purchaser. Encumbrances to be discharged by Seller may be paid out of purchase money at date of closing.

3.4 Until such time as the Transfer has been completed, Seller shall continue to use and manage the Water Rights on the property owned by Seller and/or maintain the water in the Yakima River Basin Trust Water Rights Program. Purchaser and its employees, representatives, and agents shall, at reasonable times and upon the giving of reasonable notice, have the right to enter upon said property to ensure the Water Rights are being used and managed in a manner that will not adversely impact the Transfer, and to gather such information as Purchaser deems necessary to obtain approval for the Transfer as contemplated by Purchaser.

3.5 Water Right Transfer Process. Approval by the Department of Ecology of the transfer of the Water Rights. Approval shall be deemed given when all appeal periods applicable to Ecology's decision have expired without an appeal of Ecology's approval of the transfer. In the event there is an appeal of Ecology's decision by any party then, in that event, Ecology's decision shall not be final until a complete resolution of all appeals.

3.5.1 In the event the Department of Ecology denies the transfer of Water Rights then in that event, at Purchaser's option, to be exercised in Purchaser's sole and absolute discretion, this Agreement will be null and void and Purchaser shall be entitled to a complete refund of the earnest money.

3.5.2 In the event Ecology approves the transfer in part, but not all, of the Water Right as set forth in Paragraph 1.1 or in the event Ecology attaches terms and conditions to the transfer of the water, then, in that event, Purchaser has the option, to be exercised in Purchaser's sole and absolute discretion, to cancel this sale and receive a full refund of the earnest money. Purchaser must elect to cancel this sale within 21 days of Ecology's decision becoming final pursuant to Paragraph 3.5.

3.5.3 Seller recognizes that in order to satisfy the contingencies Purchaser and Seller must go through a water rights transfer process with the Department of Ecology. Seller agrees to provide to Purchaser, when requested, any and all documents, records, or other information Purchaser may need to facilitate and accomplish the transfer when requested by Purchaser. The cost of the water rights transfer shall be based on an agreement between the Parties which will be reduced to writing.

3.5.4 The application and all matters necessary for final approval and satisfactory resolution of all appeals (hereinafter the "Transfer") shall be at Purchaser's sole cost, risk and control; provided, however, Seller shall cooperate with Purchaser, or Purchaser's successors or assigns, and shall not object to the Transfer.

4. Seller and Purchaser recognize that part of the transfer process requires the Department of Ecology to make a tentative determination of the extent and validity of the water right. Seller also recognizes that Ecology, in processing the transfer of water rights, follows certain statutes and administrative code provisions. Seller also recognizes that in applying the statutes and administrative code provisions, Ecology interprets the statutes and administrative code provisions in a manner which is beyond the control of Seller and Purchaser. Ecology's processing of the transfer request may result in all or part of the water right being determined to be relinquished. Seller agrees to assume the risk of all or part of the water right being relinquished and agrees to hold Purchaser harmless from any and all damages, loss or water or property rights which may occur as a result of the transfer process.

5. Seller's title to the Water Rights is to be free and clear of all encumbrances or defects. Encumbrances to be discharged by Seller may be paid out of purchase money at closing. Title to the Water Rights shall be conveyed by Special Warranty Deed. Seller shall cooperate with Purchaser in executing any reasonably necessary documents relative thereto.

Appendix 4: Draft Technical Report and Draft Strategy Comments & Responses

Comments received in response to requests for feedback; two sets received. Page numbers referenced refer to the DRAFT Technical Report and Market Strategy.

Set 1. Comment Set 1 was from the Washington Department of Ecology (accompanying letter included, resized to fit page).

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Central Region Office
1250 West Alder St., Union Gap, WA 98903-0009 • 509-575-2490

SENT VIA EMAIL:
Justin.Bezold@tu.org

August 15, 2022

Justin Bezold, Project Manager
Trout Unlimited
119 West 5th Ave., Suite 201
Ellensburg, WA 98926

Re: Comments on DRAFT Technical Report Re Water Markets for the Yakima Basin
US Bureau of Reclamation Agreement No. R17AP00311 and
WA Department of Ecology Agreement No. WRYBIP-2019-KittRD-00005

Dear Justin Bezold:

Thank you for the opportunity to comment on the draft Technical Report and Market Strategy prepared by Kittitas Reclamation District in partnership with Trout Unlimited.

The detailed comments of the Water Resources and Office of Columbia River programs are enclosed with this letter. The majority of our comments relate to how the proposed smart market would fit within existing statutory requirements and how the limited resources of Ecology could support operation of the smart market. We emphasize that there is strong support from both programs for robust monitoring technology being required of all participants in the market.

Thank you again for the opportunity to comment. We look forward to continued collaboration in the effort to increase market reallocation of water during droughts. If you have any questions or would like to discuss these comments further, please let us know.

Sincerely,

Scott Turner, Section Manager
Office of Columbia River
Central Regional Office

Heather Simmons, Interim Section Manager
Water Resources
Central Regional Office

ST:HS:SS/220804

Page Number	Comment	Response
190	Second to last bullet: While the Water Master Function document may lay a rough framework for compliance, monitoring, and enforcement, the reality is Ecology is woefully underfunded at this time to carry out these functions for the existing system. The influx of potential compliance issues/increased demand on the existing water masters resulting from the implementation of a smart market could overburden these positions. I suggest exploring alternative methods to achieve the monitoring function for these agreements. Consider requiring smart market participants (buyers and sellers) to install telemetered meters to aid in accountability and transparency. If disputes occur, it may be worth exploring if these issues could be handled in court rather than by Ecology enforcement personnel. Last Bullet: Similar to the comment on the bullet above, Ecology is concerned that water masters will be the suggested mechanism to achieve this function. Given the potential number of transfers that could occur during drought years and potential organization revenue from administration of a smart market, the burden should be shouldered by the Water Market Administrator and transaction costs should be adjusted accordingly to cover this expense. It is understood that the Water Market Administrator may not have the authority to effectively enforce or ensure compliance with transactions, but there could be a mechanism for them to gather data demonstrating non-compliance, which could then aid or expedite enforcement by Ecology. Stream patrollers or another mechanism for a particular tributary or portion of the basin would be helpful, but resources would have to be identified and funded by the Water Market Administrator.	Thank you for the feedback. This has been addressed in the document. Market assumes there would be a mechanism built-in for metering/enforcement that would be necessary for any transfer. It is inappropriate to expect the market to take on a role that is statutorily required of Ecology.

211	Market Rules and Simulations, Bullet 3: "Curtailment is based upon the priority date of the water right; 100% curtailment if dated after May 10, 1905 (a junior right) and 0% if before (a senior right)." This rule may inflate the assumed water available for trade. For example, we are currently experiencing a healthy water year where TWSA supply is 100%. In some cases private water right holders with senior water rights may experience curtailment on the tributary streams to a greater degree compared to those receiving project water. For example, 1880's priority Naneum creek private rights have been curtailed due to lack of availability. Based on the stated rule, the market simulation would not know to exclude these from the bucket of potential senior transfers.	Thank you for the feedback. We added clarifying text in this section that a smart market in practice would have to incorporate more sophisticated rules. Because they were not available at the time of this study, we made simplifying assumptions that would approximate how water trading works in the Yakima Basin.
216	Table 4: Looks like more water is traded with a $50/ af cu incentive than with $100/ af cu incentive, which seems counterintuitive. The table is confusing to interpret. Is there another way to express this point other than using this table?	Thank you for the feedback. We removed the table but left the intuition describing the findings, which improves the clarity.
223	Second Paragraph: Replace the word, "trust" with "confidence" (also throughout the document).	Thank you for the feedback. Trust is replaced with confidence in this instance.
229	Remove any reference in the Report to donation(s) of water rights. This Report is about transfers, not donations.	Thank you for the feedback. This has been addressed in the document. The word donation was used to highlight an example. The comment is noted but removal is not necessary
230	Second Paragraph: "Use of a smart market (this strategy) will help eliminate market access limitations and provide a pathway for greater stakeholder participation." This statement is not necessarily true. Based on the regulatory constraints present in the Yakima basin, it	Thank you for the feedback. Language clarified in the strategy.

	has been established that the smart market would be suitable to streamline the buyer/seller matching process for simple trades, and is not suitable for trades where a high degree of complexity and subsequently additional regulatory review is required.	
237	Additional Metrics to Track: . What duration participants are seeking, - a certain number of years or permanent? . What portion of rights are being offered - whole rights or just small portions?	Thank you for the feedback. We have updated the tracking metrics to incorporate these ideas.
239	The Legal Framework section discusses all possible transactions within a smart market (drought year leases, multiple year leases, and permanent transfers), which provides an opportunity to think about how such transfers might be processed. However, long-term leases and permanent transfers require significant involvement by Ecology. The efficiencies discussed in the Report that would alleviate some of Ecology's workload would require statutory changes (e.g., use of CWREs, see pg. 242), which are time-consuming and uncertain. We recommend that the Report focus first on how a smart market limited to leases under 5 years and/or limited to drought years could be executed quickly with significant efficiencies. Beginning with that type of market as a pilot program would be more palatable for the skeptical stakeholders in the basin. The Report should make it clearer that there are significant challenges to realizing long-term and permanent transfers within the framework of a smart market. <u>Footnote 4</u>: "The TWRP is not being considered for smart market administration." The report needs to be clearer about how direct transfers may be used in place of the Trust Water Rights Program.	Thank you for the feedback. This has been addressed in the document. Each type of transfer within the smart market will require different levels of involvement from the market administrator and Ecology. These levels will be resolved as the market develops. Some transactions will be direct transfers and will not engage the TWRP. In some cases, the TWRP may improve the transfer efficiency when a willing seller has their water rights donated or otherwise within the TWRP; however, those rights not in the TWRP may be directly transferred and will not involve the TWRP.

240	Rules and requirements...: Need to finish the initial paragraph.	Thank you for the feedback. This has been addressed in the document.
241	Agreement for Smart Market Participation, First Paragraph: Recommend deleting "(e.g., phones, computers, etc.)" Agreement for Smart Market Participation, generally. A smart market should assist with or make recommendations for: • Proving ownership • The form of agreement between participants Closing (so participants don't need to hire a real estate broker or attorney)	Thank you for the feedback. This has been addressed in the document. Additional language added to the relevant sections to address the comment. • Ownership may be proven through a title policy. • due the form to be developed and approved by the market administrator. Amended text under Legal Needs addresses the comment. A title company can close a water rights transaction.
242	Second Paragraph: The need to change statute to be able to use CWREs for processing changes is a major hurdle, not a "simple extension." While the language being added may be brief and/or simple, the process for making a statutory change is arduous. (See also, comment below re page 245, Example 1.) Legal Needs: If the administrator intends to close financial transactions of real property, then having a licensed real estate professional on staff may be necessary. The administrator could avoid this additional staffing need by partnering with a local title company to close the transactions.	Thank you for the feedback. This has been addressed in the document. Clarifying text added: "and create efficiencies in the transfer process. This may require a statutory change or rulemaking to allow." Amended text under Legal Needs addresses the comment. A title company can close a water rights transaction.

243	Monitoring and Enforcement: This section describes metering and monitoring requirements based on quantities, and then goes on to describe the function of water masters in the basin. When a drought occurs, water masters' time is spread very thin due to an influx of complaints around water availability. Adding an obligation to monitor and enforce the smart market, which would also experience peak demand during drought years, may be unrealistic. To mitigate for the additional burden to Ecology personnel due to smart market activity, it may be beneficial to specify in the terms and conditions for participation that metering and reporting are required for both buyers and sellers. Is there a way to structure the leases or purchase and sale agreements to specify that disputes are settled in court rather than creating an additional burden for Ecology?	Thank you for the feedback. This has been addressed in the document. Market assumes there would be a mechanism built-in for metering/enforcement that would be necessary for any transfer. It is inappropriate to expect the market to take on a role that is statutorily required of Ecology. Disputes between buyers and sellers will be a civil matter between the two parties. Agreement structure could define whether a court or mediation is required but is a determination to be made by the market administrator.
245	Example 1: The use of CWREs for review of water rights entering the smart market may not be cost- efficient. The concern is this could add significant expense to the process, which would contribute to decreased market participation, as expense was cited in the Report as a deterrent (see Section 3.1, Transaction Costs at page 16 of the Report). An additional concern is that CWREs are not currently authorized by statute to determine extent and validity and the process of even a simple change to statute is very involved. The smart market administrator should advise participants to investigate their water rights in advance of taking steps to place them in the smart market, including contracting with a consultant to assist them if necessary. An alternative could be to negotiate a streamlined	Thank you for the feedback. This has been addressed in the document. Additionally: • Clarifying footnote added. • A CWRE process can improve efficiencies but will likely require statutory changes or rulemaking. A coordination agreement for streamlining would be helpful. • Agreed,

	review process within Ecology, which could be feasible given the three-pronged criteria proposed for water rights entering the smart market (see p. 231 of the Report). Those criteria would prevent consideration of rights with complicated histories or questionable attributes. Example 2: Would need to confirm the WTWG would agree to review smart market CWRE reports in an expedited manner rather than as part of their regular monthly project review. Last Paragraph: What do the authors mean by "easily accessible" metering records. Is this recommendation for a global publication of all metering records stored by Ecology, or just those to be reviewed on a case-by-case basis for smart market water rights? If the recommendation is the former, then that may be an uncertain threshold to place before creation of a smart market. The Report should describe this in more detail.	coordination with the WTWG will be necessary. • Based upon past approaches, the WTWG has been open to streamlining their processes depending upon the ability to ensure the box criteria are still met.
246	First Paragraph/Bullet: This annual requirement to "audit the smart market rules" would need to be specifically agreed upon by Ecology and the WTWG to ensure that time and resources can support this. Second Paragraph/Bullet: Ecology can only "adopt a practice and policy that allows a programmatic public notice approach" if that is supported by statutory requirements for public notice. If this recommendation included that consideration, it would be stronger. Third Paragraph/Bullet: Is this referring to water use by crops and irrigation type provided in Appendix A of the WIG? Updating the WIG is in process by NRCS. Fourth Paragraph/Bullet: Adoption of a single tool to determine past water use would need to be negotiated with Ecology. Is this adoption of a single tool intended to pertain only to the smart market? Ecology uses multiple tools in its	Thank you for the feedback. This has been addressed in the document through additional and revised language. Specific language added to third and fourth paragraph/bullet is: We further recommend coordination and agreement with Ecology on the framework for determining the transferrable quantity of the water right (e.g., its consumptive use) and the resultant diversion authority. Consumptive use calculations must be standardized and easily determined, such as using

	regular practice agency-wide. Fifth Paragraph/Bullet: The shortage of stream patrollers to monitor and protect transferred water is an existing and ongoing staffing issue at Ecology. (See also, comment re p. 190 above.) However, Ecology believes that its partners and stakeholders would view an increase in staff stream patrollers positively. Last Paragraph/Bullet: The report calls out satellite imagery as a remote sensing tool to assist with monitoring and protection. We suggest also specifically calling out and actually requiring telemetered devices on all diversions for transferred water.	the Washington Irrigation Guide and WSDA crop data layer. The framework should include consumptive use values for drought years.
246	Last Paragraph/Bullet: This is a good suggestion and would make the market more viable. Having telemetered meters would be the gold standard and should be the goal.	Thank you for the feedback. This has been addressed in the document.

Set 2. Comment Set 2 received from Alex Conley, executive director of the Yakima Basin Fish and Wildlife Recovery Board.

Page Number	Comment	Response
General	Cool to see this- a lot of good info that helps us make real progress towards broadening use of water trading in the Yakima! Thanks for pulling this together and excited to hear what the next steps are for refining the proposal and implementing a Smart Market!	Thank you for feedback.
General	The document comes across as a loose collection of different parts- it would really benefit from an executive summary/overview at the beginning that describes each piece and its role in the total. I didn't even realize that the draft strategy was there till page 220, when really that is the most important piece and the rest best presented as background/appendix. Also worth highlighting the modelling of a frictionless market right up front- that there could be demand for as much as 180kaf of	The document is re-organized.

	transactions if the system allowed is a pretty impressive finding!	
118 and 209	both show Ahtanum Creek as a 2 (moderate instream flow need); Ahtanum is a critical flow limited trib that would seem to merit a 1. In contrast some Ellensburg area tribs like Parke, Cook and Caribou and Cherry Creeks shows up as 1s even flow is not the primary limiting factor in those creek (largely due to irrigation conveyance and return flows that mean summer/fall flows tend to moderate to high even as natural flow to paper diversion amounts make them look flow limited).	Thank you for the comment. The basis of the values is the Columbia River Instream Atlas. The values were then adjusted using professional judgment based on system specifics, such as location and return flows. These values are subject to change.
172 3.1	has an editorial insert stating (need a better word). This should be addressed and removed.	This has been fixed.
173	It would be good to clarify what the bar for not considering a transfer due to 'negative operational considerations for the Bureau' is- otherwise good proposals that require minor adjustments/changes should be considered, like all the KRD trib supplementation, which has required significant adjustments in operations.	This has been addressed in the document. These rules are kept simple to allow flexibility. The phrase "negative operational considerations" should not be confined to a single definition at this time.
175;	paragraph at top references a decision expected in late 2021 or early 2022. Since it is mid-2022, this should be updated.	This has been fixed in the final version.
231	It seems premature to say that "a smart market would not be as valuable for inter-district trading" based on the limited # of players. While it would be slightly more complicated, a smart market could really help facilitate districts identifying participants within their districts to bundle offers from and purchasers willing to fund an interdistrict transfer in exchange for access to a portion of transferred water.	Thank you for the feedback. We revised the language in the market strategy to address this point and clarify why inter-district trading was not included at this time.
231-	While the prohibitions against transfers of stacked water rights and upstream moves makes sense for trades that move consumptive use, there should be room for environmental trades of stacked water rights (which often create reach benefits in tributaries, while delivering the same net amount to downstream TWSA users) and upstream water rights moves (specifically, when moving a diversion on a high priority tributary (where a few cfs make a big difference) to an upstream mainstem diversion	This has been addressed in the document Upstream transfers of water rights may be allowable but would require a level of individualized analysis that is not suitable for the present strategy.

	(typically lower priority and where a few cfs in a minimal proportion of flow) does not harm intervening water right holders and does not impact TWSA.	Upstream transfers could be allowable as appropriate data are available.
236	footnote #2 notes “as stated earlier” but I do not see the exclusion of Yakama Nation water rights from the smart Market mentioned earlier in the Strategy Document. Do add that text (perhaps on p231?)	This statement is made in the introduction to the overall document.
245	last bullet requires water diversion records from the metering database. Given the rather incomplete implementation of diversion metering (especially for individual turnouts within districts) will there be alternate ways to prove use?	Thank you for the feedback. Clarifying language added.
246	4th bullet ends in a sentence fragment “Acceptance of a common”	Thank you for the feedback, this was addressed.
254	on· the sample agreement form and associated exhibits A·C seem to be for a multi·year option to be purchased by the Department of Ecology for leases to instream use (see H reference to DOE as partner, Sec. 4 Requirement for instream flow to be identified as beneficial use, Sec 5 language on what years lease can be exercised, etc). This is not what is proposed in the strategy, so this should be replaced with an agreement for a one·time lease between water users.	Thank you for the feedback. The reference/sample agreement has been removed.

Section 2: Outreach

Outreach and Partnership Building. This section provides a description and overall summary of planning and outreach activities conducted from March 2019 through September 2022 (project timeframe). These activities, led by TU staff in close coordination with KRD staff and ERA Economics staff, were conducted to inform the market research, obtain feedback during technical analyses, and provide stakeholders information on activities.

Much of this project was conducted during COVID-19 public health crisis. Health restrictions required a shift from in-person meetings to an online/virtual approach. Additionally, uncertainty about the scope and extent (e.g., public meetings limits, length of public health orders) of health restrictions created challenges to schedule outreach in 2020. Project staff shifted the approach and operated within the public health guidelines to successfully conduct project outreach.

Initial stakeholder outreach and partnership building began in early 2019. Initial efforts focused on refinements to the outreach approach and formation of the Technical Work Group ("TWG"). The TWG was composed of:

- Arden Thomas, Kittitas County
- Kelsey Collins, WA Department of Ecology
- Cory Wright, Kittitas County
- Danielle Squeochs, Yakama Nation
- Trevor Hutton, WA Department of Ecology
- Jeff and Jackie Brunson, private water right owners
- Jeff Slothower, attorney (KRD)
- Justin Harter, Naches-Selah Irrigation District
- Kevin Haydon, WA Department of Ecology
- Lisa Pelly, Trout Unlimited
- Peter Dykstra, attorney
- Bob Barwin, (ret) former water resources professional
- Richael Young, ERA Consultants
- Scott Revell, Roza Irrigation District
- Tom Ring, (ret) former water resources professional
- Urban Eberhart, Kittitas Reclamation District
- Kat Satnik, Kittitas Reclamation District
- Nick Plath, private water right holder/user
- Michael Callahan, WA Department of Ecology

TWG meetings took place from 2019 – 2022 and focused on work completed updates with time for discussion on specific analytical approaches and outcomes. For example, a clear understanding and description of water right transfer rules was a need identified early in the project. The project team identified the review needed and a proposed approach to solve the issue to the TWG. The

TWG provided the reviews, and the project team correspondingly revised the approaches. Moreover, members of the TWG provided reviews and input of the rules at different points of the process; this occurred through emails or phone calls.

The TWG review process was repeated for the different analyses necessary for this project. Three formal TWG meetings occurred prior to the COVID-19 health crisis. For most of 2020, the project outreach was delayed due to uncertainty from the health crisis. In January 2021, we revised the approach and re-initiated TWG meetings until the end of the project; seven additional formal TWG meetings were held during this time. In spring and summer 2022, TWG members provided valuable feedback on the draft market strategy.

The project team used a multi-pronged approach for outreach to non-TWG stakeholders. The first prong was public outreach through press releases, news articles, and a website. A press release was made public around March 2019. The press release helped create additional outreach through news articles in local newspapers. Also in March 2019, the project team began development of a project website: https://yakimabasinwatermarketing.org/ that allowed dissemination of the Technical Report and Draft Market Strategy. Initially, the website was intended to also provide a method for public meeting information; however, public health restrictions limited the websites' application in that regard.

The second prong was outreach to Yakima Basin-based staff from project funders—U.S. Bureau of Reclamation and Washington Department of Ecology. The project team provided two substantial project briefings. In May 2021, the project team covered the progress to date (including challenges), facilitated a discussion about status of technical analyses and impact of COVID on work progress, and provided an update on the planned next analytical steps. In May 2022, the project team again provided an update on project status and next steps, in addition to a robust discussion about the draft market strategy and the process to implement a pilot project based on the strategy.

Further outreach under the second prong was to the Yakima River Basin Water Enhancement Project Workgroup. The workgroup meetings were open to the public and provided an avenue for outreach to large group of water resource professional affiliated with the workgroup and members of the broader public. Workgroup presentations were made in 2020, 2021, and 2022. Additionally, project staff provided quarterly progress updates as part of the Yakima Basin Integrated Plan project updates. These updates are available to the public.

Another direct form of outreach was to a Washington State University complementary project entitled Technology for Trade.[O1] Initial coordination efforts began in February 2019 and continued

[O1] The Technology For Trade project is a multi-year multi-party collaboration funded by the USDA National Institute of Food and Agriculture.

throughout the project. In December 2021, TU provided an update directly to the WSU project members to highlight progress and identify potential mutually beneficial research areas. In June 2022, TU staff provided an update to the WSU project team to further explore interactive benefits between the two projects.

In November 2020, a remote presentation was made to the legislature's Joint Legislative Task Force on Water Resource Mitigation. Project staff provided a presentation in 2020 to the Task Force to help them understand a tool available to address water resource issues in the Yakima Basin. The Task Force was responsible for a review of the treatment of surface water and groundwater appropriations as they relate to instream flows and fish habitat, and to recommend a mitigation sequencing process and scoring system to address such appropriations.

TU staff also provided a presentation to over sixty (60) staff members of TU's Western Water & Habitat Program in January/February 2018. These staff members work on water resource (and fish restoration) projects throughout the western U.S. TU's Yakima Project staff provided the update (and ongoing written updates to senior staff) as an approach that may work in other western basins.

In September 2022, TU's project manager presented to two separate professional groups—5th Annual Water Law in Central Washington (CLE) and Washington State Association of Counties Columbia River Caucus Water 101 Training Program. The presentations included information on the Smart Market strategy approach and technical work. The presentations generated interest and were a valuable source of feedback.

Internally, TU facilitated regular project check-ins with KRD, TU, and ERA Economics (formerly Mammoth Trading). These check-ins were the primary method of providing project updates to key project team members. This regularly resulted in discussions of next steps for planned outreach. Additionally, these check-ins facilitated feedback on some technical analysis steps.

Finally, the draft market strategy and technical report was made publicly available for comments/feedback and specifically provided to U.S. Bureau Reclamation staff in spring and summer 2022.