KLAMATH WATER AND POWER AGENCY

Klamath Water and Power Agency KWAPA

OPPortunities

Bringing You the Latest News on the OPP

Volume I, Issue 4

Welcome to OPPortunities!

You are reading the fourth edition of a series of newsletters that will be issued periodically over the course of the next two years.

The focus will be exclusively on providing updates on how the On-Project Plan (OPP) is coming together.

Inside this issue:

Who's Doing the Work?

The OPP is being prepared by consultants working for the Klamath Water and Power Agency (KWAPA), which was formed in 2008 as a product of discussions among local irrigators, districts, and others in the community. KWAPA consists of public agency members in Oregon and California, all of whom are contractors of the Bureau of Reclamation and provide water delivery within areas of the Klamath Reclamation Project.

KWAPA is an intergovernmental agency under Oregon law and a joint exercise of powers agency under California law.

OPP Moves into Important Third Phase of Development

The Klamath Water and Power Agency (KWAPA) has compiled and analyzed critical background information in the ongoing development of the On-Project Plan (OPP), which is intended to align long-term water supply and demand for the On Project Plan Area (OPPA) of the Klamath Irrigation Project. OPP formulation has now moved into the critical third phase of a four phase development process, and important decisions will soon need to be made.

"In recent months, we have developed key components of the OPP that have led to an estimate of the amount of water needed to align water supply with demand," said Marc Van Camp, of KWAPA's OPP consulting team. "Now we have the tools and data to better evaluate and recommend alternatives to address this supplemental need."

Much of the information developed in the first two phases of the OPP development has a strong technical and legal flavor, and was developed by the OPP consulting team, working in collaboration with the On-Project Plan Advisory Committee (OPPAC). As the OPP further develops, input from OPPAC—which is made up of representatives from Klamath Irrigation Project districts and water companies—will become even more important.

"We are looking for strong input from OPPAC and the public to identify categories of options and how to evaluate and rank those options," said Mark Oliver, the consulting team's representative from CH2M HILL. "We need their help to guide our efforts."

This issue of *OPPortunities* will focus on completion of the foundational phases of the OPP, and tee up the critical issues and decisions that will be required to complete the final two phases of this project.

"Tech Memo" Approach to Developing the OPP

The OPP is being developed on a "build-as-you-go" approach to accommodate input from its irrigation constituents, partners,

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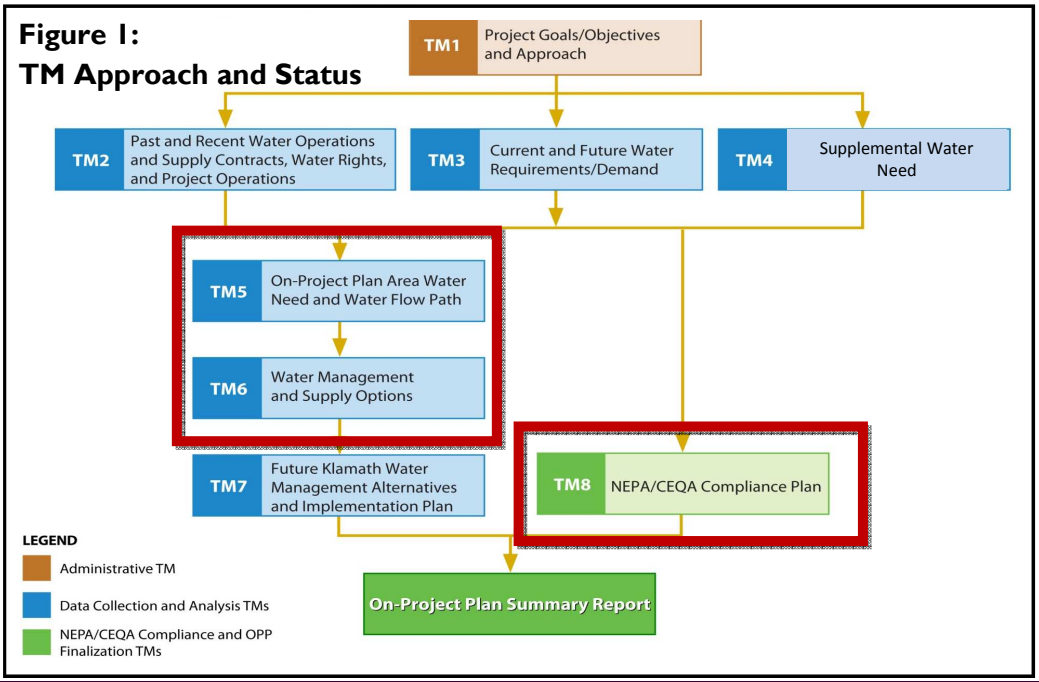
Figure 1:
TM Approach and Status



The OPP Work Group

Hollie Cannon (KWAPA)
Greg Addington (KWUA)
Julie Matthews (KWAPA)
Ed Bair (KWAPA and Klamath Basin Improvement District)
John Crawford (Tulelake Irrigation District)
Bill Ganong (KWAPA Legal Counsel)
Paul Simmons (KWUA Legal Counsel)
Marc Van Camp (Consultant Team—MBK Engineers)
Mark Deutschman (Consultant Team—Houston Engineering, Inc.)
Dan Keppen (Consultant Team—Dan Keppen & Associates, Inc.)
Mark Oliver (Consultant

*"**Supplemental water need** is a conservative or high estimate of the quantity of water projected to be needed above the Limitation on DIVERSION to satisfy the water demand within the OPPA."*

What is NEPA?

The National Environmental Policy Act (NEPA) is a federal environmental law that establishes procedural requirements for all federal government agencies to identify the environmental effects of proposed federal agency actions.

What is CEQA?

CEQA, or the California Environmental Quality Act, is a statute that requires California state and local agencies to identify the significant environmental impacts of new projects and to avoid or mitigate those impacts, if feasible.

Technical Memo Approach to Developing the OPP

TMs and OPP Development Phases Explained (Cont'd from Pg 1)

and OPP stakeholders. To support this, the OPP is being developed through a series of Technical Memorandums (TMs) that will build upon one another and culminate in a summary document.

From a communications perspective, the TM-based approach provides a useful tool to generate consistent, timely and focused updates to stakeholders on progress being made on the OPP.

The OPP Work Group last fall completed TM 1, which was unanimously approved by the OPPAC in September. TM 2 and TM 3 were reviewed by OPPAC on March 22, 2012 and are now finalized. TM 4 was finalized in July after incorporating changes suggested by Reclamation, the U.S. Fish and Wildlife Service, and OPPAC on June 27, 2012.

OPPAC members are listed in the inset box on Page 6 of this newsletter. You can see TMs 1, 2, 3 and 4 in their entirety by going to www.kwapa.org.

We're on the web! www.kwapa.org

OPP Development

The development of the OPP is divided into four distinct phases to assist in the overall planning and resource allocation effort.

Phase I - the preparation of TM 1 – was completed last fall. TM 1 identified the project goals and objectives and approach for development of the OPP. The background and development of the Klamath Basin Restoration Agreement (KBRA), together with the need for the OPP, are also summarized in TM 1.

Phase 2 included the work necessary to complete the foundational TM 2 and TM 3 documents, as well as TM 4, which identified supplemental water needs *(see inset box on this page for definition)* of the OPPA. TM 2 described the water supply and operations for the OPPA. It provides background information on:

- Klamath Project History
- On-Project Plan
- Adjudication and Reclamation Contracts
- Klamath Basin Hydrology
- Water Quality
- Water Supply & Facilities
- Operations Relative to the OPPA
- Groundwater Resources
- Water Supply and Demand Reduction Options

TM 3 addressed current and future water demands associated with current and anticipated future cropping patterns and agricultural land use. It also identified potential changes in cropping patterns within the OPPA and anticipates resulting water needs.

This phase also included the initial efforts for developing TM 5 – Surface Water Flow Path of the OPPA and TM 8 – NEPA/CEQA Compliance Plan.

Incorporated into the development of TM 8 will be ongoing efforts to assess the level of detail and complexity of NEPA/CEQA compliance with the Bureau of Reclamation to implement the OPP *(see inset box, this page, for more on NEPA/CEQA)*.

Also, as an ongoing effort, Phase 2 included outreach efforts and implementation of an agreed upon communication plan.

Phase 3 includes the completion of TM 5 and continuation of TM 8, as well as the initiation and completion of TM 6—Water Management and Supply Options. TM 7—Future Water Management Alternatives and the OPP Summary Report will be initiated in Phase 3.

"Phase 3 also includes continued meetings of the OPPAC and associated OPP Work Group, as well as stakeholder and responsible agency meetings," said Dan Keppen, a member of the OPP consulting team.

Phase 3 began in April and key technical work is scheduled to be complete by the end of 2012.

Phase 4 is scheduled to start in January 2013 and finish in July 2013.

Since the last edition of *OPPortunities,* TM 4 has been completed. TM 5 has been drafted and an initial review has been made by the Work Group. TM 5 is scheduled to be provided to the OPPAC by the end of September. Each of these important developments will be further described in this newsletter, and a brief summary of the water management and supply options identified in the initial stages of TM 6 will also be provided.

TM 4: Supplemental Water Need of the On-Project Plan Area

TM 4 is the fourth in a series of technical memoranda to develop the OPP for KWAPA. This TM has two basic purposes.

First, it provides a conservative estimate of the amount of water needed to align water supply with demand in the OPPA. This is the "supplemental water need", and an estimate was developed in light of the "Limitation on DIVERSION" of Klamath River and Upper Klamath Lake water provided in the Klamath Basin Restoration Agreement (KBRA) and described in TM 2. Subsequent TMs will evaluate and recommend the options and combinations of options in the form of alternatives to address this supplemental water need.

"The types of options we expect to evaluate include conservation and efficiency, storage, groundwater substitution, demand management, as well as other concepts," said Mr. Van Camp.

The second purpose of TM 4 is to provide a level of guidance to the OPPA entities and KWAPA when operating in light of the limitations noted above. This TM evaluates past dry year diversions in order to arrive at estimates of deliveries that would distribute the available Klamath River and Upper Klamath Lake water supply during the summer irrigation period.

"By distributing the Limitation on DIVERSION by month and using an average dry year demand by month, an estimate of the monthly quantity of supplemental water supply necessary to align water supply with demand within the OPPA was calculated," said Mr. Van Camp.

For the purposes of this TM, the March through October (summer period) supplemental water need was the main area of focus. However, the November through February (winter period) Limitation on DIVERSION was also addressed for both agriculture and the Lower Klamath National Wildlife Refuge.

The objective of the analysis, using historic hydrology, was to estimate the maximum supplemental water need that may occur under the Limitation on DIVERSION.

"Calculation of a maximum seasonal supplemental water need provides an estimate of the quantity and magnitude of supplemental water needed for future planning efforts and development of the OPP," said Mr. Van Camp.

The OPP will be developed to adequately address the maximum expected March through October supplemental water need or series of supplemental water needs that may occur during a given time period.

TM 4 describes the methodology used to estimate the maximum supplemental water need for the March through October season, which was determined to be approximately 100 TAF. However, identifying the total seasonal supplemental water

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Settlement Points of Diversion

As defined in the KBRA, Settlement Points of Diversion are specific points at which water from Upper Klamath Lake (UKL) or the Klamath River is diverted to beneficial use. They include A-Canal on UKL, specified structures on the Lost River Diversion Channel, and specified structures on the Klamath River and Lake Ewauna.

Figure 2. Members of the OPP work group met in September 2011 with national wildlife refuge managers to discuss water management challenges at the Lower Klamath National Wildlife Refuge.

OPP Mission Statement

Develop, through an open, transparent, and collaborative interdistrict approach, an integrated plan that provides a strategy with various options for aligning water supply and demand consistent with the KBRA to preserve the On Project Plan Area agricultural, industrial, and municipal economies, and environmental resources.

TM 4—Supplemental Water Need of the On-Project Plan Area (*Cont'd from Pg 3*)

need may not be entirely adequate for the development of the OPP and future planning efforts in complying with the Limitation on DIVERSION. Therefore, an analysis of the supplemental water need on a monthly basis to help define potential operations and planning efforts was performed.

Evaluation of seasonal and monthly historical diversions for the Klamath Project showed significant variability in diversions. For planning purposes, then, the historical pattern of diversions was assumed, and monthly cumulative diversions calculated.

Based on these assumptions, TM 4 provides estimated maximum monthly and seasonal supplemental water need for the OPPA. Due to the variability in historical diversions, a "Dry Year Average" representing the six driest years on record was calculated.

"This dry year template was used to identify an average historical monthly diversion pattern during dry years," says Mr. Van Camp.

The Dry Year Average cumulative percentage was combined with the Limitation on DIVERSION to develop a seasonal "Diversion Guide".

"This Guide is for planning purposes only," Mr. Van Camp emphasized. "It provides a pattern of water historically diverted during dry year types that can be compared to the Limitation on DIVERSION for future operation and planning efforts."

Figure 3 (below) shows what the estimated supplemental water need would be for 1961-2010 time period, if the Limitation on DIVERSION provisions of the KBRA were in place.

TM 4 also evaluated the November through February (winter water period) Limitation on DIVERSION.

"Historical diversions show that in recent years, supplemental water would not have been required to meet demand in winter months," said Mr. Van Camp.

The refuge allocation during the summer period ranges between 48-60 TAF and the initial winter refuge allocation is 35 TAF. No supplemental water requirement was calculated in TM 4 for the refuge.

Results presented in TM 4 show the maximum monthly shortage for agriculture may be on the order of 45 TAF to 55 TAF for a given month. This maximum supplemental water need would have occurred in the past operations in April, May, June or July had the Limitation on DIVERSION been in place. This represents a worst case March through October monthly supplemental water need for the reasons previously identified.

Now that the water demand challenges have been identified and defined, OPPAC will be asked to evaluate the water management and supply options that satisfy these demands. TM 6 marks the beginning of that effort (*see page 6*).

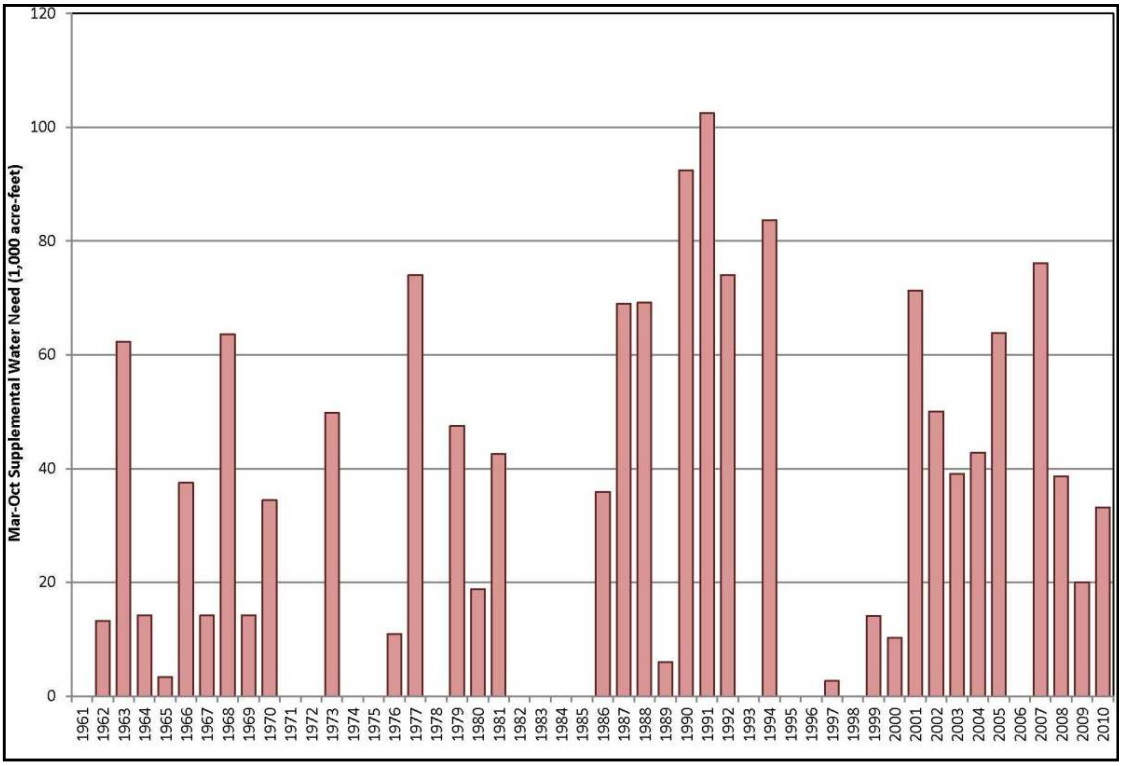

FIGURE 3—Maximum Estimated March through October Supplemental Water Need

TM 5: Surface Water Flow Path of the On-Project Plan Area

The purpose of TM 5 is to document the existing surface water flow paths in the OPPA. This TM will support the development of TM 6 –Water Management and Supply Options (see page 6).

A flow path shows how water flows through a drainage / delivery system and can assist in identifying characteristics such as direction, quantity and quality of water flows.

"Developing a flow path is useful, especially as an educational tool," said Mark Deutschman, with Houston Engineers, Inc. "It should help us as we move forward with TM 6 and the development of the OPP."

Previous studies—including a 1998 water user analysis by Davids Engineering and a 2003 Hydrologic Assessment by the Irrigation Training and Research Center (ITRC) were used, in part, to develop the flow path for the OPPA.

However, new and updated reports that could provide further information for this effort are limited.

"There is great uncertainty relative to the reliability of the available data," said Mr. Van Camp. "We will develop a sub-regional level of quantitative and qualitative analysis to determine if additional, detailed analysis is possible and useful for the development of TM 6."

In addition, a review of current surface water flows at key locations within the OPPA has been made. This review of recent operations provides a general understanding of how changes in operations have and may continue to occur as a result of operation considerations including increased power costs.

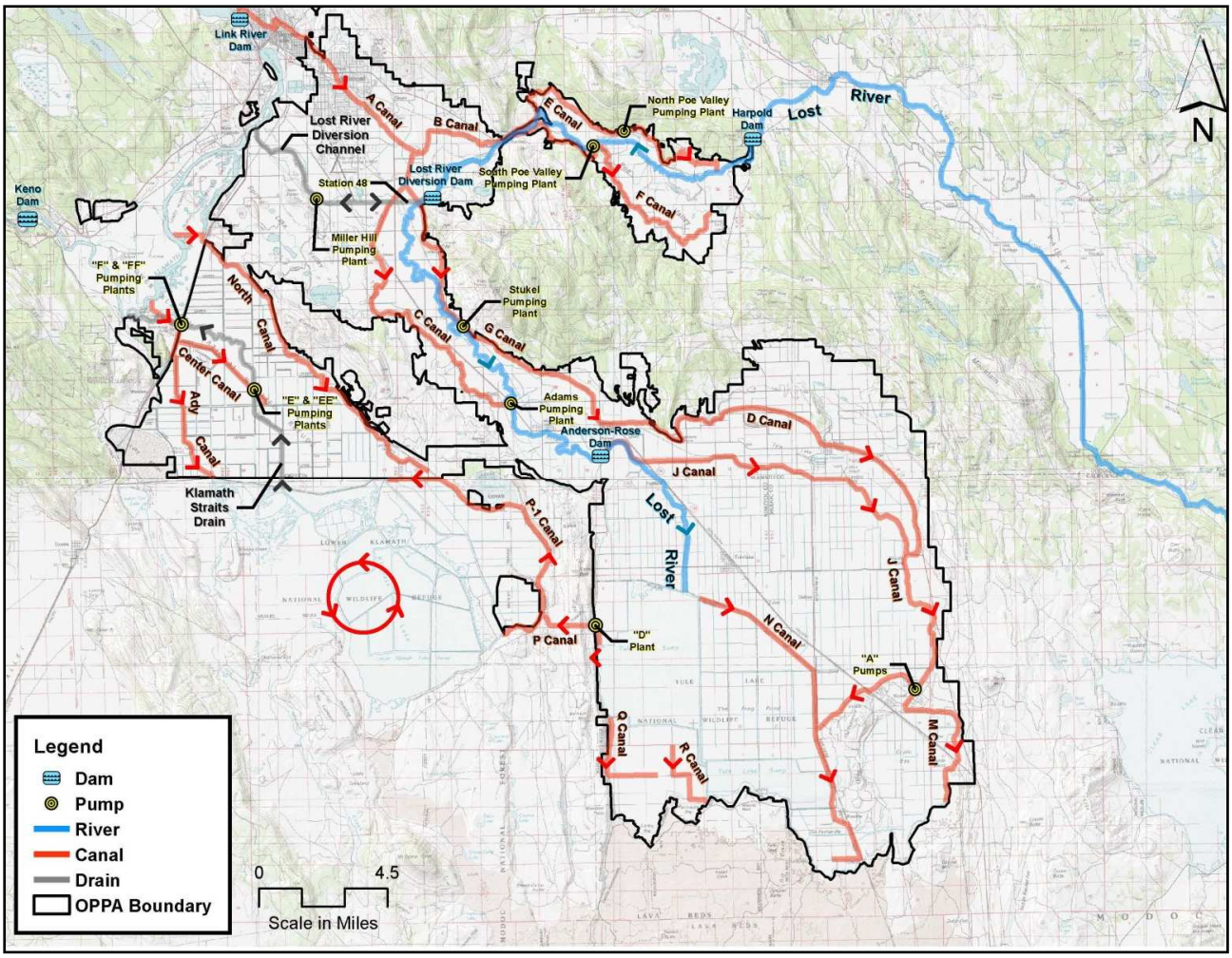

FIGURE 4—Water Flow Path of the On-Project Plan Area

TM 6: Water Management and Supply Options

Using the information developed in TMs 2,3,4 and 5, water management and supply options are now being developed by the OPP consulting team and OPPAC.

Nine criteria have been proposed to evaluate and rank potential management measures. All criteria must be satisfied for an option to be advanced.

"Failure to satisfy even one of the criteria will deem that option infeasible," said Mr. Oliver.

Criteria that will be used to evaluate a given option's feasibility include the following:

- Ability to reduce diversions in a way that is consistent with OPP's goal of maintaining a reliable water supply.
- Sustainability of agriculture.
- Consistency with legal, regulatory and contractual requirements.
- Affordability. "Options must be cost-effective, such that they are consistent with funding availability," said Mr. Van Camp.
- Durability. Administrative requirements must be reasonable and not overly burdensome.
- Flexibility. Projects and programs must have the capability to be adjustable over time.
- Equitability. The program must provide for equal and fair treatment of all growers and water districts, including ensuring willing participation.
- Protection afforded water rights. Options in no way can impact existing water rights.
- Environmental and other third party / community impacts or benefits.

Anticipated category of options to be evaluated under these criteria include the following:

- Conservation and efficiency (automation and canal lining)
- Groundwater / conjunctive water management
- Increased storage / reoperation
- Demand reduction (crop idling / shifting / leasing)
- Other (i.e. water transfers)

The best options and alternatives that survive the screening process will become apparent in the coming months, with leadership from the OPPAC.

Once these alternatives are developed, federal and state environmental review will be

Figure 5. The Klamath On-Project Plan Advisory Committee (OPPAC) is made of representatives from Klamath Irrigation Project irrigation districts, improvement districts and water companies. OPPAC assists with the development of the OPP using an open, transparent, and collaborative inter-district approach. Recent OPPAC meetings were conducted at KWAPA on June 27 and September 10, 2012. OPPAC will play a key role in the development of TMs 6 and 7.

On-Project Plan Advisory Committee

Bob Flowers - Ady District Improvement Company

Shane McDonald - Enterprise Irrigation District

Ed Bair - Klamath Basin Improvement District

Luther Horsley - Klamath Drainage District

Rocky Liskey - Klamath Hills District Improvement Co.

Dave Cacka - Klamath Irrigation District

Luke Robison - Malin Irrigation District

Curt Mullis - Pioneer District Improvement Company

Gary Derry - Shasta View Irrigation District

Pat Patterson - Sunny Side Irrigation District

Earl Danosky - Tulelake Irrigation District

David Jensen - Van Brimmer Ditch Company

Steve Kandra - Westside Improvement District

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We're on the web!
www.kwapa.org

Working together towards locally based solutions to energy issues, water management issues and coordination in other areas to the benefit of the whole community.

The Klamath Water and Power Agency (KWAPA) is a joint powers / inter-governmental agency whose members are water agencies within the Klamath Reclamation Project.

KWAPA provides programs to align water supply and demand, generally within the Klamath Project. We seek to reduce power costs for irrigators in the Klamath Project.

KWAPA is working to obtain and provide transmission and delivery of Federal preference power for eligible On-Project and Off-Project Power Users and investigate power generation that would offset power costs.

Background and Development of the Klamath Basin Restoration Agreement

Representatives of diverse communities in the Klamath Basin, working with federal, state, and county governments, and with other interested organizations, developed the Klamath Basin Restoration Agreement (KBRA) to rebuild fisheries, sustain agricultural communities, and resolve longstanding disputes related to the allocation of water resources. KWAPA and its member entities are parties to the KBRA. Relevant key provisions of the KBRA related to water supply include the following:

- *An ultimate limitation on diversions (DIVERSION is a term in the KBRA defined as the total amount of water from the Klamath system diverted from specific Upper Klamath Lake and Klamath River diversion facilities).*
- *Reliability and certainty regarding water that will be available for a sustainable agricultural community and national wildlife refuges.*

For more information on the KBRA, go to http://kwua.org/kbra.

OPP Goals and Objectives

- ***Meet commitments specified in the KBRA***
- ***Maintain long - term sustainability of Klamath Reclamation Project agriculture***
- ***Minimize reductions in irrigated agriculture in the On-Project Plan Area (OPPA) and avoid any uncompensated reduction in irrigated agriculture***
- ***Ensure equitable treatment among districts, avoid impacts on district operations, and seek opportunities for improved water management operations within and across districts***
- ***Develop fair, equitable, and transparent strategies for aligning water supply and demand***
- ***Consider cost effectiveness of alternatives to the overall Klamath Basin economy and minimize third - party impacts***
- ***Avoid adverse impacts on groundwater as a result of OPP implementation or administration***
- ***Use groundwater in a long - term and sustainable manner, and address all relevant in - basin groundwater management objectives, including identifying and addressing potential impacts on areas directly adjacent to the OPPA***

Klamath Water and Power Agency KWAPA