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Resolving Water Confilcts in the Klamath Basin: a Role for Markets and Institutions

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Resolving water conflicts in the Klamath Basin: a role for markets and institutions

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Abstract for proposed verbal presentation

Conflicts over water in the Upper Klamath Basin became a crisis in 2001 when water was denied to farmers on the federal Reclamation Project due to drought and ESA-related requirements to protect endangered fish. The consequences included protests by angry farmers, national media attention, and calls for repeal of the Endangered Species Act. The costs of the water shut-off were estimated at more than $35 million in farm losses, and government costs exceeding $40 million.

This paper examines two aspects of the institutional setting in which these costly conflicts took place. One involves the potential role for water markets or water banks in lowering the costs of future conflicts. The other appraises the effects of anticipated increases in power rates paid by irrigators for pumping water in the region. The combined effect of both these factors, the introduction of water transfers and the loss of preferential prices for power, has the potential to greatly reduce the conflicts over water even during extremely dry years.

Per acre marginal water values vary by a factor of 20 due primarily to variations in soil productivity with the highest productivity lands concentrated in the federal Project. A simulation model estimates that alternative allocations could have reduced costs by 75 percent with a market-based approach. We conclude that the costs of the irrigation curtailment in 2001 were due more to the way water was allocated than to the limits on the total amount of water allowed for irrigation. In the future, attention to efficient water allocations could minimize the adverse impacts of drought and other limiting factors affecting irrigated agriculture. There is a need to fully adjudicate water rights in some parts of the basin before a fully functioning water market could function fully.

In addition to these efficiency gains from water markets, changes in the profitability of irrigation on some lands in the region will be affected by the anticipated loss of preferential energy prices enjoyed by the region's irrigators. Under a 1956, 50-year contract with the energy provider and hydropower operator -- now PacifiCorp, irrigators within the federal Klamath Reclamation Project are charged prices for energy which are about one-tenth the price paid by other PacifiCorp farmers in Oregon and California, and one-fifth to one-seventh the price charged by other power companies serving farmers in Oregon. Oregon farmers outside the Federal Reclamation Project but within the Upper Klamath Basin also enjoy low energy rates (87 percent lower than for other Oregon farmers) and an exemption from stand-by fees, but not free line extensions.

Our analysis suggests that while the profits accruing to landowners will decline significantly with a change in energy pricing, the evidence does not suggest farming will become unprofitable in the Project or for most other lands outside the Project. We estimate the loss of preferential pricing will raise costs by $40 to $45 per acre in the Project including annual charges, and that these costs will likely be absorbed by landowners. (Cost increases outside the Project are assumed to be slightly less given the higher current rates.) In cases where pastures are sprinkler irrigated or where significant pumping lift is required, irrigated agriculture may become unprofitable. If half of all Class V lands and Class IV lands in the Sprague River Valley became unprofitable to irrigate, these areas would represent only about 10 percent of the irrigated acres in the basin. If, however, 10 percent of the currently irrigated pasture in the basin were to become unprofitable, this could potentially reduce consumptive use of irrigation water by about 100,000 acre-feet each year, a level equivalent to about ¼ of the Project's annual consumptive use.

Most of the irrigated lands in the Basin are highly productive, and would be profitable to irrigate under energy prices and fees faced by other Oregon farmers. Some areas of irrigated pasture that cannot be flood irrigated may be rendered uneconomic under non-preferential energy pricing. Although these areas account for less than 5 percent of the region's income from irrigated farming, they consume 100,000 acre-feet of water per year, or about ¼ of the annual consumption on the Klamath Project.

One implication of the analysis is that a shift of this amount of water from irrigated pasture to instream flow could significantly alleviate on-going water conflicts in the region without significantly harming the region's farm economy. The combination of the anticipated changes in energy prices, along with institutional changes needed to facilitate water markets and water banks could greatly reduce the costs of resolving water conflicts in the Upper Klamath Basin.