Water Shortage Sharing Agreements and Sustainability in the Face of Climate Change

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ABSTRACT

Water supply variability is a challenge throughout the southwestern United States and along the U.S.-Mexico border region. The economic, environmental, and social costs associated with variable water supplies are diverse and can be far reaching. Moreover, water shortage can be linked to disruption in the price of and availability of energy supplies. Particularly in dry years, water shortage sharing agreements are a viable mechanism to enhance supply reliability and price stability for both water and energy. These agreements typically involve a drought-triggered temporary transfer of water out of lower-value agriculture to higher-value uses, helping to mitigate regional drought impacts.

. Shortage sharing arrangements can take advantage of climate prediction to make the water transfers more efficient and cost effective. If a municipal water provider or electric power plant knows with a comfortable degree of certainty that due to dry hydrologic conditions they will need to augment their water supply, they can negotiate a temporary transfer out of agriculture prior to actually needing the water. This reduces the risk of supply variability faced by the municipal provider. It can also make the transfer more cost effective because if irrigators know in advance of the planting season that they will be fallowing cropland for the season, they can avoid incurring early-season variable costs of production.

This presentation covers the structure, advantages, and disadvantages of temporary dry-year transfers to address instability in both water and energy costs and supplies. The results of statistical analyses of water lease transactions and how past drought conditions have influenced the price of leased water will also be discussed.