Written Testimony of Dan Keppen
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Submitted to: Senate Committee on Energy and Natural Resources
Water and Power Subcommittee

Hearing on opportunities and challenges
to address domestic and global water supply issues
December 8, 2011

The Honorable Jean Shaheen, Chairwoman
The Honorable Mike Lee, Ranking Member
Senate Committee on Energy and Natural Resources
Water and Power Subcommittee
304 Dirksen Senate Building
Washington, D.C. 20510

Dear Chairwoman Shaheen, Ranking Member Lee and Members of the Subcommittee:

My name is Dan Keppen, and I serve as the Executive Director of the Family Farm Alliance (Alliance). The Alliance is a grassroots organization of family farmers, ranchers, irrigation districts and allied industries in 16 Western states. The Alliance is focused on one mission: To ensure the availability of reliable, affordable irrigation water supplies to Western farmers and ranchers. We are also committed to the fundamental proposition that Western irrigated agriculture must be preserved and protected for a host of economic, sociological, environmental and national security reasons – many of which are often overlooked in the context of other national policy decisions.

We appreciate the attention your subcommittee is placing on the critical need to address domestic and global water supply issues. However, we were disappointed that no representatives of agriculture – the largest user of water in America and the world, according to Assistant Interior Secretary Anne Castle's own testimony at your hearing – were invited to participate in the December 8 event. Within the Interior Department, the Bureau of Reclamation (Reclamation) is the single largest wholesaler of water in the country, providing water for 10 million acres of irrigated agriculture, and drinking water for 31 million Westerners. The Family Farm Alliance has a long history of collaboration with our partners at Reclamation, and we generally agree with Assistant Secretary Castle's assessment that the a proper role for the federal government on water matters is to focus on research and development; more fully integrate, coordinate and maximize use of resources; and encourage planning from the "ground up". We also have a well-established relationship with Congress, with 33 invitations to testify before Congressional committees on Western agriculture, water and environmental matters since 2005.

This testimony will provide some key observation that underscore the importance of providing reliable and affordable water to Western agricultural irrigators, address some concerns we heard with testimony provided at the December 8 hearing, and provide specific policy recommendations that we believe lay the foundation for effectively addressing current and future water challenges in the Western United States.

Key Observations

We are in danger of losing a generation of farmers.

Nationally, the median age of active farmers in America has never been higher, with the

percentage of farmers under 50-years-old continuing to plummet. More than half of today's farmers are aged between 45 and 64, and only 6 percent of our farmers are younger than 35.

The number of farms is declining throughout the West.

According to the U.S. Department of Agriculture (USDA), the total number of farms nationally is 2.08 million, a 0.6 percent drop from a year ago. Nationally 930.9 million acres are in farmland, a 1.5 million-acre drop from a year ago (USDA National Agricultural Statistic Service). For example, at the start of 2008 in Oregon, California, Idaho and Washington, there were 170,800 farms, a decline of 2 percent compared to the previous year. California, Oregon and Washington each lost 1,000 farms since the previous USDA annual report on farm numbers. There are 500 fewer farms in Idaho, according to the USDA report. In the West, Oregon, California and Idaho each lost 100,000 acres compared to the previous year. USDA attributes the decline in the number of farms and land in farms to a continuing consolidation in farming operations and diversion of agricultural land to nonagricultural uses.

Americans pay a substantially lower amount of disposable income on food.

According to the World Bank, families in 28 other high-income countries pay 10.2 percent of their disposable income on food compared to 6.2 percent for families living in the United States. For the average American that's a difference of $3,820 per year and represents real dollars that are available to purchase consumer goods other than food. A 2011 report by Cardno-ENTRIX examined the relative affordability of food in the U.S. as compared to 28 other high-income countries. Data was derived from a report published by the World Bank titled "Global Purchasing Power, Parities and Real Expenditures." The results were weighted for each country by its total GDP so to ensure comparability with the U.S. On a percentage basis, other high-income countries spend about 64 percent more in disposable income on food and non-alcoholic beverages compared to the U.S. The full food cost report is available at: www.farmwater.org/food_cost_results.pdf

At a time when average Americans are feeling the pinch in their pocket books, the foundation of our country's ability to provide safe and affordable food and fiber is at risk. Ironically, it is because Western irrigated agriculture has been so adaptive and successful at providing plentiful, safe and affordable food that it is now jeopardized – nobody believes there can be a problem. The last Americans to experience food shortages are members of the Greatest Generation and their parents. For the most part, they have left us, taking with them the memories of empty supermarket shelves. When the issue has never been personalized, it's easy to be complacent.

Agriculture holds the most senior water rights in the West and is considered a likely source of water to meet growing municipal and environmental demands.

The Family Farm Alliance is part of a work group of diverse interests—agricultural, environmental, and urban—that has been funded by the Walton Foundation to seek the most effective and

innovative ways water can be shared for mutual benefit, without damaging agriculture or rural communities; to pinpoint obstacles to sharing; and to develop strategies to alleviate obstacles. To that end, the Colorado River Ag/Urban/Enviro Working Group has investigated transfers throughout the West in an attempt to uncover best ideas for the Colorado River Basin, and beyond. The Group has developed recommendations for the Western States Water Council (WSWC) in the context of toolbox strategies to increase the chance that WSWC might get the Western governors behind at least some of our recommendations. We want to get the governors to enable local solutions to sharing water more effectively, to give governors more latitude to do what's right in their states instead of being tied by federal restrictions. Our message to the governors is that changes shouldn't be pushed from the top down. We hope they can get behind the idea of empowering inter-jurisdictional solutions.

Several observations were gleaned from the Colorado River Basin Forum:

- Better management of the resource can always be part of the solution. Management requires flexibility (and trial and error.) More regulation usually reduces flexibility. Competing demand interests on water have not done a very good job of creating the opportunity for flexible management.

- More storage is still a critical piece of the answer. Finding the dollars within the states for creation of new storage for water for the environment could be a very helpful way to level the field.

- We need to be concerned that our demand does not get so hardened that a drought can devastate our society. The environment and agriculture can both recover from a temporary insufficient supply easier than homes and businesses.

As we look to the future, we can tie that fact to Mother Nature's expected long term drought cycles. We need to find ways to implement interruptible supply and lease agreements between cities and agriculture, and cities and the environment. For multiple reasons, water transfers that result in the permanent fallowing of agricultural land may be detrimental to all sectors. Regulatory costs and insufficient infrastructure are significant barriers to temporary water transactions that might be used in lieu of permanent fallowing. We should encourage temporary transactions with incentives, potential mandates and pilot programs.

The only large potential for moving water from agriculture to other uses will come from fallowing large swaths of farmland.

We often see bold general statements of water transfer proponents about the potential for agricultural water use efficiency to free up water that can be used for in-stream flows. However, those statements are usually followed up by a list of the factors that make it a difficult proposition. Those include re-use deficiencies when water is removed upstream in the system, water rights that protect water users from water being taken away if they conserve water, and

transactions that move water between presumably willing buyers and willing sellers, but have the effect of taking land out of production. All of those issues are dealt with directly in a major California report released last month by the Center for Irrigation Technology (CIT) at Fresno State. The report, "Agricultural Water Use in California: A 2011 Update", which refutes some long-standing beliefs about agricultural water usage and confirms others. The full report is available at http://www.californiawater.org. The CIT report and others have reached a similar conclusion: the only large potential for moving water from agriculture to other uses will come from fallowing large swaths of farmland.

Growing domestic and global food security and scarcity concerns must be considered as federal water policies are developed and implemented.

The U.S. needs a stable domestic food supply, just as it needs a stable energy supply. The post 9/11 world of terrorist threats makes the stability of domestic food supply even more pressing. Outgoing Secretary of Health and Human Services Tommy Thompson put it bluntly when he said, "I cannot understand why the terrorists have not attacked our food supply, because it is so easy to do." Further, Thompson said he worries "every single night" about threats to the American food supply.

This isn't just a matter of domestic security; it's also a global concern. Earlier this year, the Global Harvest Initiative (GHI) released its Global Agricultural Productivity (GAP) Report, which measures ongoing progress in achieving the goal of sustainably doubling agricultural output by 2050. For the first time, the GAP Report quantifies the difference between the current rate of agricultural productivity growth and the pace required to meet future world food needs. The report predicts that doubling agricultural output by 2050 requires increasing the rate of productivity growth to at least 1.75 percent annually from the current 1.4 percent growth rate, a 25 percent annual increase.

Other signs point to the hard truth of a very real food crisis in the world today. The Food and Agriculture Organization of the United Nations (FAO) in June 2009 reported that over 1 billion people world-wide go hungry every day. And the problem will only get worse. The world's population is growing by 79 million people each year. The FAO estimates that the world needs to produce 70 percent more food by 2050 to keep pace with population growth and increased demand for calories.

G-8 agricultural ministers at a summit last year committed to increase international assistance for agricultural development to $20 billion over the next three years. Actions of this type will surely give the world's hungry a reason for hope by tackling food security with a renewed commitment to agricultural development in other countries. However, similar focus must be placed closer to home, where less than two percent of the nation's population produces food for our country and the world.

We need policies that encourage agricultural producers to work together in a strategic, coordinated fashion. Rebuilding is required of parts of the institutional structure now in place, so that water resources can be managed specifically, not generically. We must get a handle on changing weather patterns and assess how the agricultural landscape and water security will be impacted due to a changing climate. And we must develop a clear understanding of the resulting limitations on our ability to feed the world is impacted when we take domestic agricultural lands out of production as water tied to those lands is transferred elsewhere.

Concerns

As you know, Peter Gleick of the Pacific Institute for Studies in Development, Environment and Security testified at the December 8 hearing. The Family Farm Alliance and our members have worked with Dr. Gleick in a variety of forums, and his December 8 testimony featured points where we agreed and disagreed. For example, we agree with Dr. Gleick's statement that "Farmers cannot afford to upgrade irrigation infrastructure to reduce losses and cut waste," which is consistent with our findings, further outlined in Policy #5, below. However, his push for new federal policies to "eliminate subsidies for some kinds of crops, raise the price of water delivered from federal irrigation systems to encourage efficiency, or provide financial assistance to farmers to invest in shifting irrigation technologies to modern systems for monitoring and delivering water" need to be addressed.

Western farmers and ranchers have long taken a progressive approach to water management. Farmers are already investing in upgraded irrigation systems. For example, between 2003 and 2010 San Joaquin Valley farmers invested almost $2.2 billion in upgraded irrigation systems on over 1.8 million acres of farmland. Those investments helped improve water use efficiency and food production and helped fuel portions of the rural economy at a time when water supply cuts were increasing unemployment. And, these sorts of efficient farm practices have led to increased economic value and production. A report by the California Department of Water Resources[1] shows that the value of California farm products doubled during the 40-year period from 1967 and 2007 while at the same time, applied water decreased by 14 percent. Other research by the California Farm Water Coalition showed that the volume of farm production between 1967 and 2000 rose approximately 89 percent with only a two percent increase in applied water per acre. These indicators support assertions that farmers in general are improving water use efficiency in significant ways over time.

Dr. Gleick and others often bring up arguments regarding the need to address "antiquated" Western water policy. "Part of the problem," says Dr. Gleick, "is old water legislation that has not been updated to account for the realities of the 21st century and for recent advances in our scientific and technical understanding of both water problems and solutions." We need to resist any attempts at rewriting our basic system of water rights, something affirmed recently by the

[1] The DWR report is available at: www.farmwater.org/DWR_Econ_Efficiency.pdf

Delta Stewardship Council in California. We offer additional recommendations to address this concern in Policy #6, below.

Dr. Gleick and the Pacific Institute recommend that we "phase out irrigation, energy, and crop subsidies that promote wasteful use of water and energy." This recommendation begs the question, who decides what is an efficient water use in agriculture?

Finally, Dr. Gleick's testimony closes with optimistic graphs that demonstrate progress in terms of water use efficiency since 1975. Based on those figures, it is difficult to see where we need to make changes, unless Pacific Institute's goals are something other than increasing efficiency.

Policy Recommendations

Western water supplies are already inadequate to the demands of agriculture, urban growth, environmental enhancement and power generation. Global climate change, we're told, will further reduce those supplies. So how will we meet the ever-increasing demand for water in the West in an era when there will be an ever-decreasing supply? Improved conservation, water reuse and efficiency by urban and agricultural water users are certainly parts of the solution, but only a part. Resolving these issues without destroying what we worked so hard to achieve is the challenge that we all face. To be successful, we must face them together. No resolution will be found unless we find a way to balance all competing needs. We believe that within the policies outlined in this testimony lay the foundation upon which to build for the future. It will be a foundation that allows for resolution of significant conflicts in a way that supports continued growth of irrigated agriculture.

Policy 1. - The U.S. must adopt an overriding national goal of remaining self-sufficient in food production. Food security is homeland security. Policy decisions on a wide range of issues should then be evaluated to be sure they are consistent with that goal.

Remarkably absent from the newly-ignited dialogue about fuel and food costs and food safety is recognition of the importance of a secure and sustainable domestic food supply. Politicians from both parties now routinely urge us to end our reliance on foreign energy sources, but nobody is talking about food independence. A national response should include as one of its goals self-sufficiency in food production. It is time for our national leaders to stand up and focus on improving the security, stability, and economic aspects of domestic food production so that our food remains readily available, ample, affordable, and safe. An obvious solution to address this alarming development would be to increase agricultural productivity and output. In our own country, that means finding ways to keep farmers and ranchers doing what they do best, and to further encourage young farmers to follow in their footsteps.

Europeans aggressively protect their farms and food production capability because they still remember the hungry years during and after World War II when they relied on other nations,

America in particular, to feed them. The time has come – indeed, it's long overdue – for the United States to similarly adopt an overriding national goal of remaining self-sufficient in food production. Policy decisions on a wide range of issues ranging from taxation to the management of natural resources should then be evaluated to be sure they are consistent with that goal. It's hard to imagine a simpler or more important step to safeguard the American public.

Policy 2. - State and local governments must consider the impacts of continued growth that rely on water transfers from agriculture and rural areas and to identify feasible alternatives to those transfers, including reuse.

Severing water from agricultural land makes the land less productive. Period. Policy makers should be wary of putting too much emphasis on agricultural water transfers, particularly in the context of growing domestic and global food security and scarcity concerns.

There is growing recognition that states and local governments must consider the impacts of continued growth that relies on water transfers from agriculture and rural areas and to identify feasible alternatives to those transfers. For example, a 2006 report released by the Western States Governors Association (WGA) states "there is understandable support for the notion of allowing markets to operate to facilitate transfers from agricultural to municipal and urban use as a means to accommodate the needs of a growing population. While such transfers have much to commend them, third party impacts should be taken into account, including adverse effects on rural communities and environmental values. Alternatives that could reasonably avoid such adverse impacts should be identified."

The Family Farm Alliance is working with WGA and Western States Water Council to develop a report on successful and unsuccessful agricultural-to-urban water transfers to determine how transfers can be accomplished in a manner that avoids or at least mitigates damage to agricultural economies and environmental values, while at the same time avoiding infringement on private property rights. The Alliance position will be built upon a policy founded in fundamental truths:

- Although water is lost to evaporation in surface reservoirs that serve agricultural, environmental and urban uses, there is very little "wasted water" associated with moving and applying irrigation water. Water not directly consumed through evapo-transpiration often serves other purposes, such as replenishing groundwater, buffering soil salinity and supporting riparian vegetation.
- Further tightening of urban water conservation measures, in essence, "hardens" those urban demands. Some degree of flexibility must be embedded in urban water conservation programs to allow these areas to employ more restrictive water conservation measures during drought periods. Without having the ability to save water during drought periods via drought conservation measures, the resulting hardened demand will force urban water managers to more quickly look to secure water from other areas; namely, agriculture and the environment.
- A multitude of unique solutions exist for Western communities wrestling with growing urban water use. The Northern Colorado Water Conservation District is currently seeking to

develop new offstream storage to protect agriculture as urbanization sweeps into Northern's traditional service area. Farmers in the Klamath Irrigation Project (CALIFORNIA / OREGON) are paid through an environmental water bank to temporarily fallow land or pump groundwater in place of using Klamath River water. On the other hand, unsuccessful implementation of Central Valley Project Improvement Act water transfer provisions in California suggests that water markets cannot be legislated.

There will be nothing done with water in the West without there being winners and losers. Cities may expect to buy water from farms, but that is not a long term solution as global food shortages make farming a crucial national need.

Policy 3. – When water demands and environmental laws conflict, balanced solutions that respect the socioeconomic realities of the West must be found.

Environmental enhancement and mitigation programs are competing for existing sources of water. Across the West, environmental activists have attempted to redirect water to environmental uses through litigation and negative media campaigns, without adequate public process or regard for prior commitments. These actions have caused major conflicts, costly lawsuits and delayed benefits for endangered species and the environment.

In recent years, many in the environmental community have focused on irrigation projects and dams as the source of all woes facing Western fisheries. This distracts policy makers from employing a balanced, comprehensive approach to all factors that limit the abundance of at risk, native fish species. In California's Bay-Delta, for example, environmental activists have focused almost exclusively on state and federal water pumps in the Delta that supply water for millions of acres of the most productive farmland in the world, not to mention drinking water for millions of Southern Californians. They ignore or downplay many other factors that stress fish, including the loss of plants located in the Delta; the introduction of non-native species, including predator species like the striped bass, the decline of food availability; and the discharge of toxics into Delta waterways and streams tributary to the Delta. Over the course of the last two decades, the effort to recover native species in the Delta has been heavily focused on limiting operations of the state and federal projects. Tens of millions of acre-feet have been managed in order to protect and enhance populations of Delta smelt, salmon and steelhead. Yet, these efforts have failed, and abundance indices for these species are at record lows[2].

There is a better way. Solutions to these complex issues can be found by reasoned, well intentioned people. Water users care about the environment. Creative, successful solutions can be found by motivated, unthreatened parties. Incentives that create reasons to succeed will do more good for the environment in a shorter period of time than actions that rely on threats of government intervention. Successful incentives will ultimately reduce occasions for judges to be forced to substitute their own judgment for that of professionals and stewards of the land.

[2] July 17, 2008 Letter from U.S. Reps. Costa, Cardoza, Radanovich, Nunes and McCarthy to Dr. Balsinger and Director Hall re: Bay-Delta Conservation Plan Process.

Policy 4. – State laws and institutions must be given deference in issues relating to water resource allocation, use, control and transfer. The best decisions on water issues happen at the state and local level.

The federal government has repeatedly recognized this fact. In 1952, Congress passed the McCarran Amendment. This law specifically waives the sovereign immunity of the United States in matters that pertain to state water right adjudications. This system may be frustrating for federal agencies but it works.

Solutions to conflicts over the allocation and use of water resources must begin with a recognition of the traditional deference to state water allocation systems. Federal agencies must acknowledge that they are required to adjudicate water rights for federal purposes according to state law and abide by state decrees defining both federal and non-federal rights.

Recently, in many areas of the West, federal agencies have attempted to redirect water to solve environmental issues, without regard for state law or prior commitments, via implementation of federal laws that have the effect of overrunning state statutes. These actions cause far more problems than they resolve. Environmental issues must be resolved through a cooperative process that respects state water law.

A simple commitment by federal agencies to work within the framework of existing appropriative systems instead of attempting to fashion solutions which circumvent current water rights allocation and administration schemes would form the foundation for eliminating the gridlock that now paralyzes federal water management decisions.

Such a commitment would encourage states and water right holders to proactively address water allocation issues by eliminating the now omnipresent fear that a subsequent federal mandate will either undermine local efforts to address an allocation issue or suddenly require unexpected additional reallocations of water which render local cooperation impossible.

Policy 5. - Aging water infrastructure must be addressed promptly and with priority commitments, as failure do to so will create a failed legacy for the next generation.

Specific action can be taken in Washington, D.C. to tackle the looming water infrastructure problems plaguing the West:

1. Direct more funding to the Department of Interior WaterSMART grant program to implement (i.e. "build") projects that have been submitted but not approved for funding.

2. Reaffirm the loan guarantee authority provided in the Rural Water Supply Act. Congress should specifically direct funding and implementation of the loan guarantee program authorized by The Rural Water Supply Act of 2006. Unfortunately, Reclamation loan guarantees, a long-awaited critical financing tool for water users across the West, are

now being held up because of incorrect interpretations of clear Congressional direction by the Office of Management and Budget (OMB).

3. Establish a direct loan program for local agricultural water districts. This would require full appropriation by Congress, over and above what Reclamation already funds. The program would provide low interest loans to irrigators and repaid by them.

It is imperative that we find creative ways to provide for the operation, maintenance, and modernization of existing water supply infrastructure. Implementation of these recommendations would provide important first steps towards solving our aging water infrastructure problems.

Policy 6. – New water supplies must be developed to provide for recreational and environmental needs, allow for population growth and protect the economic vitality of the West.

We believe that it is possible to meet the needs of cities and the environment in a changing climate without sacrificing Western irrigated agriculture. To achieve that goal, we must expand the water supply in the West. There must be more water stored and available to farms and cities. Maintaining the status quo simply isn't sustainable in the face of unstoppable population growth, diminishing snow pack, increased water consumption to support domestic energy, and increased environmental demands.

It strains credibility to believe that conservation alone will supply enough water for the tens of millions of new residents expected to arrive in Western cities during the coming decades. Farmers and ranchers understand that conserved water cannot realistically be applied to instream uses, as it will more likely be put to beneficial use by the next downstream appropriator or held in carryover storage for the following irrigation season.

Many water projects are ready and waiting to be developed in the West[3]. While conservation and recycling programs have done a tremendous job of meeting new growth, still, only a small amount of new water has been developed in the past 30 years. We cannot continue to "conserve just a little more" forever.

The federal government must adopt a policy of supporting new projects to enhance water supplies while encouraging state and local interests to take the lead in the implementation of those projects. It's time to start developing and implementing the water infrastructure needed to cope with a changing climate, meet the needs of a burgeoning population, and support a healthy agricultural base in the West. While on- stream storage should not be seen as unacceptable, off stream storage, groundwater banking, and countless other forms of water development should be encouraged as a matter of federal policy and law.

[3] *Western Water Supply Enhancement Study*. Family Farm Alliance, 2005.

Local and state interests have shown enormous creativity in designing creative water development projects. For example, the State of Wyoming has initiated its Dam and Reservoir Program, where proposed new dams with storage capacity of 2,000 acre feet or more and proposed expansions of existing dams of 1,000 acre feet or more qualify for state funding. Wyoming water managers and policy makers recognize that dams and reservoirs typically provide opportunities for many potential uses. While water supply is emphasized in the Wyoming program, recreation, environmental enhancement, flood control, erosion control and hydropower uses are also explored as secondary purposes.

Modern, integrated water storage and distribution systems can provide tremendous physical and economic flexibility to address climate transformation and population growth. However, this flexibility is limited by legal, regulatory, or other institutional constraints, which can take longer to address than actually constructing the physical infrastructure[4].

The often slow and cumbersome federal regulatory process is a major obstacle to realization of projects and actions that could enhance Western water supplies.

The Family Farm Alliance wants to work with the new Administration, Congress, and other interested parties to build a consensus for improving the regulatory process. The real reason the Alliance continues to push for improved water storage and conveyance infrastructure is not to support continued expansion of agricultural water demand (which is NOT happening in most places). Instead, we seek to mitigate for the water that has been reallocated away from agriculture towards growing urban, power, environmental and recreational demands in recent decades. If we don't find a way to restore water supply reliability for irrigated agriculture through a combination of new infrastructure, other supply enhancement efforts, and demand management – our country's ability to feed and clothe itself and the world will be jeopardized. We need to pin down how much new water is needed for new uses, and then find ways to support those uses in a sustainable way that doesn't hurt irrigated agriculture. New infrastructure is one such way; improved conveyance and storage projects provide the best flexibility to manage and move water in the West.

Policy 7. - We Must Coordinate and Prioritize Western Water Research Needs

Our country has tremendous, but limited, resources available to fix our problems, so we must prioritize. One priority research item should be a comprehensive validation of West-wide changes in climate change-driven streamflow. This should be followed by quantification of the amount of additional reservoir storage, conservation targets, etc required to re-regulate this change in hydrology. This would quickly illustrate to policy makers the need to start modernizing our water infrastructure. This assessment should be accompanied by a comprehensive study of the collective impacts of agricultural land and water changes in Western

[4] CLIMATE WARMING AND WATER MANAGEMENT ADAPTATION FOR CALIFORNIA, Stacy K. Tanaka et al, Department of Civil and Environmental Engineering, Department of Agricultural and Resource Economics, University of California, Davis 95616

states over the last 10 years, as well as predicted trends. A study of this sort may provide the type of hard findings that may alert policy makers to the "big picture" ramifications of this issue.

The potential water impacts associated with use of alternative fuels must also be studied. Throughout the West, we are seeing proposals to build plants to make ethanol, another "answer" that may (or may not) lower greenhouse gas emissions. An April 2007 *Sacramento Bee* editorial provides a reality check on how much water it would take to grow all the corn required to meet California's goal of producing a billion gallons of ethanol a year. According to the *Bee*'s calculations, that's about 2.5 trillion gallons of water for 1 billion gallons of ethanol, which is more than all the water from the Sacramento-San Joaquin Delta that now goes to Southern California and valley farms. Because there is only so much water for agriculture in California and other Western states, this means that some other existing crops will not be grown, thus furthering our dependence on imported food sources.

Another growing demand that will be placed on Western water resources is driven by power requirements. The total water consumed by electric utilities accounts for 20 percent of all the nonfarm water consumed in the United States. By 2030, utilities could account for up to 60 percent of the nonfarm water, to meet the water needs required for cooling and pollutant scrubbing. This new demand will likely have the most serious impacts in fast-growing regions of the U.S., such as the Southwest.

There are also risks and opportunities to manage water associated with petroleum development. Across the western United States alone, more than five billion gallons per day of "produced water" is brought to the surface during petroleum production[5]. This wastewater has historically been re-injected back into the ground and "lost" to further uses. Recovering usable water from sources contaminated by oil and gas drilling operations could significantly help our farmers, ranchers and recreational users, not to mention the habitats of many plants and animals. Meanwhile, with the growing emphasis on opening up oil shale production in the Rocky Mountain West, new oil and gas techniques are expected to use large amounts of water under pressure to extract the oil and gas from underground. Recovered "produced water" could help satisfy this new demand.

Even without warming climate conditions, continued growth in the West will put the squeeze on both water and power use. When you throw in climate change and energy considerations, the projections are alarming.

Priority 8. - Real management is needed in the real "reservoir" of the West – our federally-owned forest lands in upper watershed areas.

Federal agencies must improve management of the West's biggest "reservoir" – our watersheds.

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[5] *Revolutionary New Water-Saving Technique Gives Oil And Gas A New 'Green Look' In Rockies* Nickle's Energy Group, 2008.

In most Western states, much of the water used derives from snowmelt in mountainous areas. We are hearing more frequent reports from state and local governments and water users who question how the federal government is managing the watersheds.

The Yellowstone fires that occurred 20 years ago provided a wakeup call to many that nearly a century of federal forest firefighting may have actually made the forests more flammable and more dangerous. The U.S. Forest Service policy of putting out all fires may have actually filled the forests with fuel, making them harder to protect[6].

During the early 1990's, forest management practices underwent a drastic change[7]. In 1994, at the behest of environmental organizations claiming to protect the forest habitat of the northern spotted owl, a "threatened" species under the Endangered Species Act, 25 million acres of federal forests were put off limits to commercial timber harvesting. The federal government also greatly expanded "wilderness areas," closed hundreds of miles of national forest roads long used by firefighters to reach isolated wildfires, and terminated salvage timber sales. As a result of minimizing the mechanical-thinning approach to forest management – coupled with 100 years of a flawed federal fire suppression policy - the national forests became overgrown with underbrush and overfueled with dead or dying trees. They also became less accessible to firefighting crews.

A July 2008 report released by the National Research Council[8] – one of the first major studies on forest and water since a U.S. Forest Service project in 1976 – underscores the importance of forests to the nation's water supplies. The report finds that modern forest practices have helped to protect streams and riparian zones, but more needs to be learned about the implications of such practices as thinning or partial cuts. This understanding can lead to the development of "best management" practices could help balance timber harvest with sustainable water flow and quality[9].

Summary

Western water policy over the past 100 years stands out as one of the modern era's great successes. Over 180 federal water projects serve 17 Western states. These provide water to more than 31 million people, and deliver irrigation water to 140,000 farmers and 10 million acres of farmland. These lands produce 60% of the nation's vegetables and 25% of its fruits and nuts.

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[6] *Yellowstone Fires of '88: Twenty years of recollection"*. Rocky Barker, 2008. PERC Reports Summer 2008.

[7] *Why the nation's forests are burning so hot.* M. David Stirling, Pacific Legal Foundation. August 3, 2008 Eureka (CALIFORNIA) Reporter.

[8] *Hydrologic Effects of a Changing Forest Landscape*. National Research Council of the National Academy of Sciences. July 2008.

[9] Oregon State University News and Communication Service, July 14, 2008 Media Release "New Report: Greatest Value of Forests is Sustainable Water Supply".

Millions of acres of arid Western desert have been transformed into the world's most efficient and productive agricultural system.

Irrigated agriculture is an incredible investment[10]. It continues to be a leading Western economic driver. Now is not the time to retreat. Sound policies are needed that encourage continued investment in irrigated farming rather than risking diminished domestic food production because cities are taking farm water. Relying on agriculture to be a "shock absorber" to soften or eliminate the impending water shortage is not planning. Rather, it is a choice to effectively put our heads in the sand and hope for the best. It will worsen the overall impact of climate change on our nation's economy and security.

Western irrigated agriculture is a strategic and irreplaceable national resource. It must be protected by the federal government in the 21st Century.

Now is the time for leadership at all levels – local, state, and federal – to face the challenges and create opportunities that will define the future of the West. Recognizing the value of irrigated agriculture is vital. Understanding the current and future role of irrigated agriculture in the West through aggressive action to repair aging infrastructure and create new water supply enhancement projects is imperative. Properly managing federal watersheds and encouraging federal agencies to work with the agricultural community to solve local water challenges are equally crucial. Through thoughtful planning, the Congress and the Administration can play a truly important role in helping find the solutions that have proved so elusive to date.

[10] A 1998 study by Dr. Darryl Olsen and Dr. Houshmand Ziari, estimates the impact of irrigated agriculture in the Western states to be $60 billion annually (direct and indirect income). The annual return to the economy from the $11 billion investment in the federal system has been estimated at $12 billion annually. In other words, the economy of the United States receives a greater than 100% return each year on this investment.