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Water and Power Subcommittee

Oversight Hearing on

"Protecting Federal Hydropower Investments in the West: A Stakeholder's Perspective"

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My name is Grant Ward and I served from 1995 to 2008 as the General Manager of the Maricopa-Stanfield Irrigation & Drainage District (MSIDD), and since then have been serving as their Water and Power consultant. MSIDD was created in the late 1960s and includes 87,000 acres of irrigated farmland, located in western Pinal County of Arizona. It was formed primarily to take Colorado River water from the Central Arizona Project (CAP) system, when it became available, by connecting with the CAP's Tucson aqueduct and delivering the water through more than 250 miles of concrete-lined canals, laterals, pipelines, pumping plants and related works. The system is also used to deliver groundwater operated with pumps powered by electricity from Hoover Dam, Glen Canyon Dam, and Parker-Davis Dam, as well as supplemental purchased power, all provided by its sister district, Electrical District No. 3, Pinal County.

I would first like to address my remarks to the title of this hearing by discussing the Hydropower produced at the Glen Canyon Dam. When one looks at the issue of protecting federal investments, it should be noted that while Glen Canyon Dam has the capacity to produce 1,361 mw (equivalent to producing power of up to 1,320,000 residential customers), the capacity has been reduced by approximately 1/3 based on a Record of Decision issued October 8, 1996, Operation of Glen Canyon Dam Final Environmental Impact Statement. This means that instead of having the availability of 1,361 mw (name plate number), there is only about 900 mw available. Based on whether the capacity of the dam is for a wet year or a dry year the loss is in a range of 200mw to 400mw, which is equivalent to providing enough electricity for 175,000 to 250,000 residential customers. Utilities still have to make up that loss by buying supplemental electricity to provide to their customers, and that most often is generated in the form of coal, oil or natural gas. What that means is that instead of having clean renewable energy in the form of hydropower, a carbon footprint is created equaling 1,341 pounds per mwh, or 1.63 billion pounds of carbon annually.

We would ask for a more reasonable approach to the use of the full capacity at Glen Canyon Dam. We recognize there has to be balance between the economy and the environment, but believe that the operation of Glen Canyon Dam is not the ultimate cause of the environmental concerns.

Second, I would like to discuss the potential opportunity for the construction of low head hydro power units for the purpose of generating power in both federally owned (Bureau of Reclamation) and private canal systems. My experience and understanding comes from the efforts to construct a hydro power unit for our canal system. Our district began looking into the possibility of installing such units in early 2009. We first reviewed our canals to determine the amount of drop (the actual footage from one level of the canal down to the next level) at our gates and turnouts and the average flow of water that would go over that structure for the year. We found that we have a possibility of constructing 14, as a minimum, (up to 17) separate low head hydro units along various drops and canal turnouts. The largest output on a drop structure was determined to be approximately 300kws to 350kws . Using the more conservative number that is enough electricity to power approximately 100 residential customers. When we reviewed the numbers for the installation of possible low head hydro units we found that the total amount of electricity that could be produced equaled approximately 2,200kws (further study would be needed on some of the proposed systems to determine cost/benefit ratios), which could provide electricity to power 550 to 1100 residential homes.

Our struggle over the last 2 plus years has been trying to determine the requirements of the Bureau of Reclamation (the canals are federally owned, although our district operates and maintains the entire system serving the district). Briefly our "struggles" can be summed up in the following four points:

1. Reclamation rules of ownership—if Reclamation is involved in providing any funding for a hydro project, they will own all improvements to the facility (meaning the hydro unit). *But* if the canal is fully operated and maintained by the district, the debt for the original construction has basically been paid off, and the District is willing to pay 100% for the new construction, must Reclamation still have ownership of the low head hydro facility?

2. Under ownership requirements of Reclamation, all must comply with the issuing of a Lease of Power Purchase agreement, which requires Reclamation to give a Federal Register Notice allowing companies to bid, and Reclamation awards the bid to the successful bidder, even if the district is constructing the unit either by itself or through a contractor that has been approved by the district board under their bidding regulations. Lease of Power privilege requires an annual fee. We are not sure what that fee will be but have been told it could be 1-3mils/kwh, or could be 5% of the annual revenue.

3. Environmental Assessment will be required. If the canal was built in the last 20 years (the system is fully cement lined) and was required to have an EA at that time, is it

necessary to go through the complete process again if all the new work will be within the original rights-of-way?

4. Reclamation has indicated that if the canal is a federally owned canal, and the original legislation (or contract) creating the canal system was also approved for power development, the District would not be required to have a FERC permit. However, when districts either don't have that clause in their contract, or if they are private canals, they would have to face going to FERC for an "exemption" permit. Most of these drop structures will produce hydropower of less than 1.5mw, which I understand falls below FERC's regulations. In any event, they have to obtain an exemption permit which, when one Arizona private district located on the west side of Phoenix had to obtain an exemption permit (for 12kw), they had to spend $40,000.00 (including pro-bono work by a consultant), and it took 8-9 months to obtain the permit.

As a final note, during our 2 plus years of determining our eligibility to either work through Reclamation (funding) or paying our own costs, we have found Reclamation sincerely interested in getting low head hydro systems off the ground and developing this type of renewable energy. We have met with the Commissioner's, office, the Denver office, the Phoenix Area office, as well as the Power Manager's office. However, the concern we have is the time delay that has taken place to obtain answers (approximately 30 emails as well as several face to face meetings), and sometimes the different answers from different departments or locations. To their credit they have been trying to obtain the correct answers between departments, but that has added to delays (I can't help but feel that the review of most hydro projects are being appraised using rules that primarily apply to dams that presently have no hydro plants, not irrigation canals). We would make a suggestion that as interested as Reclamation is in going forward with low head hydro systems, they put any and all resources that are working on these systems in one office—for all requests, questions, opportunities—and when someone or some entity shows any desire to look into low head hydro systems, their call is immediately forwarded to that one office for any and all answers and direction.

I wish to thank the subcommittee for this opportunity to present our concerns to you and hereby submit this testimony for your review and consideration.