



Informational Bulletin: Pumped Storage Hydro Project Proposed for Big Chino Valley

The purpose of this informational bulletin is to provide a status report of the proposed Big Chino Valley Pumped Storage project. The Citizens Water Advocacy Group (CWAG) is monitoring the planning for this multi-billion dollar project to ensure that it is consistent with CWAG's mission to protect the base flow of the upper Verde River.

In summary, at this early stage of planning, the project sponsors understand CWAG's requirements that the project must: 1) maintain the current base flow of the Verde River, 2) not degrade the water quality, and 3) protect the natural flood flows, and 4) protect Paulden domestic wells. They must prove that their mitigation plan is valid using the best available science. CWAG will continue to monitor the project as it develops.

Proposed Project:

ITC Holdings (<http://www.itc-holdings.com/home>) is now evaluating the feasibility of constructing the Big Chino Valley Pumped Storage Project (BCVPSP) in the Big Chino Valley, about six miles south of Seligman. The project is in the early stages of design development, and ITC has not yet committed to construction. The following information is based on preliminary information released by ITC.

ITC has been granted a preliminary permit (Project 14859-000) by the Federal Energy Regulatory Commission (FERC). The project will be built on private property and some Arizona State Land. The investment is in the neighborhood of \$5 billion. ITC Holdings operates large transmission lines throughout the northern midwest and nationwide. Their parent company is Fortis Inc., which owns Arizona's Tucson Electric Power and UniSource Gas.

Pumped Storage:

Pumped storage is a proven and common method of storing electricity. Compared to batteries and other energy storage technologies, pumped storage is the most cost efficient and scalable solution. For example, SRP now operates two small pumped storage facilities at two dams on the Salt River: Horse Mesa (97,000 kw) and Mormon Flat (50,000 kw).

When power supply to the electrical grid exceeds demand, the excess power (usually from variable wind-electric and photovoltaic systems, or from base load generators that cannot be adjusted rapidly) is used to pump water to a higher elevation reservoir. When peak electrical demand exceeds supply, water is released from the upper reservoir into the lower reservoir, passing through turbine generators to recover the stored energy as electricity. This is a closed loop process where, after the initial fill, water is consumed only to replace evaporation from the reservoirs. The profit lies in the cost difference between base and peak power rates. The process is 75-85% efficient and decreases the need for expensive peaking power from natural gas turbines. Pumped storage facilities have a useful and important role to play in matching renewable electric power supply with demand, a necessary step to continue growth in our regional renewable energy supply.

Description of project, at this time:

- Located southwest of Picacho Butte, 6 miles south of I-40 near Seligman.
- 2,000 megawatt power capacity, closed loop (Palo Verde is 3,300 megawatt).
- 20,000 megawatt-hour energy capacity per cycle.
- Three transmission lines connect to the existing grid, passing through public lands.
- Initial fill: about 27,000 af of groundwater from wells near Prescott's Big Chino Water Ranch.
- Annual groundwater consumption by evaporation: estimated 1,200 - 200 acre-feet (af) per year.

The environmental effects of pumped storage include:

- Water consumption: evaporation from the lakes and the initial fill will consume groundwater which will potentially degrade the base flow of the upper Verde River and damage domestic wells in Paulden.
- Land disturbance: reservoir and dam construction, roads, pipelines, transmission towers, etc.
- Appearance: the reservoirs are artificial and the water level fluctuates. There will be no recreational use of the reservoirs and they are not readily visible.
- Wildlife: Surface disturbance may fragment wildlife habitat and operational activities disturb animals.

To begin responding to this potential threat to the Verde River:

CWAG met with Robin Silver of Center for Biological Diversity (CBD) and Chris Coder of Yavapai-Apache Nation, resulting in both groups filing very strongly worded motions to intervene with FERC. Additionally we met with ITC project team in Prescott to explain:

- the extraordinary ecological value of the Verde River,
- the strong commitment by the conservation community to protect the base flow,
- the litigation record of CBD,
- the threats to the river (primarily groundwater pumping in the Big Chino),
- the Upper Verde Wild and Scenic River proposal,
- the current local political relationships, and
- the absolute necessity for ITC to mitigate the effects of groundwater withdrawal on the base flow and to prove that their mitigation plan is valid using the best available science.

Finally, in cooperation with the Sierra Club, we led 15 ITC project team staff on a six-hour field tour of the upper Verde, further explaining the hydrology, ecology, endangered species, politics, and law. We had extensive talks with the ITC biological consultant. We stressed to the entire team: *mitigate*.

Possible mitigation:

- Purchase the CV/CF ranch (35,000 acres) and grant a conservation easement (no development, no water transfers) to an environmental organization, a substantial future protection to the Verde River. The ranch is now zoned for over 17,000 residential lots which when developed could consume over 8,000 afy of groundwater - over half the existing upper Verde River base flow. ITC is considering the easement, saying that they have no plans to develop the ranch but did plan to continue cattle grazing to a lessee.
- Satisfactorily mitigate environmental effects of the transmission line corridors.
- Mitigate the annual evaporation losses and the initial fill by retiring some existing agricultural groundwater pumping and/or by leasing water from currently irrigated agricultural lands near the point of withdrawal - essentially temporarily transferring irrigation water to fill the lakes - or by other measures.
- Commission a hydrological study and groundwater modeling to show the projected effects of the mitigation efforts on the base flow. ITC has retained a credible hydrology consultant. A team of CWAG groundwater modeling experts has met with the ITC hydrologist to create specifications for the modeling effort.

Interim Position:

CWAG is very concerned that the BCVSP may degrade Paulden domestic wells and the Verde River, but we will not take a hard position for or against until we see the hydrology report, the draft EIS, and more specific plans. We require transparency, extensive public information and opportunity for comment, and an Environmental Impact Statement (also required by FERC) proving the need for the project at this location and that pumped storage is the best technology solution available.

The BCVSP proposal is in the very early design stages; there are many unknowns. In our judgment, the best strategy is to work with ITC to assure that they fully understand and recognize the value of the Verde River, the importance and sensitivity of domestic wells in Paulden, and that the environmental effects are thoroughly mitigated.

CWAG has stressed to ITC that they must prove to us, using the best available science, that their project will 1) maintain the current base flow of the Verde River, 2) not degrade the water quality, and 3) protect the natural flood flows. These conditions will also protect domestic wells in Paulden.

For more information and documentation, contact info@cwagaz.org.

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