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Presentation Title: Etowah Water Bank: A Regional Solution for Water Supply Reliability and Sustainability

### Extended Abstract:

The Etowah Water Bank (EWB) is a planned 560,000 acre foot subsurface reservoir, to be located in northwest Georgia and West-Central Georgia, providing supplemental water to meet the growing needs of the Atlanta Metropolitan Area while also addressing and helping to resolve interstate water issues with South Carolina, Alabama, Tennessee and Florida.

Treated drinking water will be stored in confined portions of dolomite and limestone aquifers within the Valley & Ridge Geologic Province of northwest Georgia, which underlies an area of about 1,000 square miles. Similar geology extends from New York to Alabama. Stored water will be recovered to help meet drought water supply needs, emergencies and peak summer water demands. The volume of water recovered will not exceed the volume previously stored, thereby preventing “mining” of local groundwater supplies.

When completed, the EWB will supply 250 million gallons per day (MGD) for up to 24 months’ duration during extreme droughts, supplementing the capacity of existing and new surface reservoirs. Of this amount, 150 MGD will be supplied from ASR wells in northwest Georgia. Target recharge capacity of these ASR wells will be at least 50 MGD. A portion of the water stored in northwest Georgia would be recovered to augment low flows during droughts. The remaining 100 MGD will be supplied from a wellfield to be located below the Fall Line in west-central Georgia, southeast of Columbus. This may be a conventional production wellfield or an ASR wellfield, or a combination of the two technologies. This wellfield will supplement flows in the Chattahoochee and Flint Rivers, helping to augment flows at the Florida State Line during droughts. Through a water exchange, a corresponding flow during drought periods would be made available to Atlanta area utilities from Lake Lanier flow releases, helping meet the water needs of the Atlanta area while maintaining downstream flows.

Participants in the EWB will include water utilities with water treatment facilities overlying or close to the ASR wellfields that would store water during winter months and other periods when flows are high and demands are low, utilizing spare capacity of water

treatment and transmission facilities during offpeak months. Participants would also include industries and other participating water utilities located further away in the Atlanta area, overlying the Piedmont, who would utilize the recovered drinking water when needed. Up to approximately 35 water utilities and industries may ultimately participate in EWB.

This would be a Public Private Partnership that would transition to full public ownership by the participating utilities in Year 20, or at such earlier time as EWB wellfield, transmission and other facilities have been constructed and the target storage volume has been achieved. Facilities would be constructed initially with private financing, to be later refinanced with revenue bonds. No State funds would be required to commence construction.

EWB is currently working with the Georgia Environmental Protection Division (EPD) to develop and implement an ASR Demonstration Program, the purpose of which is to show that underground storage of drinking water is viable in Georgia, not only technically but also from a regulatory point of view. As currently planned this would include a hydrogeologic test well program in northwest Georgia, to be followed by construction and operation of ten ASR wells, monitor wells and associated facilities that would store seasonally available treated drinking water from utilities within the Coosa River Basin, recovering stored water to the Coosa River and its tributaries at a combined flow rate up to an estimated 30 CFS. This would augment downstream low flows, which on several occasions have dropped to below 800 CFS during Summer 2008, and would tend to reduce river temperatures at such times, helping to mitigate thermal loads from downstream industrial operations. Successful completion of the ASR Demonstration Program, expected during the next three years, will provide a firm basis for EWB wellfield expansion to meet regional needs.

EWB has developed this conceptual plan since December 2007 and has met with many water utility directors and others, besides EPD, in order to refine the plan so that it best meets local and regional needs. EWB participation draft agreements have been provided to interested utilities and industries for consideration. At such time as at least one buyer and at least one seller sign up, private funding to implement this program is fully expected. A strong financial incentive has been provided to those entities that join EWB during 2008. This financial incentive reduces steadily with time for those entities that join later. Further details are available at [www.etowahwaterbank.com](http://www.etowahwaterbank.com).

David Pyne Bio:

David Pyne is the president of ASR Systems LLC, Gainesville, Florida. He has pioneered the development of ASR technology during the past 25 years, including directing or contributing to the development of about half of the approximately 80 ASR wellfields nationwide. In South Carolina he has participated in the development of ASR wellfields for Beaufort Jasper WSA, Kiawah Island Utility, Mt Pleasant WSA, Grand Strand WSA and Orangeburg DPU and has evaluated ASR feasibility for Georgetown and Hilton Head. He has written the only book published on ASR, entitled "Aquifer Storage Recovery: A Guide to Groundwater Recharge Through Wells." (Second Edition,

ASR Press, 2006). He graduated from Duke University in 1966 with a BS in Civil Engineering and from the University of Florida in 1967 with an MSE in Water Resources Engineering. For 30 years he worked with CH2M HILL, including serving as firmwide Director of Water Resources Engineering. He formed ASR Systems LLC in 2001 and is currently serving clients nationwide. He is CEO of the Etowah Water Bank LLC, a Georgia corporation based in Rome, Georgia.