

ORIGINAL

REHEARING ²⁻¹¹⁻⁰²
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THE ARIZONA CORPORATION COMMISSION JAN 22 P 3: 25

AZ CORP COMMISSION
DOCUMENT CONTROL

IN THE MATTER OF THE APPLICATION)
OF DUKE ENERGY ARLINGTON VALLEY,)
L.L.C. IN CONFORMANCE WITH THE)
REQUIREMENTS OF ARIZONA REVISED)
STATUTES §40-360.03 AND §40-360.06)
FOR A CERTIFICATE OF)
ENVIRONMENTAL COMPATIBILITY)
AUTHORIZING THE CONSTRUCTION)
OF A NATURAL GAS-FIRED, COMBINED)
CYCLE GENERATING FACILITY)
(ARLINGTON VALLEY ENERGY FACILITY)
II) NEAR ARLINGTON IN MARICOPA)
COUNTY, ARIZONA)

Docket No. L-00000P-01-0117

Case No: 0117

Arizona Corporation Commission
DOCKETED

JAN 22 2002

DOCKETED BY

APPLICATION FOR REHEARING

Pursuant to A.R.S. §40-253, Duke Energy Arlington Valley L.L.C. ("Duke") respectfully requests that the Arizona Corporation Commission ("Commission") grant a rehearing of Decision #64357 to address the following issue:

What is the best stewardship of Arizona's water: a wet plant that uses groundwater from a productive aquifer and recharges that water into a depleted aquifer or a dry-cooled plant that will draw less water from the productive aquifer but result in substantially less water being recharged into the depleted aquifer?

At the January 8, 2002 Open Meeting, by a two-to-one vote, the Commission adopted the dry-cooled plant option. Duke respectfully requests that a rehearing be granted so that there can be a more complete discussion of the relative benefits of each option and to allow Duke to demonstrate that a groundwater plant in Arlington with a more substantial recharge into the Agua Fria aquifer is a better stewardship of Arizona's water resources.

I. THE AMENDMENTS

Spitzer Proposed Amendment #1 allows Duke to use groundwater for its AVEF II facility but requires Duke to recharge any groundwater that it uses. Spitzer Proposed Amendment #2 requires Duke to construct a dry-cooled plant and recharge whatever groundwater is used by the dry-cooled plant. Both Amendments require that Duke not withdraw the recharge water pursuant to associated recharge credits.

The original Spitzer Proposed Amendment #1 required a recharge of 3900 acre feet and Spitzer Proposed Amendment #2 required a recharge of 1000 acre feet per year. But, it is Duke's understanding based on discussion at the January 8, 2002 Open Meeting that Commissioner Spitzer is amenable to modification of both amendments so that the recharge obligation equates with the actual usage.¹ The record reflects that AVEF II will use approximately 3500 acre feet per year of groundwater plus some additional water for the expanded land management plan. While there is no evidence in this record as to the water required by a dry-cooled plant, Reliant Energy stated at an Arizona Corporation Commission special open meeting that the amount of water used by a dry-cooled plant is approximately 300 acre feet per year. *See* Reliant materials on water usage from the October 3, 2001 Special Open Meeting - Attachment A. As a result, under Spitzer Proposed Amendment #1, Duke would recharge approximately ten times more water per year than under Spitzer Proposed Amendment #2.

¹ Duke notes that Decision #64357 contains a 1,000 acre/foot/year recharge requirement in condition 21, contrary to Duke's understanding of the purpose for the recharge (*i.e.* to replenish what is actually used).

II. SPITZER PROPOSED AMENDMENT #1 RESULTS IN A SUBSTANTIALLY GREATER BENEFIT TO ARIZONA'S WATER RESOURCES

After an operational life of approximately 30 years, Duke will have recharged almost 105,000 acre feet of water to the Northwest Valley under Spitzer Proposed Amendment #1, as compared to 9,000 acre feet under Spitzer Proposed Amendment #2.

Late in 2001, Duke signed a contract with the Central Arizona Project ("CAP") to obtain excess CAP incentive water for recharge at the Agua Fria Recharge Project. This water would be diverted from the CAP into the Agua Fria Recharge Project. If this water is not diverted, it will flow down the Colorado River and into the Gulf of Mexico or be claimed by California as unappropriated water.

The Agua Fria Recharge Project is important to the implementation of renewable water supplies in Maricopa County. The Agua Fria Recharge Project is expected to replenish 100,000 acre feet of water per year. Duke's contribution would help the project meet its goal of augmenting groundwater resources with renewable supplies from the Colorado River. According to the CAP, "recharge projects are critical to Arizona because they allow CAP to bring otherwise unused water into the state where it is stored underground for future use." *Agua Fria Recharge Project Groundbreaking*, May 27, 2001, Central Arizona Project.

There are two main reasons to recharge water at the Agua Fria Recharge Project rather than at the location of the AVEF II in Arlington. First, the Agua Fria Recharge Project is the first of three Maricopa County recharge projects focused on augmenting groundwater resources with renewable supplies from the Colorado River. Second, the groundwater beneath AVEF II is not experiencing severe overdraft and is not a Critical Management Area.

ADWR has asserted in the Third Management Plan for the Phoenix Active Management Area ("AMA") that "one of the most important factors that will shape the augmentation program

for the third management period, is the unique opportunity to bring excess CAP water into the AMA and store it underground for future use. A substantial supply of CAP water is physically available to augment the AMA's water supply during the third management period, but will be fully utilized at some point in the future. Therefore, taking advantage of this supply and storing it now while it is currently available, is an opportunity that must be encouraged to the fullest extent possible." *Third Management Plan for Phoenix Active Management Area 2000-2010*, Arizona Department of Water Resources at 8-1. "Taking advantage of this opportunity now while excess supplies are available will be a significant component of the augmentation program for the third management period to meet safe-yield and to alleviate some of the problems in critical areas." *Id.* The Agua Fria project is in a critical area. Arlington is not considered a critical area.

III. A REHEARING WILL PROVIDE AN OPPORTUNITY FOR THE COMMISSION TO CONSIDER ADDITIONAL INFORMATION ON THE BENEFITS OF A RECHARGE PROGRAM.

The question of the relative merits of a recharge option versus a dry plant in Duke's case was raised at the open meeting by the proposed amendments. While Duke responded to these two options at the open meeting and had offered a recharge plan on the record with the Siting Committee, the Commission might benefit from a more complete discussion of the specific recharge option. If a rehearing is granted, Duke will provide the Commission with additional information on the specific proposals considered by the Commission at the open meeting. Examples of such additional information are attached at tabs B, C and D.

The current and long term needs for water in the Agua Fria area will be attested to by WESTMARC (Attachment B) which says, in pertinent part: ". . . we strongly recommend that

you select the alternative with the larger recharge program . . . It is a high priority with WESTMARC to facilitate and encourage recharge in this area . . .”

At a rehearing, the CAP will also strongly endorse the larger recharge project as set forth in Attachment C which says, in pertinent part: “CAP water recharged at this site will greatly benefit the severely depleted aquifer in this area and will also help CAWCD consistently divert the full remainder of Arizona’s Colorado River apportionment.”

At a rehearing, Duke can also present a more complete description of the current status of the Agua Fria aquifer, the benefit to the Agua Fria aquifer of the larger recharge project contemplated by Spitzer Proposed Amendment #1 and a comparison to the impact on the AVEF II aquifer as is set forth at Attachment D in a letter from Ms. Rita P. Maguire, former director of the Arizona Department of Water Resources. Ms. Maguire concludes that:

- 1) “The projected declines in the surrounding groundwater levels (at AVEF II) are not significant. The depth of the aquifer in this area exceeds 1,000’. . . (and the) water tables will recover quickly from the pumping that occurs in the Arlington area.”
2. “Recharge at the Agua Fria facility rather than at AVEF II is consistent with the state’s water management policy . . . the Agua Fria area is a “Critical Management Area” (and) . . . [t]he Department is actively encouraging recharge here in an effort to prevent further damage to the aquifer.”

IV. THE USE OF GROUNDWATER BY AVEF II WILL HAVE A MINIMAL IMPACT ON THE RELATIVELY PLENTIFUL ARLINGTON AQUIFER.

In 2000, Maricopa County required that the three proposed power plants (Redhawk, Sempra and Duke) in the Arlington Valley (Centennial Wash) area perform a study to determine the cumulative impacts of the proposed power plants on the aquifer. The study was done under a worst-case scenario, assuming 100% utilization of available water rights by the three power plants as well as continued limited agricultural use.

According to Dr. Mock’s testimony at the Duke CEC hearing, the study revealed that

there is an “astounding amount of hydrologic and geologic data” for the aquifer making for a detailed hydrological assessment of the impacts the proposed pumping will have on the aquifer. An important part of the hydrologic data is existing grandfathered rights. (Reporter’s Transcript, p. 192). Because the proposed pumping for AVEF II is in an AMA under existing grandfathered water rights, the impacts of that pumping are very predictable.

The detailed information obtained by Dr. Mock led him to conclude that this is an ideal location for the power plants because their impact on the aquifer is easily forecasted through the use of the historic data. Dr. Mock concluded that “the well capacities are quite impressive, and the aquifer prolific. It performs much better than one would expect from just a geologic data and the setting alone.” (Reporter’s Transcript, p. 192).

At the CEC hearing, Dr. Mock concluded that: “The water supplies are adequate to meet the needs of this facility. Additionally, the increase in the facility's use from approximately 6800 to 7800 acre feet of water that's specifically considered today at this hearing is compatible with the surrounding water supplies, and will result in only minimal impacts to the aquifer. The cumulative impacts of all the projected pumping in the Centennial Wash area are similar to those experienced in this area in the past, and are less than being experienced elsewhere in central Arizona.”² (Reporter’s Transcript, pp. 201-202).

Due to the presence of a nuclear power plant and other power plants currently under construction, the AVEF II vicinity is unlikely to be used for residential or other development in the foreseeable future. In fact, a number of the Commission approved CECs for this area explicitly limit residential development in this area. As a result, the groundwater from this plentiful aquifer will be available for the foreseeable future to be used to produce clean, less

expensive energy while CAP water that would otherwise be “wasted” will be recharged into the ground in a severely depleted aquifer.

V. THE DRY-COOLED PLANT OPTION.

Ken Johnson testified in this proceeding that Duke considered and rejected a dry-cooled plant in this location. The Siting Committee also rejected a dry-cooled plant alternative by a vote of 9-1. For instance, Committee Member Whalen said:

I disagree with Mr. Williamson in this respect. I think this applicant and other applicants that have come before this Committee have demonstrated an adequate supply of groundwater to run their operations. I think we’ve been very critical, and in one case recently denied an applicant because we felt that the groundwater was not sufficient.

I look at this versus agricultural, and knowing that these uses can revert to agricultural anytime the applicant should choose to do so, and from my limited experience, the use of water for agriculture is much greater than it is for power plant operations.

(Reporter’s Transcript, pp. 273-274).

Committee Member Houtz of ADWR stated:

I think this is the way that the law under the Groundwater Act envisioned, is that municipal and industrial users will acquire irrigation rights and convert them to Type I and bring themselves within the regulation of the Department of Water Resources.

There has to be an economic choice made by applicants on the best use of water. The department looks to regulate water in the best interests and what state law envisions. I guess I’m satisfied that the conditions, and specifically in the proposed conditions of 1-C, leaves DWR in control of making sure that the best use of water is being made. I think the evidence they showed demonstrates that there is a potential use for this water that’s outside of the reach of this body that can be made that is more harmful to Arizona water resources. (Reporter’s Transcript, pp. 275-276).

² Unlike other projects that have come before the Commission, groundwater use will not impact surface water resources.

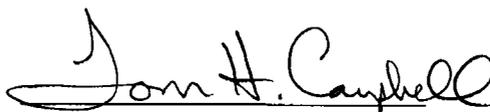
Maricopa County also considered and rejected the dry-cooled plant option when issuing a Special Use Permit for AVEF II. In addition, the Commission can take administrative notice of subsequent Siting Committee proceedings such as Toltec and Allegheny where detailed discussion of dry-cooled plants demonstrated that while dry-cooled plants use less water, there are limitations relating to efficiency, use of gas, air emissions and cost.

VI. CONCLUSION

Duke respectfully requests that the Commission grant this Application for Rehearing and modify Commission Decision #64357 as discussed above.

RESPECTFULLY SUBMITTED this 22nd day of January, 2002.

LEWIS AND ROCA LLP



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Phoenix, Arizona 85004

Attorneys for Duke Energy Arlington Valley,
L.L.C.

ORIGINAL and 10 copies
of the foregoing filed this
22nd day of January, 2002, with:

The Arizona Corporation Commission
Utilities Division – Docket Control
1200 W. Washington Street
Phoenix, Arizona 85007

Arlington Valley Energy Facility II Project
Docket No. L- 00000P-01-0117

COPY of the foregoing hand delivered
this 22nd day of January, 2002, to:

William Mundell, Chairman
Arizona Corporation Commission
1200 W. Washington Street
Phoenix, Arizona 85007

Jim Irvin, Commissioner
Arizona Corporation Commission
1200 W. Washington Street
Phoenix, Arizona 85007

Marc Spitzer, Commissioner
Arizona Corporation Commission
1200 W. Washington Street
Phoenix, Arizona 85007

Laurie Woodall
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1275 W. Washington Street
Phoenix, Arizona 85007

Janice M. Alward
Arizona Corporation Commission
1200 W. Washington Street
Phoenix, Arizona 85007

Jerry Smith
Arizona Corporation Commission
1200 W. Washington Street
Phoenix, Arizona 85007

COPY of the foregoing mailed
this 22nd day of January, 2002, to:

Neil A.M. Peters
P.O. Box 57
Arlington, Arizona 85322


Betty J. Griffin

A



Average Annual Water Usage

Typical 2 x 1 Combined Cycle 500 MW Package
(acre-feet)

	Wet Cooled Plant	Dry Cooled Plant
Cooling Tower Make-up	3,200	-----
Evaporative Cooler	150	150
Boiler Make-up	120	120
Misc.	30	30
Total	3,500	300

B



Representing a United
Western Maricopa County

January 17, 2002

The Honorable William A. Mundell
Arizona Corporation Commission
1200 West Washington Street
Phoenix, AZ 85007

Dear Commissioner:

This letter is in regard to your recent action in the matter of Duke Energy and their proposed expansion of the Arlington Valley facility.

It is our understanding that Duke Energy Arlington Valley L.L.C. is willing to recharge into the Agua Fria Recharge Project an amount equal to the groundwater used by its new AVEF II plant which is estimated at 3,500 acre feet/year. Furthermore, WESTMARC understands that the Arizona Corporation Commission considered two alternatives for the Duke plant – one is a groundwater plant with a recharge program and the other is a dry-cooled plant with a more limited recharge program. While we cannot comment on the multiple issues the Commission considers in these cases, in the best interests of water stewardship we strongly recommend that you select the alternative with the larger recharge program.

The West Valley is the area with the most aggressive growth in Maricopa County and it is clear that it will continue to grow into the foreseeable future. We now expect population to increase by 1 million people over the next 10 years.

At the same time, the Agua Fria aquifer used to provide water to this area is being depleted and is in serious need of recharge. It is a high priority for WESTMARC to facilitate and encourage recharge in this area so that future water needs are secured and so that we can sustain our growth and development. Furthermore, we have a finite period of time to utilize this recharge opportunity using excess CAP water that would otherwise never be used by Arizona. For this reason, WESTMARC asks the Commission to consider the larger recharge option for an area that critically needs it.

Thank you for your consideration.

Sincerely,

Diane B. McCarthy
President

Cc: The Honorable Jim Irvin
The Honorable Marc Spitzer

C



CENTRAL ARIZONA PROJECT

P.O. Box 43020 • Phoenix, Arizona 85080-3020 • 23636 North Seventh Street (85024)
(623) 869-2333 • www.cap-az.com

January 17, 2002

Mr. Max Shilstone
Duke Energy North America
245 West Roosevelt
Phoenix, AZ 85003

Subject: Use of the Agua Fria Recharge Project

Dear Mr. Shilstone:

It is our understanding that Duke Energy has been authorized by the Arizona Corporation Commission (Commission) to construct a gas power plant in the Arlington area based upon a "dry" technology that would use about 350 acre-feet of local groundwater annually. We also understand that Duke Energy is considering a proposal that would go before the Commission to utilize a "wet" technology that would use about 3,500 acre-feet of water per year coupled with recharge of an equal amount of water from the Central Arizona Project (CAP) at the Agua Fria Recharge Project. The Central Arizona Water Conservation District (CAWCD) is the manager of the CAP and is developing the Agua Fria Recharge Project to store excess CAP water underground for future use and to replenish the groundwater aquifer in the west Salt River valley. CAP water recharged at this site will greatly benefit the severely depleted aquifer in this area and will also help CAWCD consistently divert the full remainder of Arizona's Colorado River apportionment. Therefore, we support your proposal to purchase excess CAP water for underground storage at the Agua Fria Recharge Project to mitigate your groundwater pumping in the Arlington area. If I can be of further assistance, please let me know.

Sincerely,

John D. Newman
Assistant General Manager

D



The Maguire Company

January 18, 2002

Mr. H. Max Shilstone
Duke Energy North America
5400 Westheimer Court
Houston, TX 77056

Subject: Benefits of Recharging Groundwater at Central Arizona Water Conservation District's (CAWCD) Agua Fria Recharge Facility

Dear Mr. Shilstone:

Drawing upon my knowledge and experience as the former director of the Arizona Department of Water Resources, you have asked me to discuss the impacts of pumping groundwater from the Hassayampa Sub-basin of the Phoenix Active Management Area (AMA) and recharging an identical quantity of water at CAWCD's Agua Fria Recharge Facility. This recharge facility is also located in the Phoenix AMA, north of the Hassayampa Sub-basin. Specifically, you have asked me to discuss impacts on the Phoenix AMA's groundwater supply caused by providing groundwater to Duke Energy North America's proposed Arlington Valley Energy Facility Phase II (AVEFII).

As I understand it, as proposed, AVEFII will require up to 3,500 acre feet (af) of groundwater annually when operational, or 105,000 af over the life of the plant. This amount represents an increase of 1,000 af above previously approved pumping for AVEFI by the Arizona Corporation Commission (ACC). Declines in groundwater levels due to this additional pumping are projected to range from less than five to fifteen feet in the area surrounding the AVEFII over a 30 year period.¹

In my opinion, the projected declines in the surrounding groundwater levels are not significant. The depth of the aquifer in this area exceeds 1000'. Even in the worst case scenario, the cumulative impact on the aquifer from groundwater pumping for the three power plants in the vicinity of AVEFII will only cause a 100' drawdown in the aquifer's deepest cone of depression.² By comparison, under state law, residential subdivisions in the Phoenix AMA are permitted to drawdown the aquifer 1000' over a 100 year period.³

Duke Energy has offered to recharge an equivalent amount of water at CAWCD's Agua Fria Recharge Facility. Recharge at the Agua Fria facility rather than at AVEFII is consistent with the state's water management policy. The Arizona Department of Water Resources has described the Agua Fria area as a "Critical Management Area" because of a large cone of depression that exists in the aquifer beneath Luke Air Force Base, immediately down gradient of the Agua Fria Recharge Facility.⁴ The Department is actively encouraging recharge here in an

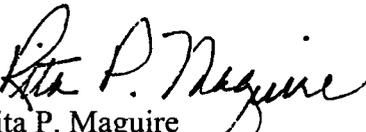
Mr. H. Max Shilstone
Duke Energy North America
January 18, 2002
Page 2

effort to prevent further damage to the aquifer. Drawdowns due to historic agricultural and residential groundwater pumping have caused earth fissuring and drops in surface land levels up to 18' on the Base and surrounding areas. Once an aquifer collapses, its storage capacity is diminished, water quality is reduced and pumping costs are increased.

AVEFII and its sister facility are located "at the bottom" of the Basin, meaning the gradient of the groundwater in the Phoenix AMA is to the south and west, toward the site. On the other hand, recharge in the Agua Fria area will benefit the rest of the Basin in which the vast majority of existing and future demand lies. Moreover, because of the directional flow of the groundwater, water tables will recover quickly from the pumping that occurs in the Arlington area.

Finally, Duke Energy has offered to recharge 100% of the groundwater used to supply AVEFII using excess Colorado River water purchased from CAWCD. This recharge will serve two purposes: it will keep the Phoenix AMA Basin whole and, it will utilize otherwise unused Colorado River water in a Critical Management Area. It is also noteworthy that the recently adjourned Governor's Commission on Water Management recommended that just 25% of an industrial user's groundwater supply be replenished. This recommendation is the first attempt to require recharge by industrial users in an AMA, and awaits adoption by our state legislature.

Sincerely,


Rita P. Maguire
The Maguire Company

1. Peter Mock Groundwater Consulting Inc., August 13, 2001. "Results of Simulations of Potential Groundwater Responses to Proposed Additional Pumping for the Arlington Valley Energy Facility, letter report prepared for Duke Energy North America."
2. August 27, 2001 letter from Mr. Peter A. Mock, Ph.D., R.G., to Mr. H. Max Shilstone.
3. Ibid.