

## Groundwater model

### **1. What is the current shortfall (unmet demand) in ADWR's groundwater model for the Pinal AMA?**

Unmet demand occurs when the model cannot simulate pumping of all demands included, thereby creating a pumping shortfall or deficit. This pumping shortfall or deficit occurs when there is insufficient saturated aquifer to satisfy the pumping demand (i.e., the depth-to-water level reaches bedrock) or when the depth to water exceeds 1,100 feet after 100 years of simulated pumping. The 2019 Pinal Model results show a total unmet demand of approximately 8.1 million acre-feet (MAF) at the end of the model projection period in 2115. Of the 8.1 MAF of unmet demand, approximately 2 MAF is associated with issued AWS determinations pumping and 5.1 MAF is associated with agricultural pumping. (See 10/11/2019 ADWR presentation, slide 10)

### **2. Based on existing statutes and rules, if grandfathered groundwater uses were not included in ADWR's groundwater model, what would the volume of unmet demand be?**

Pursuant to A.A.C. R12-15-716(B)(3), the model must incorporate all existing groundwater uses, including those associated with grandfathered groundwater rights, as well as future uses associated with approved assured water supply determinations.

The primary purpose of the assured water supply program is to ensure that homebuyers will have a long-term, reliable water supply. In order to ensure the long-term reliability of groundwater supplies, it is imperative to consider the cumulative impact of all groundwater pumping throughout the Pinal AMA, rather than excluding any category of ongoing groundwater use. Removing grandfathered groundwater rights from the model would not comply with Guiding Principle 1, to uphold the consumer protection and water sustainability objectives of the Assured Water Supply Program. (See 10/11/2019 ADWR presentation, slide 13)

However, the assured water supply rules allow the Director to consider likely changes in pumping patterns of existing uses. A.A.C. R12-15-716(B)(3)(b). Accordingly, the 2019 Pinal Model incorporated assumptions regarding anticipated reductions in pumping associated with irrigation grandfathered groundwater rights pursuant to data and projections provided by irrigation districts and supported by other information on file with ADWR.

- 3. We have heard there is no groundwater physically available in the Pinal AMA. Assuming this is not true across the entire AMA, how can ADWR use its model to define areas where groundwater could be successfully used for assured water supply purposes?**

As stated above, 100-year modeling results show a very large volume of unmet demand throughout the model area. It is unlikely that any specific area will produce sufficient groundwater to meet assured water supply requirements for new or pending applications without negatively affecting groundwater supplies for the rest of the AMA.

- 4. How could the groundwater model be used to test if the location of recovering water stored in a groundwater savings facility makes a material difference in the model results?**

Changing the location of pumping in the model, whether that pumping is related to groundwater withdrawal or recovery of stored water, may marginally affect the model results. However, given the high volume and widespread occurrence of unmet demand throughout the model area, substantial changes in volume, as well as pumping locations, would be required in order to materially improve the model results.

Generally, ADWR presumes that an assured water supply applicant will recover stored water within the area of impact, unless existing recovery well locations or the proposed pumping locations included in the application for a determination of assured water supply indicate otherwise.

- 5. How does replenishment by the CARGD affect physical availability of groundwater for new requests for CAWS?**

Replenishment by the Central Arizona Groundwater Replenishment District (CARGD) is not sufficient to address unmet demands in the 2019 Pinal Model and demonstrate physical availability of groundwater for new applications.

Based on the 2015 CARGD Plan of Operation, the model assumes that 15,500 acre-feet per year will be replenished. It is likely that the CARGD replenishment assumptions marginally reduce the overall volume of unmet demand in the 2019 Pinal Model.

## Assured Water Supplies

### **6. What advantages and disadvantages are there to basing material plat changes on the volume of the CAWS and not on the units under the Certificate?**

In 2006, ADWR adopted A.A.C. R12-15-708, a rule defining material plat changes. That rule simplified and streamlined the previous ADWR policy regarding material plat changes by eliminating limitations regarding lot size and land use types. The rule was adopted after considerable stakeholder discussions and feedback. The current rule allows increases to the number of lots, generally of about 10% of the lot count on the original certificate.

ADWR has not fully evaluated whether the rule should be revised to allow more significant increases in the number of lots, nor has ADWR had discussions with stakeholders throughout the State who might be affected by such a rule change. However, more substantial increases in the number of lots may also result in changes to the water demand for the proposed subdivision that may exceed the certificated volume.

### **7. Many people believe that an assured water supply can be secured in the Pinal AMA by using long-term storage credits. What, if any, limitations or impediments should be consider about this approach before purchasing such credits?**

There are several requirements that must be met in order to rely on long-term storage credits to demonstrate an assured water supply.

Pursuant to the assured water supply physical availability rule and *ADWR Substantive Policy Statement on Hydrologic Studies Demonstrating Physical Availability of Groundwater for Assured and Adequate Water Supply Applications*, long-term storage credits recovered outside the area of impact of storage can only be considered physically available if the proposed recovery pumping will not cause the depth-to-static water levels at the proposed pumping location and the locations of all issued assured water supply demands in the study area to exceed: a) the 1,100 foot maximum 100-year depth-to-static water level for the Pinal AMA or b) depth to bedrock (if depth to bedrock is shallower than 1,100 feet below land surface). This is the same physical availability criterion that applies to groundwater.

Additionally, under A.R.S. § 45-854.01(B), the Director of the Department may reject and invalidate any assignment of long-term storage credits in which the

stored water would not have met the requirements for long-term storage credits as prescribed in A.R.S. § 45-852.01 if the assignee had stored the water. One of the requirements for long-term storage credits in A.R.S. § 45-852.01(B) is that the water that was stored was water that cannot reasonably be used directly. Under the definition of “water that cannot reasonably be used directly” (frequently referred to as “WTRBUD” or “WaterBUD”) in A.R.S. § 45-802.01(22), with certain exceptions, an entity cannot earn long-term storage credits for the storage of CAP water in any year in which the entity withdrew groundwater. These provisions could have applicability to any proposed assignment of CAP long-term storage credits to a municipal water provider withdrawing groundwater.

Lastly, any application for a certificate or analysis of assured water supply for a subdivision that will receive any volume of groundwater through a municipal water provider’s commingled water delivery system must demonstrate physical availability of the groundwater that will be delivered to the subdivision.

**8. What advantages and disadvantages might result in a regulatory structure that would facilitate the portability of existing CAWS?**

The assured water supply statutes and rules provide for the transfer of a certificate to a new owner for the same subdivision, while maintaining the consumer protections the program was designed to provide. ADWR allows certificates to be transferred to new landowners, provided that the new landowner demonstrates that the assured water supply associated with the previous certificate will continue to be available to the prospective homeowners. The rules provide for more streamlined transfers when the legal nature of the water supplies permit. Additionally, as subdivisions begin to develop toward full build-out, the rules provide for exemptions from the requirement to transfer the certificate at all.

However, the assured water supply statutes and rules are not designed to allow for “portability” with respect to subdivision location. Given the nature of both physical and legal availability, changing the location of a development may have material impacts on the ability to obtain the water supply in a different location.

With respect to legal availability, many water rights in Arizona are appurtenant to the land. Therefore, permitting the automatic transfer of certificates from one location to another may disrupt the legal availability of the water supplies, thereby eliminating the consumer protection the assured water supply program was designed to provide.

Regarding physical availability of groundwater, allowing a certificate to be applied to a subdivision in a different location, which may also require the groundwater to be pumped from a different well location, may disrupt the physical availability not only for the future homeowners in the proposed subdivision, but also for other surrounding residents, again eliminating the consumer protection goal of the assured water supply program.

**9. What strategies and approaches has ADWR considered to resolve the unmet demand unrelated to the Assured Water Supply program?**

ADWR recognizes that the volume and widespread occurrence of unmet demands – both those associated with assured water supply determinations and other unmet demands – necessitates a more holistic approach. It is unlikely that the unmet demand within the model projection associated with assured water supply determinations can be resolved without also substantially reducing *all* unmet demand within the AMA. The Pinal community stakeholders will need to collaborate to identify a combination of solutions, including reduced groundwater pumping and new water resources, that could resolve the issue on a regional scale.

Since 2017, ADWR has engaged with stakeholders both formally and informally to discuss a variety of options to resolve unmet groundwater demands. Although ADWR has considered a variety of options related to revising modeling assumptions, changes to statutes and rules, and finding methods to bring new water supplies to the Pinal AMA, ADWR has consistently taken the perspective that the best solutions must come from a stakeholder-driven process and must preserve the groundwater management and consumer protection goals of the assured water supply program.

**Other Questions**

**10. What are ADWR's solutions to allow for land and economic development in the Pinal AMA?**

Given the magnitude of the problem, there is no single solution. The best solutions for Pinal County's future must be determined locally, involving all water users and industries. To that end, ADWR encourages the establishment of a community driven process that honors the letter and intent of the 1980 groundwater reforms, while remaining flexible to anticipate future population and economic growth. ADWR stands ready to provide technical support and assistance throughout the effort.

**11. What are ADWR's ideas for increased replenishment and potential renewable supplies for the Pinal AMA?**

Processes through which organizations or individuals in the Pinal AMA may obtain potential renewable supplies and substantially increased replenishment must account for considerable complexity, including, among other things, the opportunity costs of those acquisitions. To the extent possible, consensus or, at minimum, significant agreement should accompany such outcomes. ADWR has helped enable several similar discussions during the recent experience, including stakeholder conversations in 2017 and the ADWR-CAWCD steering committee effort.

During the negotiations of the Arizona DCP Implementation Plan, water users in other parts of the state raised concerns about transferring their water supplies to Central Arizona. Therefore, solutions arising out of the local stakeholder process that involve such water transfers will likely attract attention from other areas of the state.

**12. How much freedom will Pinal AMA/County interests have to create new water management goals and to establish regulatory structures to support those new goals?**

ADWR may support regulatory changes and management goal changes proposed by stakeholders that preserve the consumer protection aspect of the assured water supply program. However, the authority to change water management goals or establish regulatory structures to support new water management goals is held by policy makers.

ADWR is leading parallel processes that will also give local interests a voice in water management. ADWR, principally through the activities of the management plans work group, is refining the respective management plans for the three active management areas—Phoenix, Pinal, and Santa Cruz—which presently are within the purview of the third management plan. The purpose of this activity is to enable the adoption of the fourth management plan (4MP) for each of the three AMAs for which a final 4MP does not yet exist. ADWR has also commenced the construction of the fifth management plan (5MP) for all five AMAs. Stakeholders may participate in discussions at the work group level by sector in sub-group conversations or in the several other ways through which they may provide input. Moreover, the post 2025 AMA committee, a derivative of the Governor’s Water Augmentation, Innovation, and Conservation Council, launched on October 10<sup>th</sup>.

All who desire to attend the management plan work group discussions and/or the meetings of the post-2025 committee are welcome and encouraged to take part. Residents of Pinal County may choose to participate in the broader conversations or those specific to the development of the 4MP and 5MP for the Pinal AMA.

**13. How is water stored in recharge projects protected from grandfathered uses of groundwater in the Pinal AMA? How confident is ADWR that long-term storage credits pledged for Assured Water Supply would be physically available in 100 years?**

ADWR does not have the authority to restrict grandfathered groundwater right pumping in order to protect water stored at underground storage facilities or groundwater savings facilities. However, A.R.S. § 45-856.01 requires ADWR to protect stored water when evaluating applications for certificates of assured water supply, designations of assured water supply, or certain permit applications.

ADWR cannot guarantee that long-term storage credits pledged to assured water supply determinations will be physically available for 100 years. Assured water supply applications that include stored water to be recovered *outside* the area of impact of storage must meet the same modeling criteria as required for groundwater pumping. Long-term storage credits pledged to an assured water supply application that will be recovered *within* the area of impact of storage are not evaluated for physical availability in the same way as groundwater or stored water to be recovered outside the area of impact of storage.

**14. How do grandfathered uses of groundwater affect assured water supply determinations by ADWR?**

The primary purpose of the assured water supply program is to ensure that homebuyers will have a long-term, reliable water supply. In order to ensure the long-term reliability of groundwater supplies, it is imperative to consider the cumulative impact of all groundwater pumping throughout the Pinal AMA, rather than excluding any category of ongoing groundwater use. Therefore, pursuant to A.A.C. R12-15-716(B)(3), the model must incorporate all existing groundwater uses, including those associated with grandfathered groundwater rights, as well as future uses associated with approved assured water supply determinations.

However, the assured water supply rules allow the Director to consider likely changes in pumping patterns of existing uses. See A.A.C. R12-15-716(B)(3)(b).

Accordingly, the 2019 Pinal Model incorporated assumptions regarding anticipated reductions in pumping associated with irrigation grandfathered groundwater rights as provided by CAIDD and MSIDD and supported by other information on file with ADWR.

Even with the anticipated reductions in agricultural pumping, the 2019 Pinal Model results show a very large volume, over 8 MAF, of unmet demand across several sectors at the end of the 100-year projection period throughout the model area. (See 10/11/2019 ADWR presentation, slide 10)

**If there is a negative impact, what strategies and approaches has ADWR considered to mitigate grandfathered uses of groundwater that negatively affect the management goal in the Pinal AMA?**

Given the magnitude of the problem, there is no single solution. The best solutions for Pinal County's future must be determined locally, involving all water users and industries. To that end, ADWR encourages the establishment of a community driven process that honors the letter and intent of the 1980 groundwater reforms, while remaining flexible to anticipate future population and economic growth. ADWR stands ready to provide technical support and assistance throughout the effort.

**15. How can replenishment entities such as the CAGR D be used to secure and provide physical water supplies instead of just replenishing excess groundwater use after the fact?**

Current statute permits the CAGR D, under certain conditions, to provide a physical water supply through annual replenishment in a specified location to support a designation of assured water supply for a city, town or private water company anywhere in the CAP service area. A.R.S. § 48-3772(B)(10); *see also* A.R.S. § 45-576.07. One of the statutory conditions requires that the city, town or private water company agree to provide enough water to meet the obligations undertaken by the CAGR D on behalf of the city, town or private water company. A.R.S. § 48-3772(B)(10)(c).

The statutory framework also limits the cumulative commitments by CAGR D to no more than 20,000 acre-feet per year. To date, only the City of Scottsdale has reached agreement with the CAGR D under these statutory provisions. The CAGR D commitment to the City of Scottsdale is for 3,460 acre-feet per year.

Although the statutory framework described above is applicable to cities, towns, and private water companies, statutory revisions would likely be required to authorize the CAGR D to provide physical water supplies for a subdivision. However, in order to preserve the consumer protections inherent in the assured water supply program, it will be necessary to ensure, prior to subdivision approval, that the CAGR D (or any other entity vested with such authority) will be able to secure the necessary water supplies to meet the subdivision's long-term demands.

**Acronyms:**

4MP – Fourth Management Plan

5MP – Fifth Management Plan

ADWR – Arizona Department of Water Resources

AMA – Active Management Area

CAGR D – Central Arizona Groundwater Replenishment District

CAIDD – Central Arizona Irrigation and Drainage District

CAP – Central Arizona Project

CAWS – Certificates of Assured Water Supply

MSIDD – Maricopa Stanfield Irrigation and Drainage District