

AZWaterReuse 2021

APS Sustainable Water Practices

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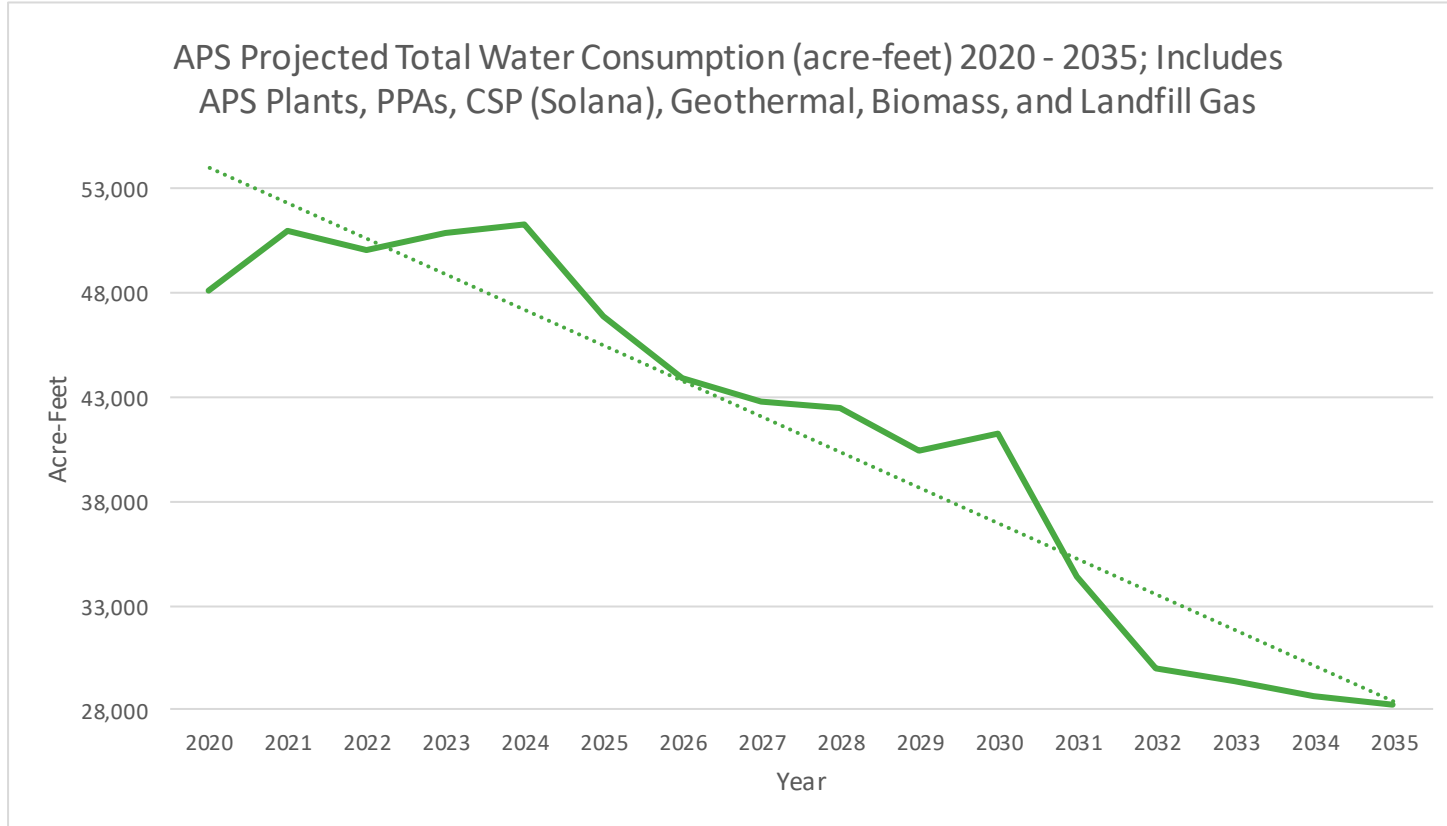
APS Reliance On Colorado River Water

- Less than 1% of APS fleet water comes from the Colorado River
- Yucca Power Plant
 - 5th/6th Priority water rights – lost in Tier 1 shortage
 - Groundwater sufficient to meet plant requirements
- Sundance Power Plant
 - GRIC Indian Priority CAP water
 - Relatively high priority

APS Sustainable Water Practices

- Reduce fleet water consumption and water intensity
- Avoid water use by using more renewable energy (wind, PV solar)
- Increase energy efficiency – power not needed that would have consumed water
- Increase use of reclaimed water
- Reclaim and use impaired water supplies, if available – brackish/saline groundwater
- Retire older water intensive plants and replace with water efficient technologies (Ocotillo, hybrid cooling towers)
- Reduce reliance on non-renewable groundwater

Water Consumption For Power Delivered To APS Customers Projected To Be Reduced 41% By 2035



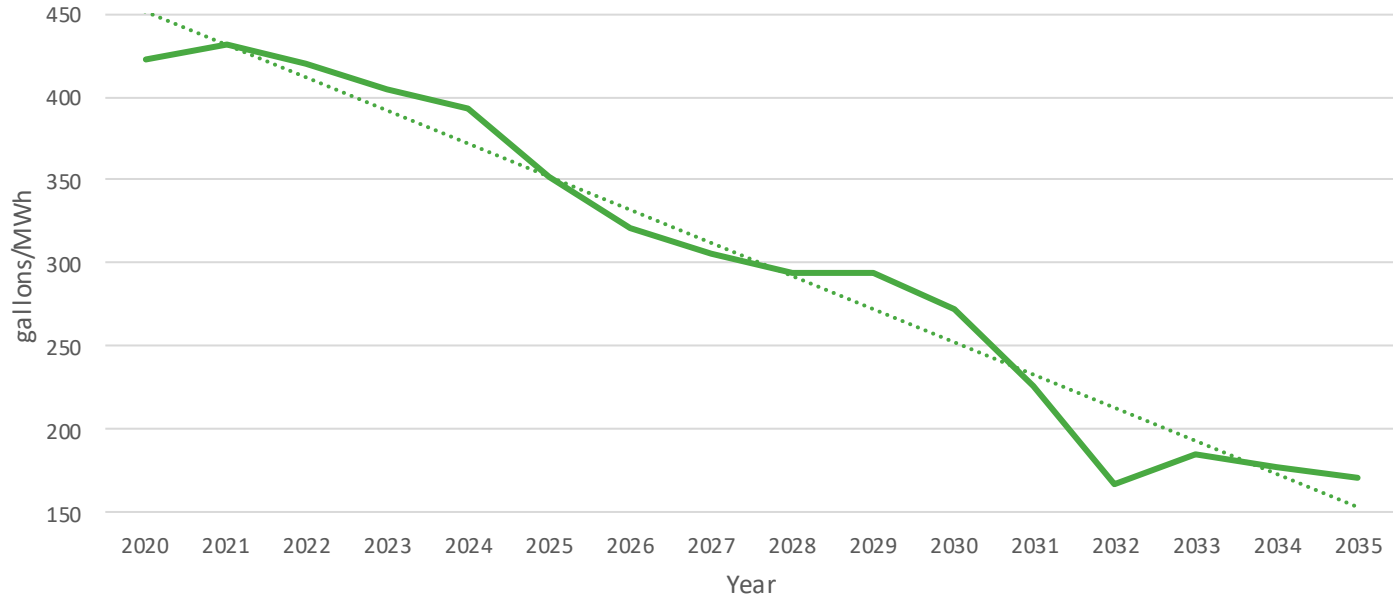
Ocotillo Modernization Project

- Replaced aging steam units with modern quick start combustion turbines
- Implementation of Hybrid (Wet/Dry) Cooling Technology
 - Reduced water intensity from approx. 900 gal/MWh to 140 gal/MWh
- Five Units were placed in-service in 2019



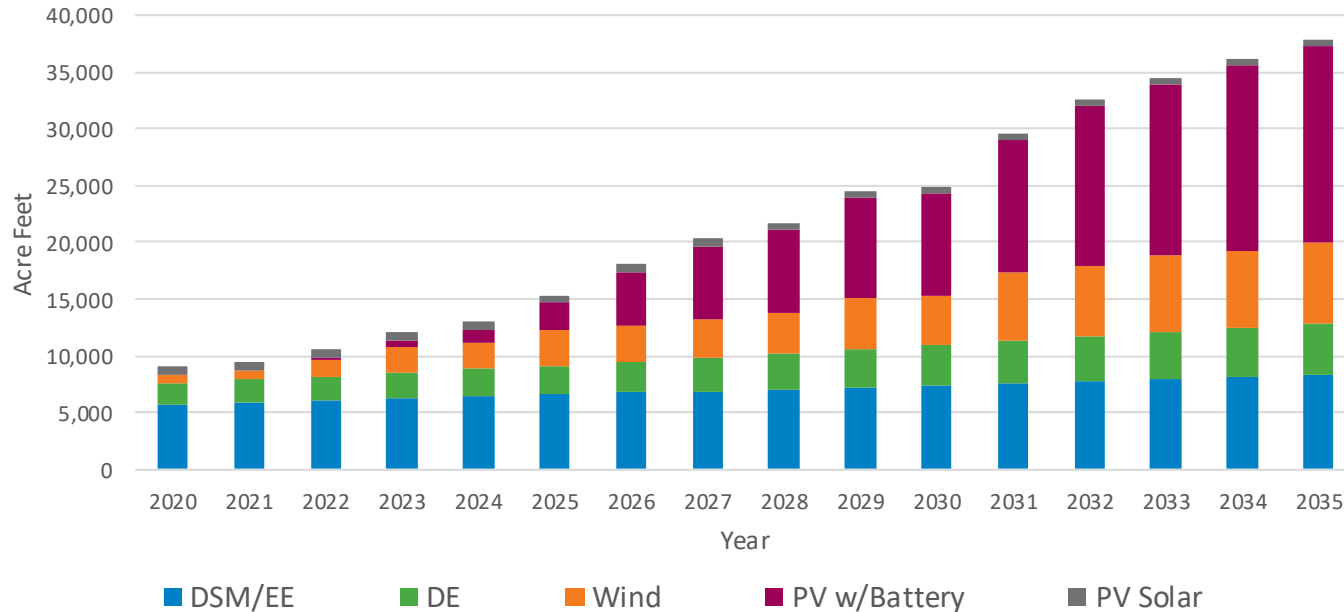
Water Intensity (gal/MWh) Of Power Delivered To APS Customers Projected To Be Reduced 60% by 2035

APS Projected Water Intensity (gal/MWh) 2020-2035; Includes APS Plants, PPAs, CSP (Solana), Geothermal, Biomass, Landfill Gas, Energy Efficiency, and Renewable Energy (DE, Wind, PV Solar)



Avoided Water Usage Due To Increased Renewable Energy and Energy Efficiency

Avoided Water Usage (Acre-Feet) Due To Use of Renewable Energy and APS Energy Efficiency Programs



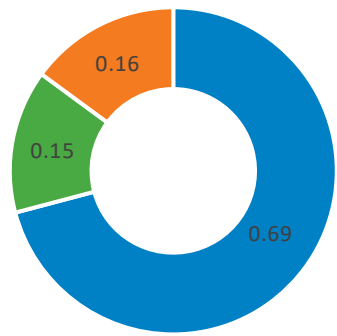
2035 Total % By Source	
PV w/Battery	45.4%
DSM/EE	22.0%
Wind	19.4%
DE	11.7%
PV Solar	1.5%

APS Uses Three Types of Water For Power Plant Cooling: Treated Effluent, Surface Water, and Groundwater

- Treated Effluent
 - In 2020, 69% of all APS fleet water consumed was effluent
 - Renewable – supply is municipal wastewater from wastewater treatment plants
 - Drought resistant – typical cutback in drought is outdoor irrigation, interior use is relatively constant
- Surface Water
 - In 2020, 16% of all APS fleet water consumed was surface water
 - Renewable – replenished by rainfall, snow and runoff
 - At risk of shortage during drought conditions
- Groundwater
 - In 2020, 15% of all APS fleet water consumed was groundwater
 - Non-renewable – can be pumped much faster than it can be recharged
 - Groundwater is Arizona's water savings account, should be reserved for drought contingency
 - APS announced a strategy to reduce reliance on groundwater in 2016
 - Current usage is 31% below 2014 consumption
 - By 2035, we project groundwater usage to be 80% below 2014

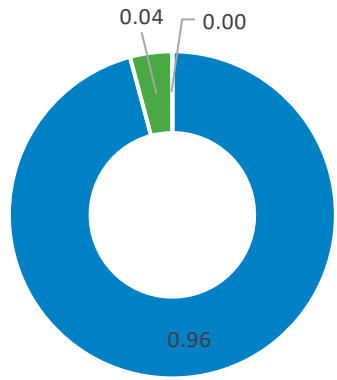
APS Water Use By Type During Resource Planning Period

2020 Water Use By Type
(actual % total plant water use)



■ Treated effluent ■ Groundwater ■ Surface Water

2035 Water Use By Type
(projected % total plant water use)



■ Treated effluent ■ Groundwater ■ Surface Water