Community Fact Sheet

Data Centers and the Desert

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- As of 2021, 20% of all data centers in the U.S. are built in highly stressed Western and Southwestern watersheds. [1]
  - That same year, data centers across the nation consumed 1.7 billion liters (450 million gallons) of water daily, with over 50% coming from potable sources. [2]
- Water for data centers often needs to be treated to have higher purity, with contaminants then being released into wastewater or the air. [3]

Initial Water Contamination

- Wastewater from data centers may contain contaminants that have negative affects on various lifeforms:
  - Biocides, total dissolved solids, and heavy metals can cause allergic reactions, respiratory system harm, and organ stress. [4]
  - Corrosion inhibitors can cause negative affects on marine life including eutrophication. [4]
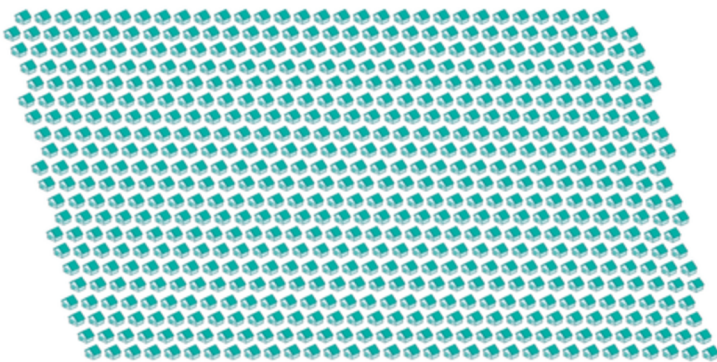
Water Reuse

- Water treated and discharged for additional use from Water Reclamation Facilities (WRFs), also known as recycled water, is gaining popularity as a source to cool data centers. [8] Water discharged from data centers as wastewater is then re-processed at WRFs, either becoming recycled water or released as effluent. [6,9] Depending on technological proficiency of WRFs, effluent and reuse water may still harbor aforementioned contaminants. [4]
  - Here in Tucson, AZ, reclaimed water comes from a few WRFs across the city such as the Agua Nueva, Tres Rios, and Randolph Park WRFs. [9]
    - Some WRFs discharge effluent into local waterways, with aims to replenish groundwater and the surrounding watershed. [9,10]
    - Other applications of recycled water include use at schools, parks, golf courses, and cemeteries. [6,11]

Further Water Consumption

- Arizona cities, such as Goodyear, house data centers that use 56 million gallons annually. [5]
- Research has shown that electricity and subsequent water consumption by data centers will double by 2030. [5]

Image depicting the quantity of individual household water consumption as it relates to Data Center usage [5]

References

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Definitions

Wastewater - used water of a community or industry that contains dissolved or suspended matter. [6]
Potable Water - drinking water that meets or exceeds drinking water standards set by federal or state entities. [6]
Watershed - a land-area that water flows across, through, or under and is defined by a topographical boundary, usually high points such as mountains. [7]
Effluent - water collected for treatment by a treatment facility, sometimes used to recharge streamflow. [6,10]

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