Building Water Sustainability Infrastructure in a New Community: Practical Challenges

Blue Ribbon Panel on Water Sustainability

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Practical Challenge: Future Demand ↑

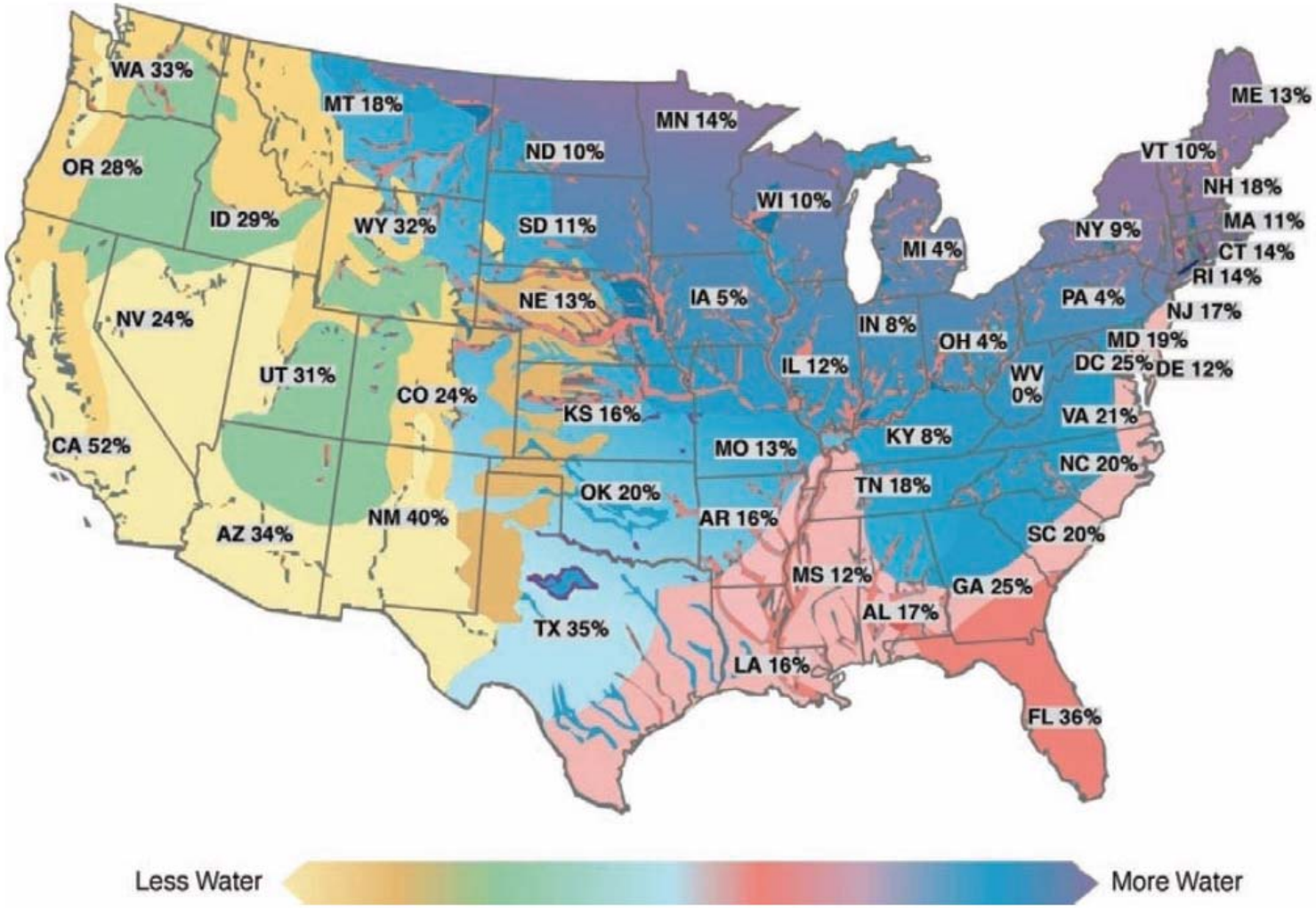
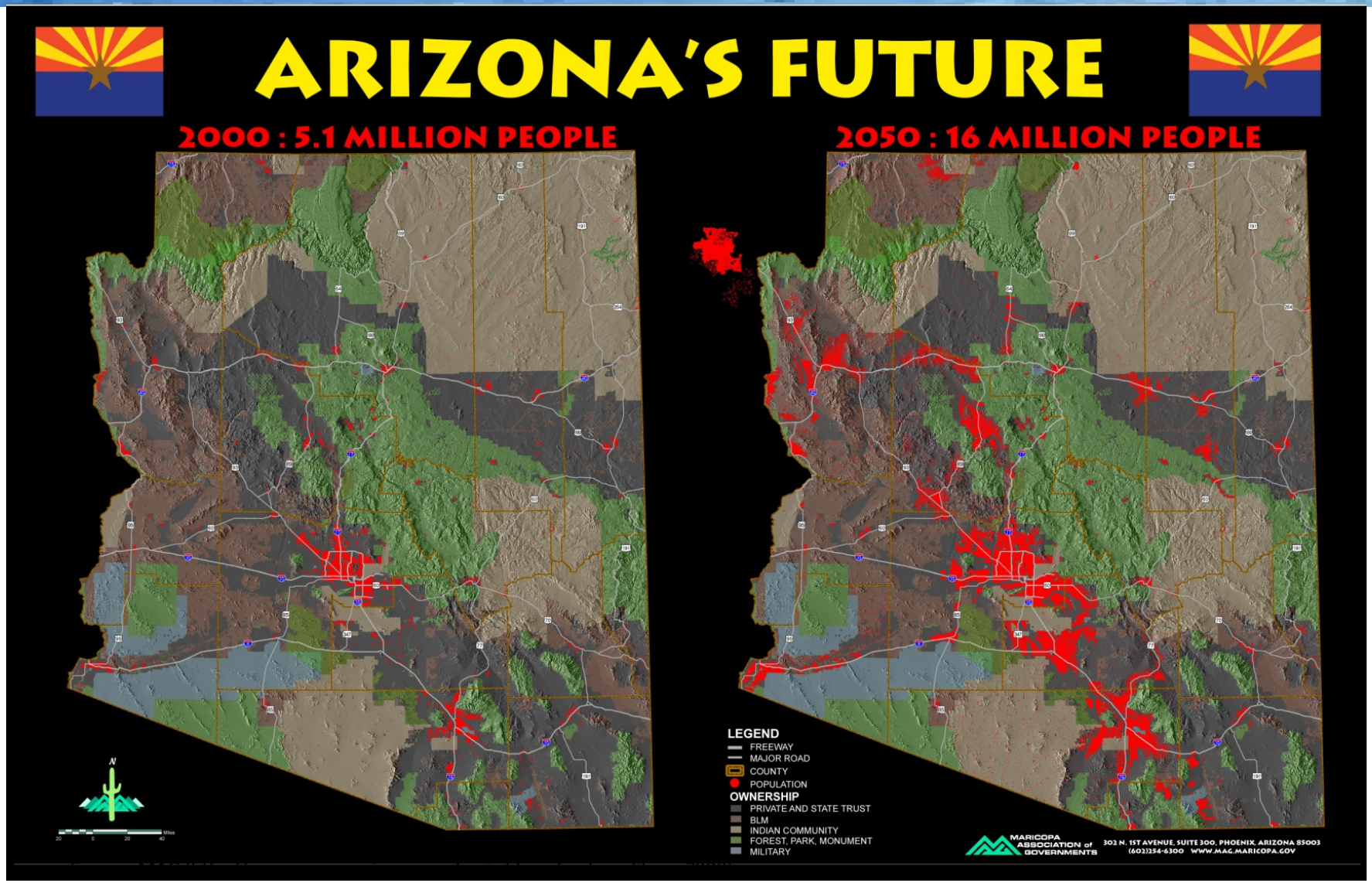


Figure 2: Relative Water Availability and Projected Change in Population (2000-2020)

Practical Challenge: Future Demand ↑



Where are new Communities?

- Definition:
  - Generally on outskirts of town
  - Driven by:
    - costs of land, and
    - affordability index (2nd highest in nation)
  - Built where land can be amassed in sections (sq miles)
    - particularly new master planned communities
  - Located in:
    - unincorporated areas, or within small municipalities
  - Water rights - no CAP allocation, no SRP, poor or no ground water, no availability of renewable supply
  - Infrastructure?
    - none, or small or newly formed municipality or private utility
  - Infrastructure likely to be initially built by developers

Dilemma

- Growth requires water
- We know there are finite water resources
  - In the absence of direct renewable supplies (CAP/SRP) communities must rely on groundwater
- Planning vs. Water Availability mismatch example:
  - 800,000 homes in planning in Pinal County
  - 82,500 AFY of renewable groundwater in the Pinal AMA
  - no single entity responsible for matching planning with resources
- How do we reduce the volume of water required for each home?
  - How do we regionalize water resources management?
  - How do we consolidate undercapitalized water and wastewater companies?
  - How do we incent the development community to make the right infrastructure choices – carrot or stick?
  - Who pays the higher price of conservation – developer or homeowner?

Problem Boundaries

- Time and politics are both against us.
  - The crisis will occur in the medium or long term, and the initial price of conservation is high today

- Assured Water Supply policies are a regulatory mechanism designed for development and growth, not for conservation
  - The AWS program is built on demand, not conservation – 0.4 to 0.5 AFY/EDU
  - The demand calculators employed pre-determine the amount of water to be used
  - Once a CAWS is issued, it cannot, by rule, be revoked
  - The potential of "The Tragedy of the Commons" exists

Developers, Conservation & Incentives

- There are few regulatory incentives for developers to reduce water demand in new communities.
  - Many developers will make infrastructure decisions based solely on capital outlay – not long-term conservation or operating costs.

- In fact, there are financial drivers for developers to maximize water demand to their developments:
  - CAWS controls, and has the potential to delay competing developments, and
  - Water rights are attached to property = potential for extracting money from competitors who need water rights.

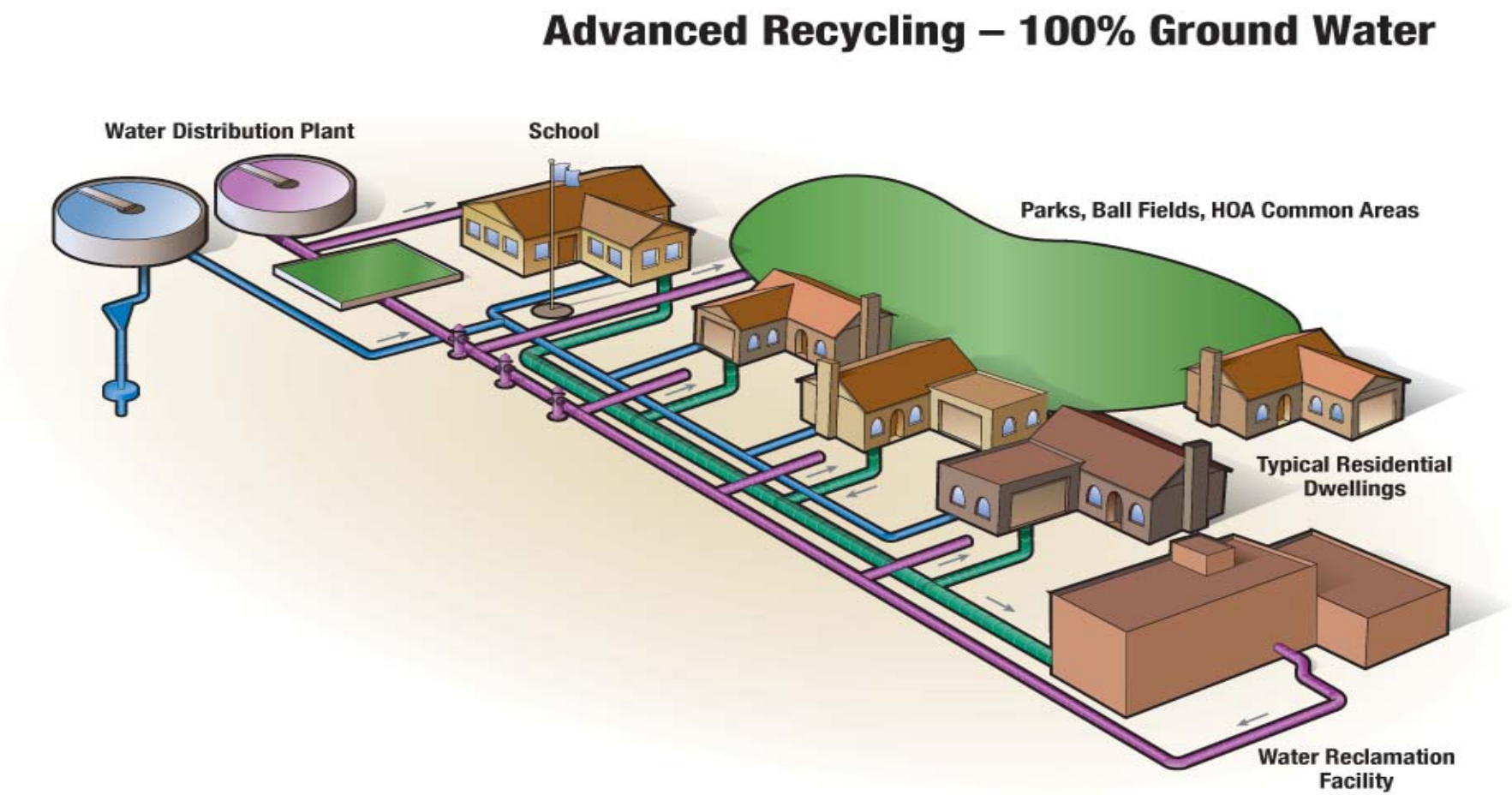
Solution: Policy that Mandates the Following:

Demand-Side Management Solution:

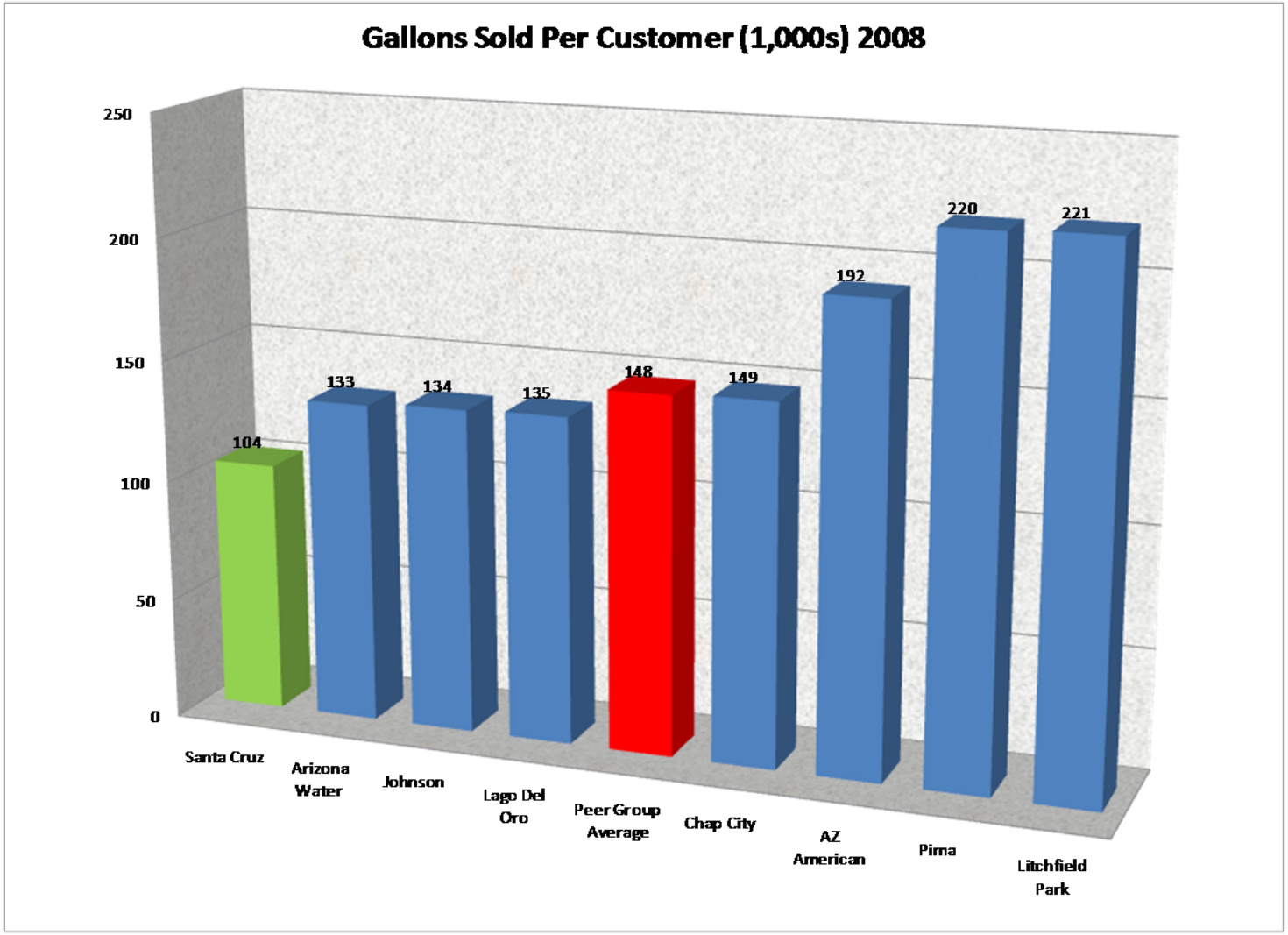
- Infrastructure
  - Purple pipes everywhere
  - Decentralized treatment
    - Water factories vs. Wastewater plants
- Demand-Side Management Practices
  - Maximize non-potable utilization – right water for the right use
  - Environmental signals
  - Price signals
- Real time information to Customers
  - Hourly use, daily use, feedback on demand
  - Peer pressure - competitive framework

<u>AND</u> provides incentives to developers – financial and/or density

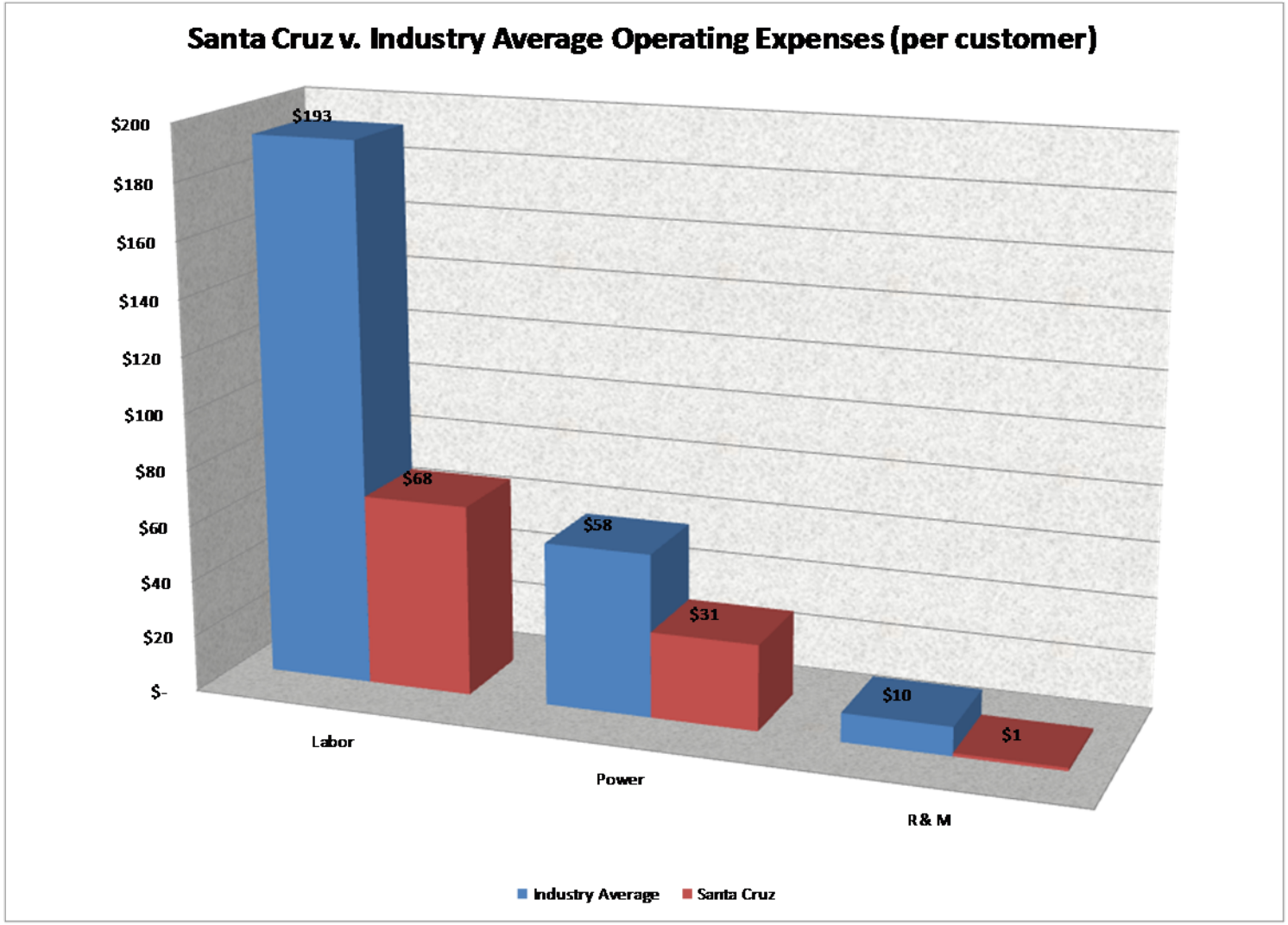
Conservation = Infrastructure + Information



Impact of Basic Recycling Infrastructure



Long-term Benefits of TWM



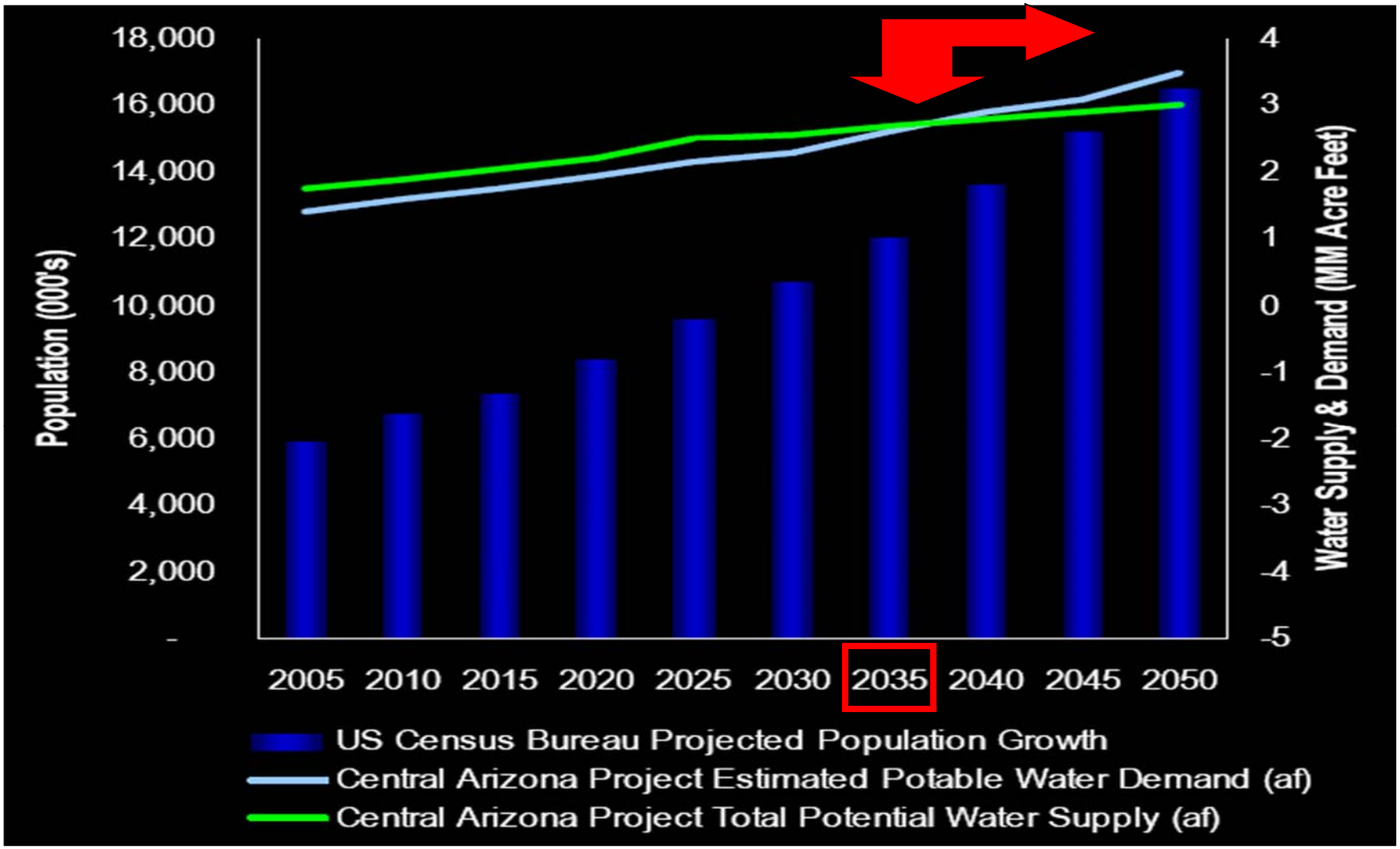
Conclusions

The Challenge

- Growth is coming to Arizona more than in other areas of the nation due primarily to climate, affordability and abundant land for development
- Growth will occur primarily in areas where there are no municipalities, no infrastructure and no water – private companies and the ACC will play a very significant role – the decisions we make today will impact generations
- There are few incentives for the first users to conserve for the last users
- There are few policies that mandate conservation

Conclusions

The Opportunity

- The only way to provide renewable supplies in these new communities is to create it with policy and incentives
- With appropriate policies and incentives – our newest growth areas can also be the most water efficient – showcases of appropriate desert living
- Our newest communities should consume less than 0.2 AFY per home or 75 gallons per person per day
- If we manage demand there is enough water to underpin the economic development we want for Arizona

Practical Challenge: ↑Demand + ↓Supplies