

Challenges to water supply in Texas and potential of FIRO*

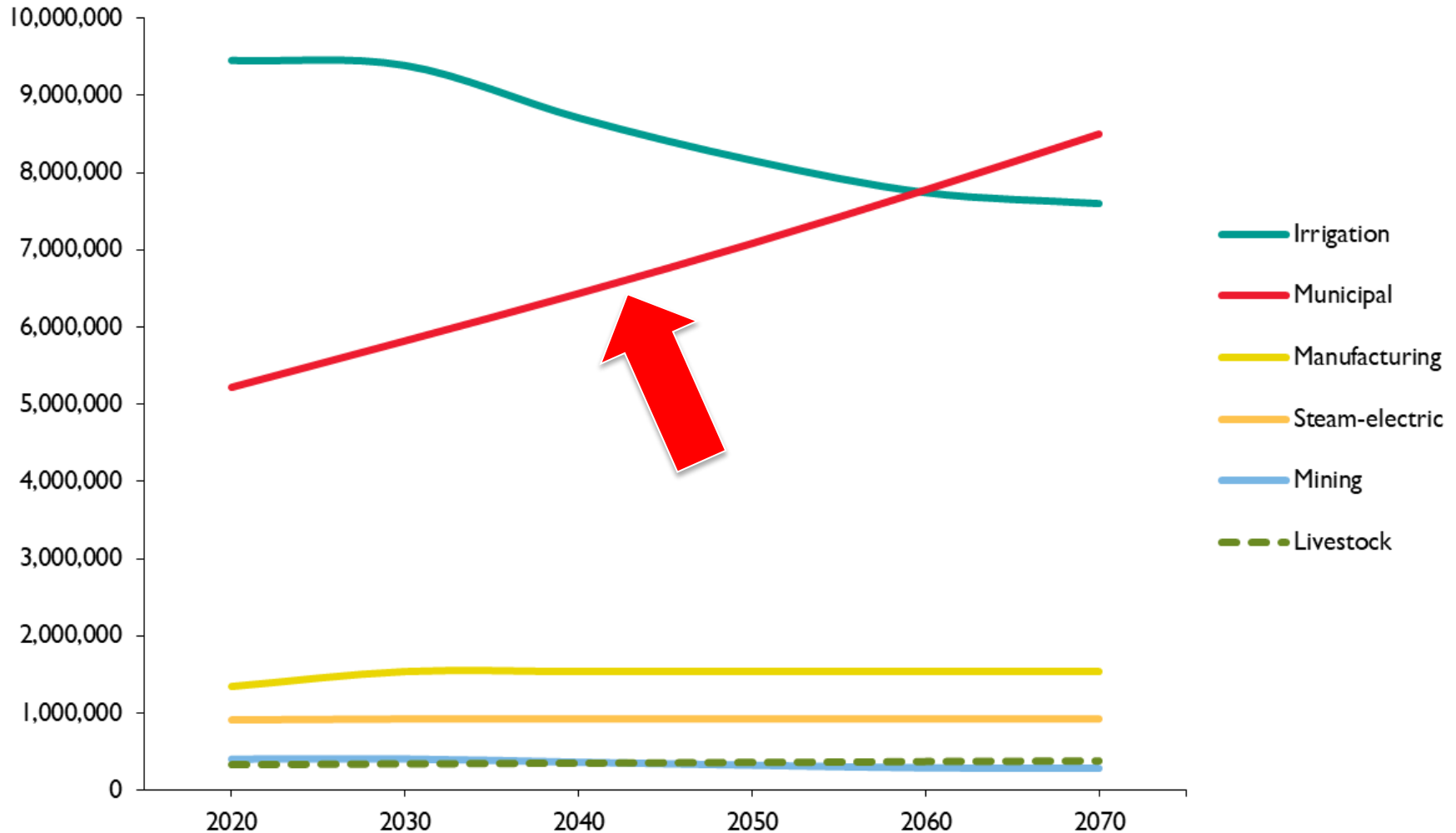
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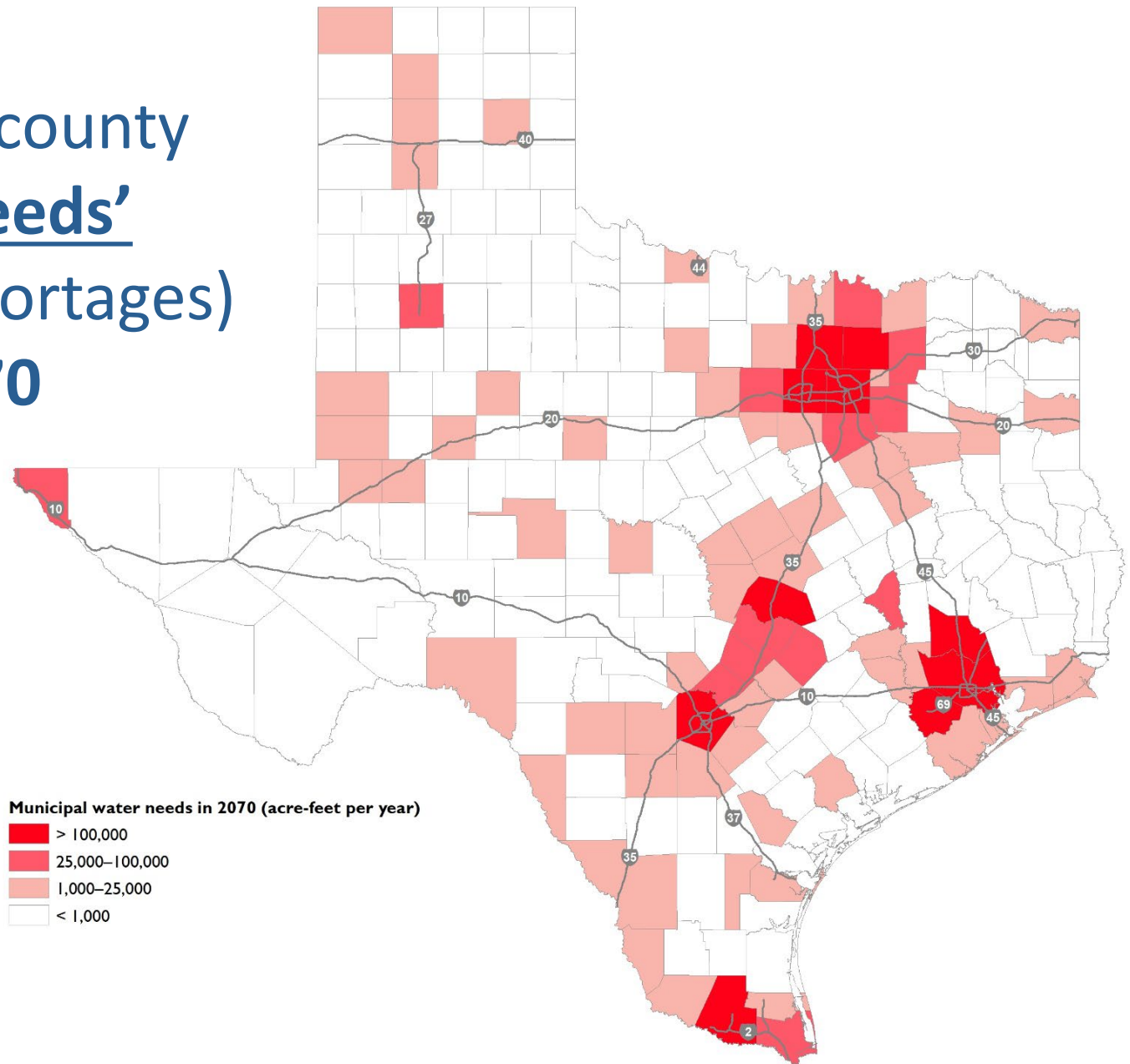
September 21, 2023



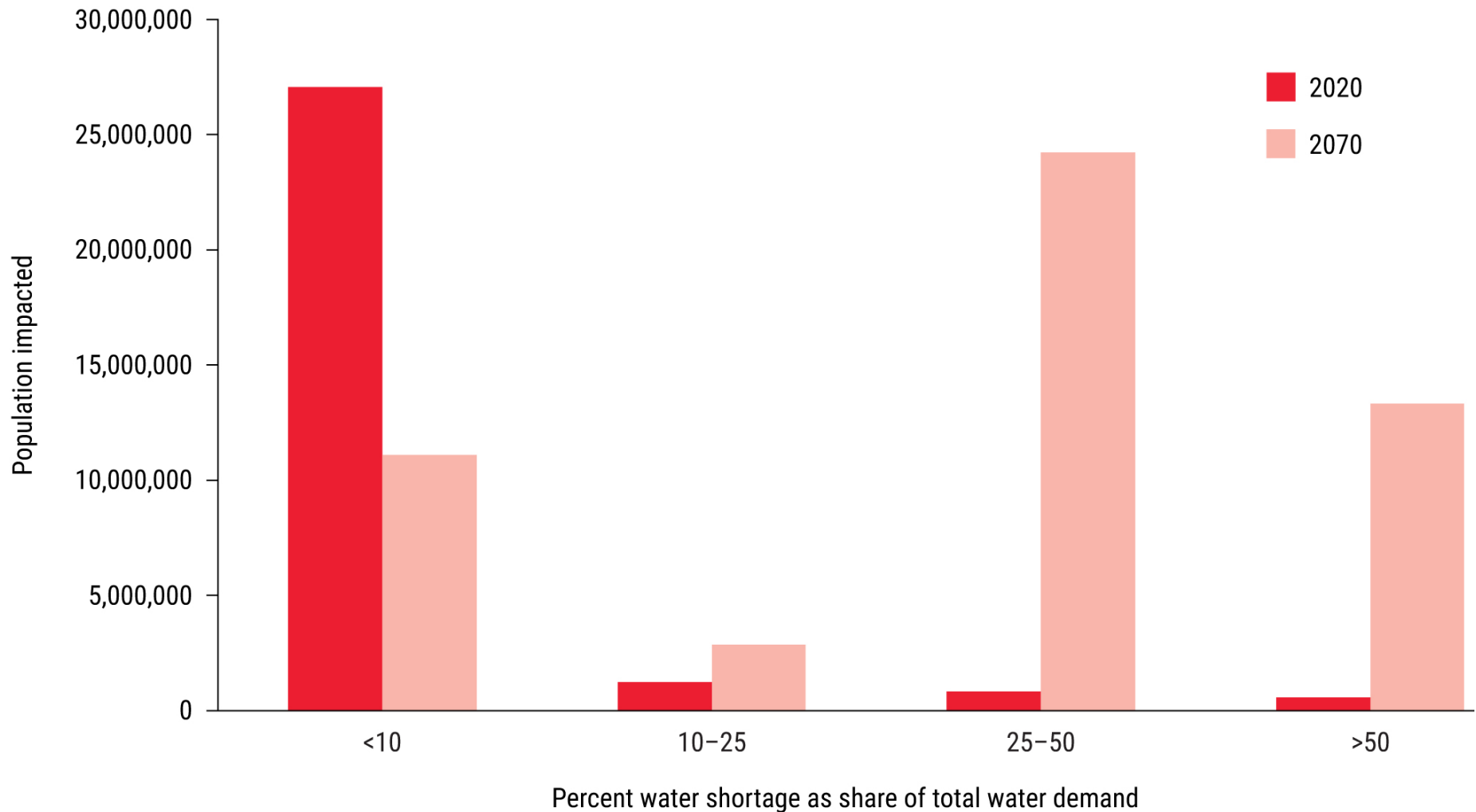
Projected annual water demand by water use category (acre-feet)



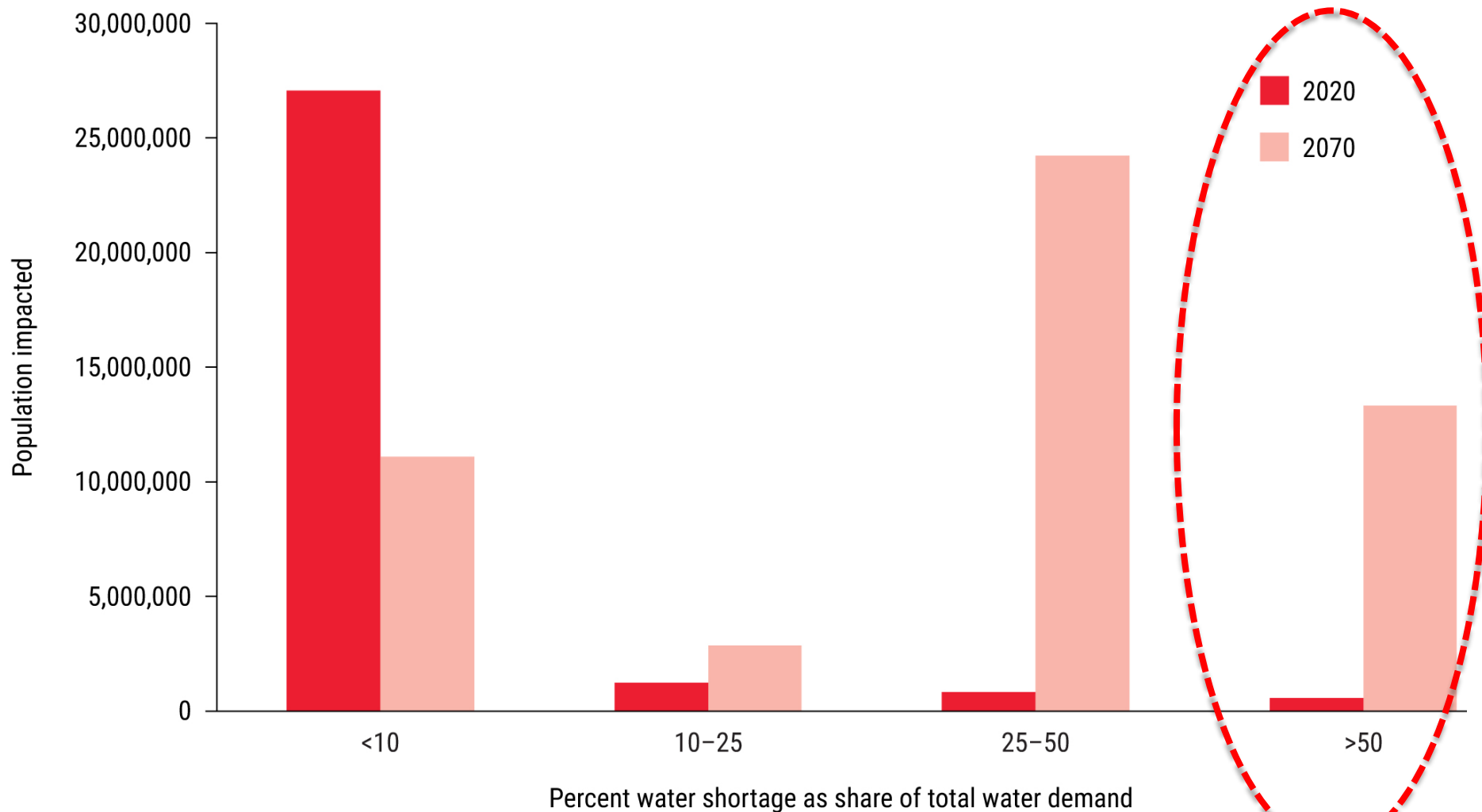
Volume of county water 'needs' (potential shortages) in 2070



Number of Texans facing shortages



Number of Texans facing shortages

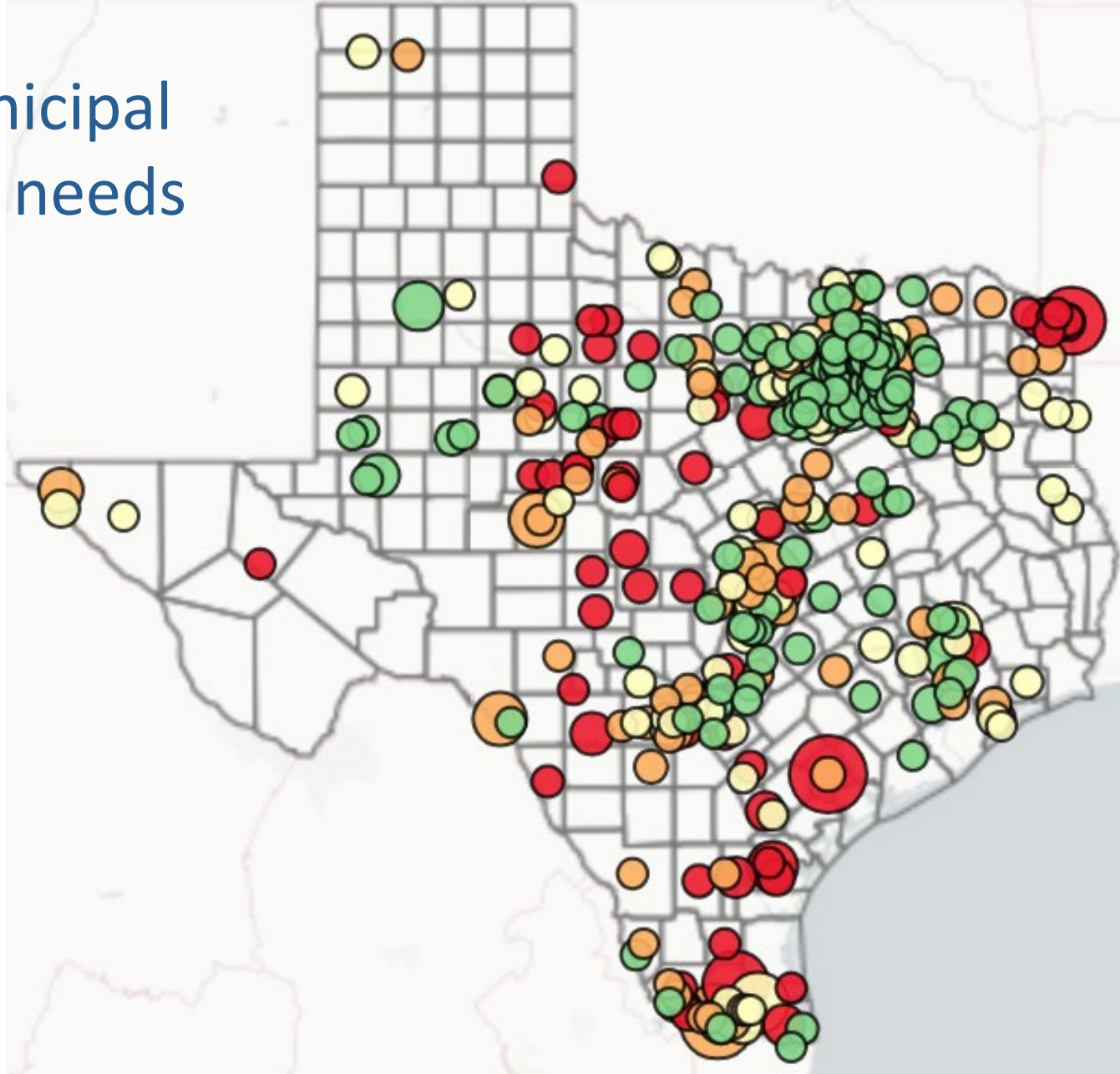


Identified municipal providers with needs in 2020

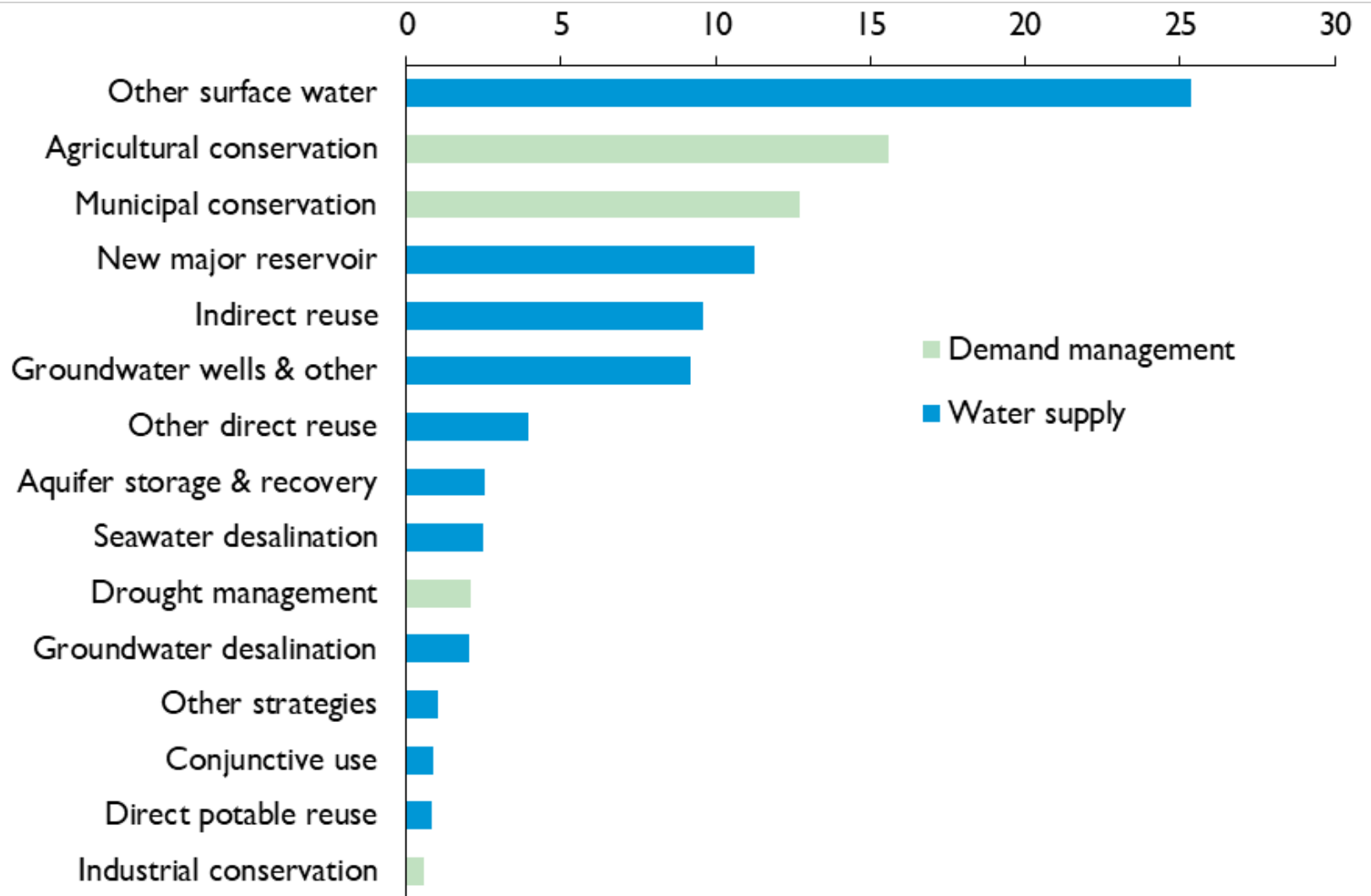
**Potential shortage
(as share of total demand)**

- Greater than 50%
- Greater than 25%
- Greater than 10%
- Less than 10%

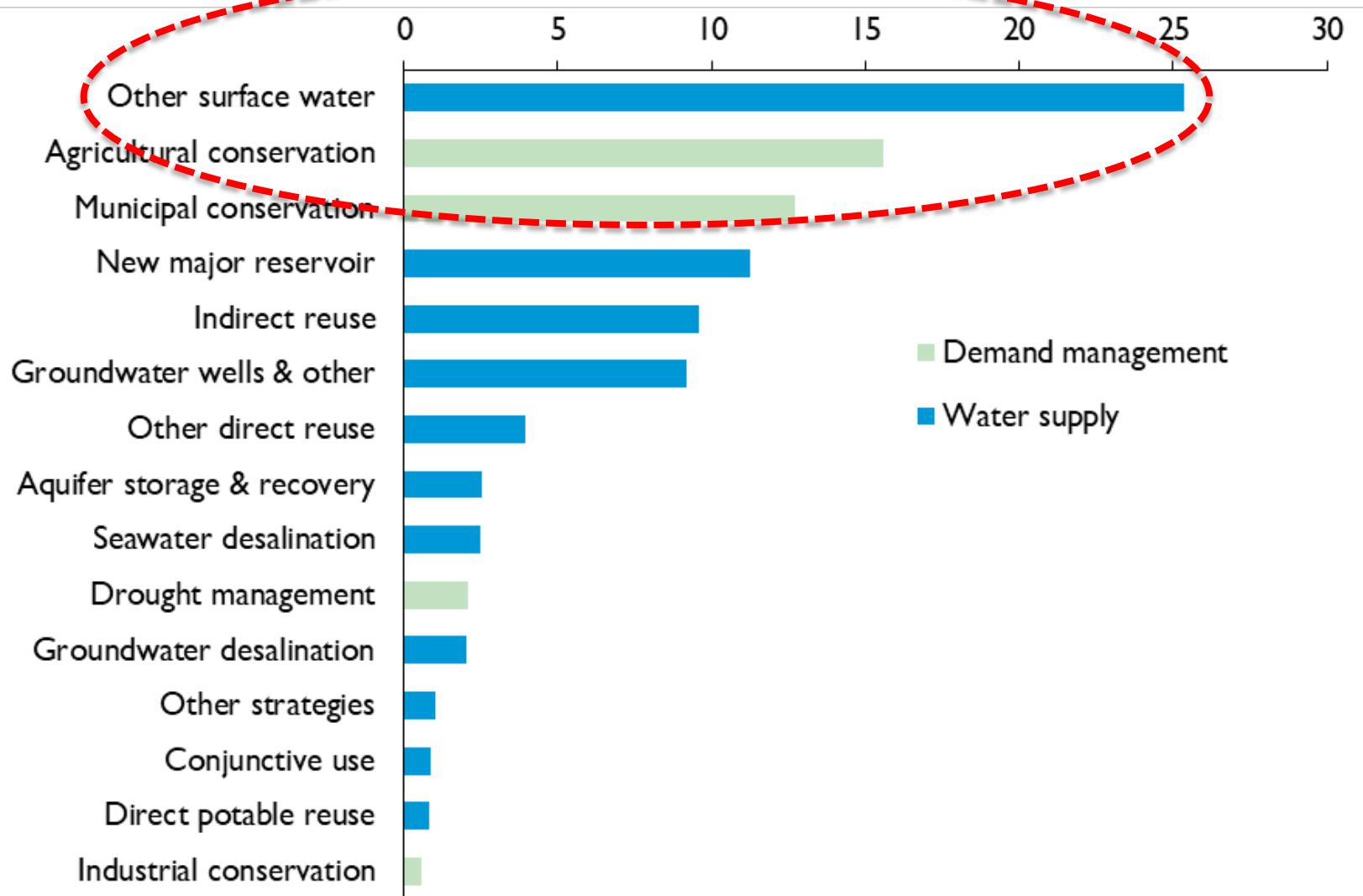
*Zero needs not displayed



Share of recommended water management strategies by strategy type in 2070 (percent)



Share of recommended water management strategies by strategy type in 2070 (percent)



Water supply challenges (& **con**straints)

COST

COST

growing water demand
limits/declines in existing supplies
limits to conservation and reuse
available water resources

uncertainties and risks (e.g., new DORs)

COST

Regional and state planning



water supply

deterministic
extended duration
(multiple years)



flood

stochastic
short duration
(days)

Exploring potential use of FIRO to augment water supply

Existing reservoirs that already have both conservation & flood pools

- Extent to which it might reliably increase inter-year water supply volumes to withstand extended droughts
- Risk appetite (legal, financial, & political)
- What is the optimization goal and how stable does it need to be over time?

Other reservoirs (existing or new)

- Marginal benefits and new risks
- Political and legal obstacles of reallocating conservation pool to flood
- Uncontrolled spillways of new water supply reservoirs
- Siting reservoirs that do both, efficiently
- Tension between opposing stakeholder interests

Questions

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