



Role of Produced Water in Regional Energy Production

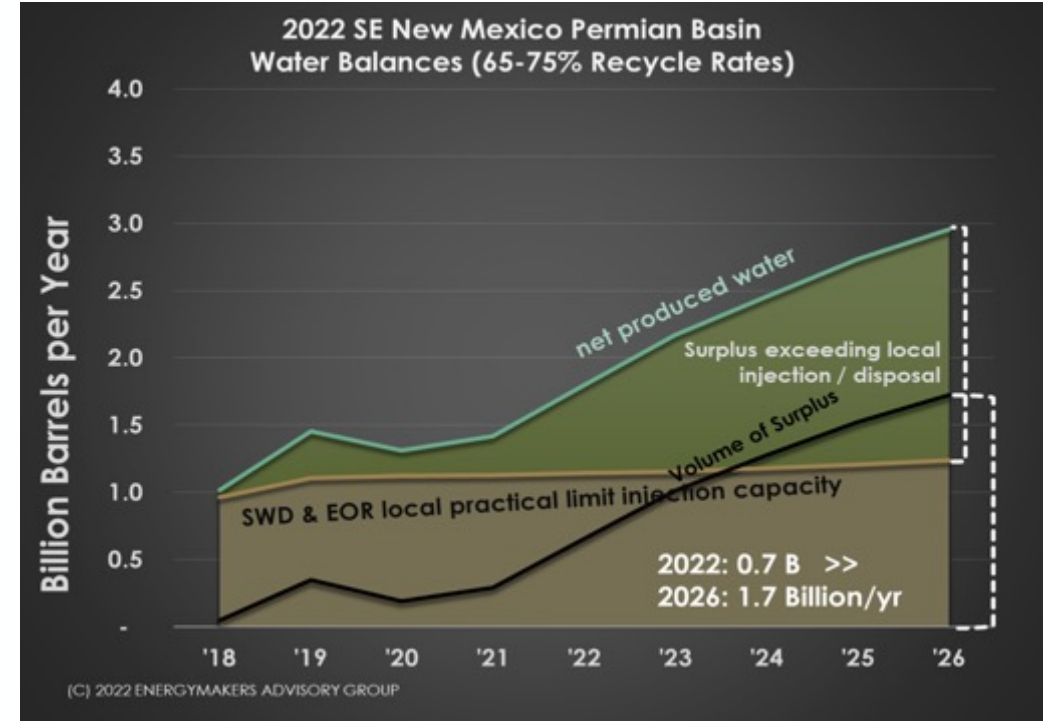
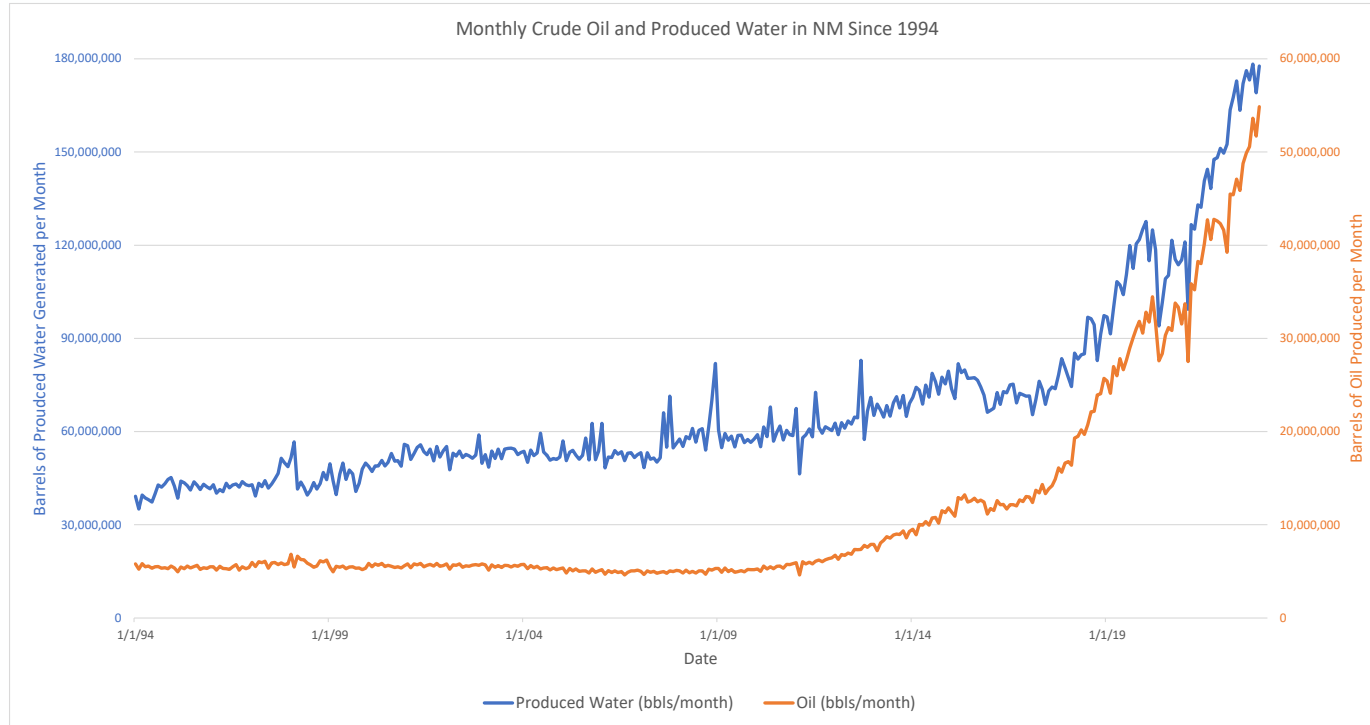
SAN JUAN ENERGY WATER
CONFERENCE
APRIL 6, 2023

Mike Hightower, Director
New Mexico Produced Water Research Consortium



Trends in NM Produced Water Supplies

- Produced water production approaching 6 M bbl/day in NM
- Produced water available for reuse approaching 5 M bbl/day (200 MGD)



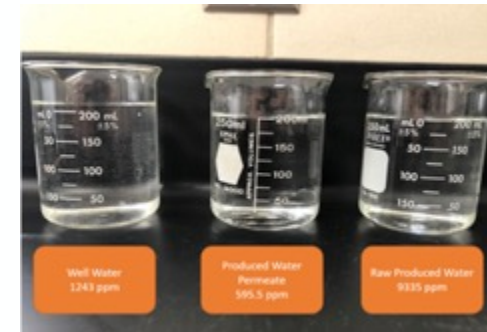
Produced Water Treatment Trends

- PWS ‘Clean Brine Standard’
 - Bench and pilot-scale testing
 - No/low bulk chemical use
 - All technologies effective
 - Small footprint/scalable
 - <\$0.20/bbl



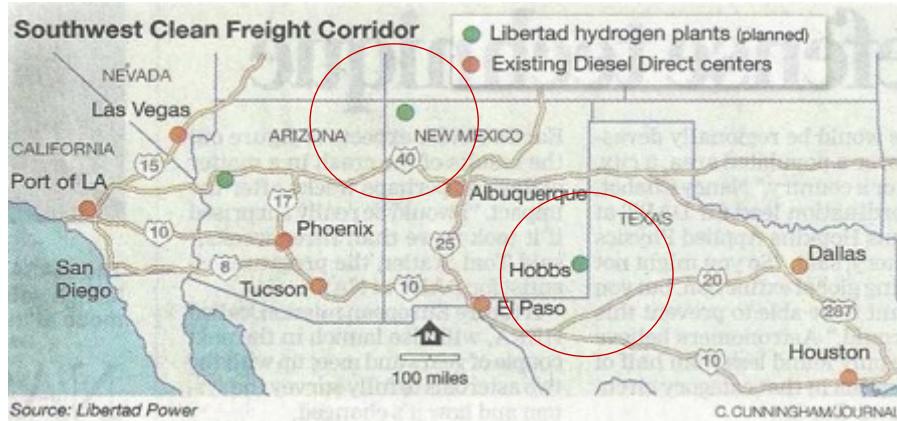
ZwitterCo Permian Basin -100,000 TDS SWD

- Treatment
 - Several successful tests of PW
 - Four tests scheduled for 2023
 - Cooperative testing with TXPWC and Colorado in 2023
 - Testing with OCD in 2023 for more data



San Juan Basin
10,000 TDS
RO Treated PW

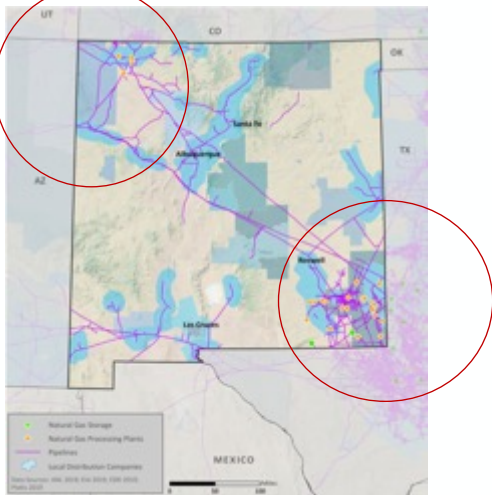
Regional Treatment/Reuse Opportunities for PW



The Roosevelt Project

A New Deal for Employment, Energy and Environment

2 of 3 gas pipelines to CA



Intersection of all 3 US Electric- Grids
Lowest levelized cost of wind and solar
SWD, EOR, pipeline, natural gas infrastructure

NMED focus - Non Discharge/Closed Loop

- Greenhouses, Data Center cooling
- Industrial/transportation/energy cooling
- Blow down/concentrate disposal to SWD

Oil and gas/Electric power

- Blue and Green Hydrogen – transportation fuel, heating, electric grid reliability
- Orphaned wells, plugging and abandonment, well pad restoration – thousands
- Combined cycle for energy storage/security

Treated Produced Water Ownership

- In NM owned by the treater