

N E W M E X I C O



Energy, Minerals and Natural Resources Department

# Brackish Water Use and Produced Water Recycling

Legislative Finance Committee  
Revenue Stabilization and Tax Policy Committee  
July 9, 2014, San Juan College, Farmington

**David Martin, Secretary**  
**New Mexico Energy, Minerals, and Natural Resources**

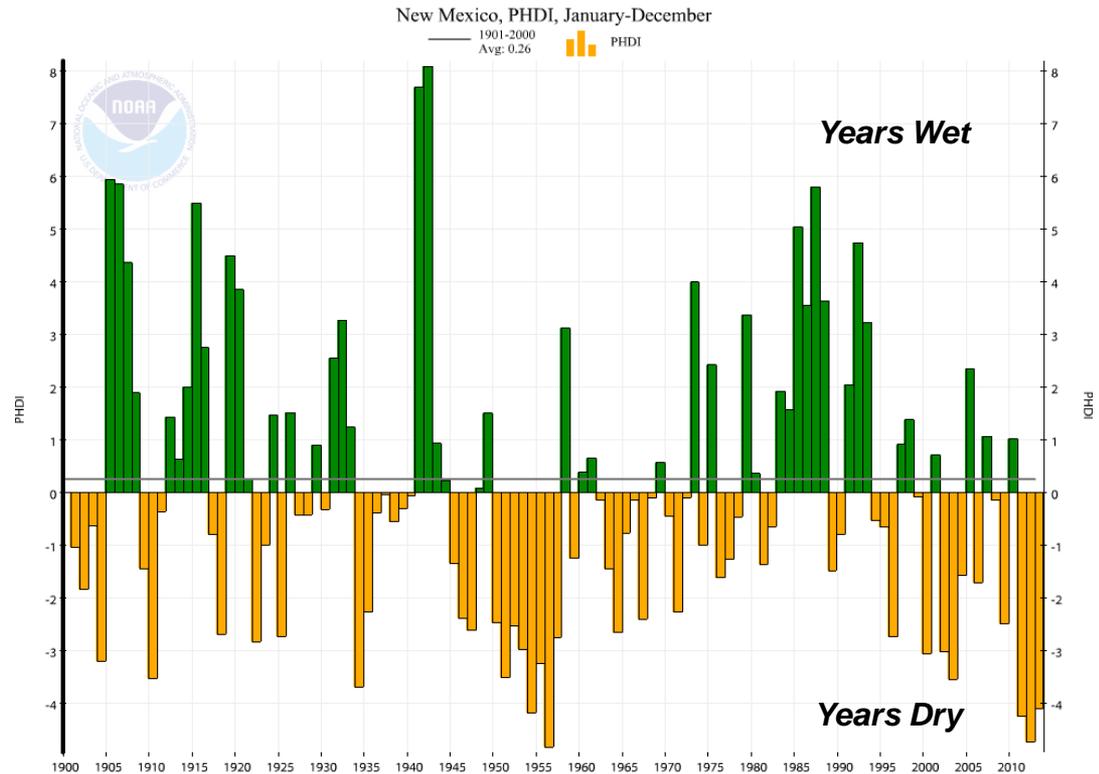
**Jeri Sullivan Graham**  
**Los Alamos National Laboratory**



Unclassified LA-UR-14-25017

# Drought and Drought Recurrence in NM

- 66 years dry vs. 47 wet since 1900 (Palmer Hydrological Drought Index)
- Drought recurrence is the norm
- Indicates need for alternative and emergency water supplies
- Planning is needed!



*Palmer Hydrological Drought Index for New Mexico, 1900-2013*

Source: NCDC-NOAA, accessed 06/30/2014

# New Mexico Recoverable Water Initiative

## NM Drought Task Force

Chair, State Engineer Scott Verhines

## Recoverable Water Initiative

Chair, Secretary EMNRD, David Martin

Brackish Water  
Subcommittee  
& Work Group

Produced Water  
Subcommittee  
& Work Group

# Brackish Water Work Group Technical Team (growing...)

- **EMNRD**-Lead agency, Technical Guidance, Actions
- **Office of State Engineer**-Data, Regulations, Technical Guidance, Actions
- **NMED**-Data, Arc-GIS, Regulations, Technical Guidance
- **NM Bureau of Geology**-Data, Arc-GIS, Mapping, Resource Assessment, Actions
- **Los Alamos National Laboratory**-Team lead, Science Guidance
- **NMWRRI**-Data, Assessment
- **NMSU**-Data, Assessment
- **NMT**-Data, Assessment

# Key Challenges to Use of BW

- Availability-locations, volumes
- Costs to transport and treat
- Infrastructure
- Investment
- Risk perception and human use acceptance
  - Drinking Water
  - Industrial Uses
- Environmental sustainability
  - Handling waste from treatment (concentrate)
  - Non-impingement on fresh water resource
- Regulations
- Partnerships with Industry and Localities



# Next Steps....

- Initial work group meeting was held in May.
- Began to establish processes for obtaining, handling, and evaluating data
- Set data selection criteria
- Refine data for future uses
- Coordinate ArcGIS partners to maximize resources
- Coordinate with state agencies to maximize value
- Evaluate resources (people, agencies, other entities) availability and leveraging.

# Produced Water Reuse

- Produced Water currently regulated as a waste
  - RCRA-exempt;
  - reinjection has been the “norm” for disposal
- Can be reused for unconventional production
- Can replace use of Fresh water in production
- Can provide a consistent, stable water resource



# What is needed to reuse PW?

- Infrastructure
  - Pipelines (fixed or flexible)
  - Leak detection and monitoring
  - Lined ponds and larger storage tanks
  - Centralized treatment and handling facilities
- Treatments
  - Widely variable
  - Filtration
  - Pretreatments to remove boron, scale-forming minerals, organics
  - Desalination
    - Various products created
    - Concentrate (brine)
    - Fresh water
    - Other salinities for drilling

# Path Forward

- Adapt regulations-EMNRD/OCD
- Build infrastructure-investments by companies
- Exchange information-best practices
  - Within the industry
  - Service companies (e.g., treatment)
  - State and industry
- Measure and understand results, benefits, impacts
  - Oil and Gas Industry
  - State agencies, Localities
  - Universities, National Labs
  - Other Stakeholders

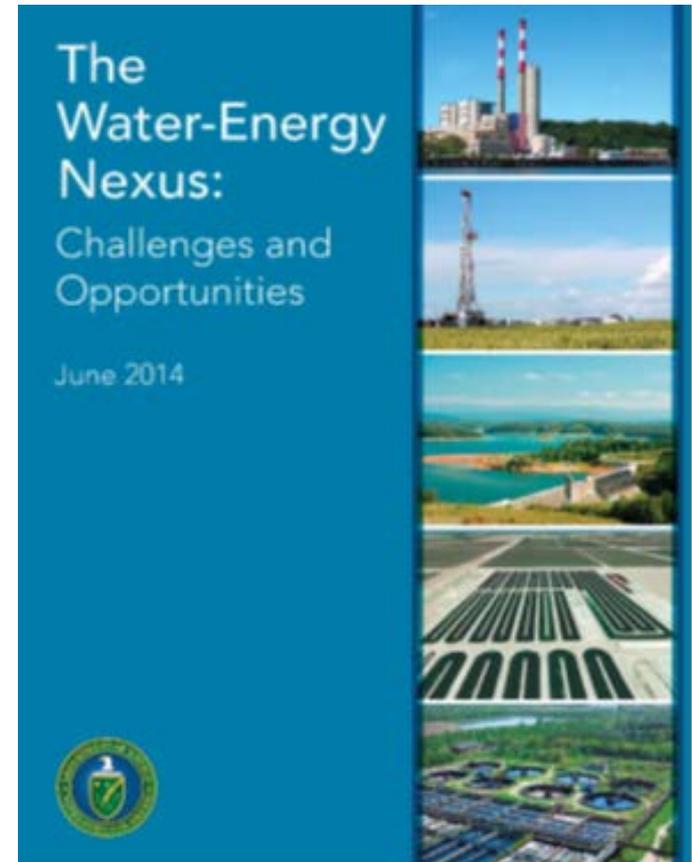
# Energy-Water Nexus at DOE

## DOE Water Energy Tech Team

Over 20 participants from all major DOE offices have worked for over a year and a half to develop a Water Energy Program Plan

## Water Energy Program Plan

- Seven sections, 250 pages, June, 2014
- Very detailed and comprehensive report that includes:
- Landscape for regional and national decision making
- Sections on RD&D needs
- **Water for energy:** generation, exploration
- **Energy for water:** transport, treatment
- Policy issues and considerations
- Stakeholder engagement



*"Dramatic Progress in the Water-Energy Nexus Is Required and Attainable"-DOE WETT*

# Southwest Energy-Water Challenges and Strategy Meeting

- **Motivation:**
  - Water Energy Program Plan and the Water-Energy Tech Team at DOE
  - Big Ideas Summit-Water Energy Nexus
  - One of the six Priority Areas for DOE
- **Focus Areas**
  - Non-traditional water resources
  - Climate and land use interactions and impacts
  - Interface between Natural and Engineered Systems
- **Path Forward**
  - Steering Committee forming
  - Buy-in from represented States
  - Develop management and Science strategies
  - Present plan and opportunities to DOE
- **Organizers**
  - Los Alamos and Sandia National Laboratories
- **Participants**
  - NM Energy Minerals and Natural Resources Department
  - NM Office of the State Engineer
  - Bureau of Reclamation
  - Bureau of Land Management
  - Regional Universities-
    - UNM, NMSU, NMT
    - U of Arizona, TAMU, UNLV, CSM
  - Oil and Gas Industry-NMOGA
  - NM Electric Utility-PNM



**Sandia  
National  
Laboratories**

