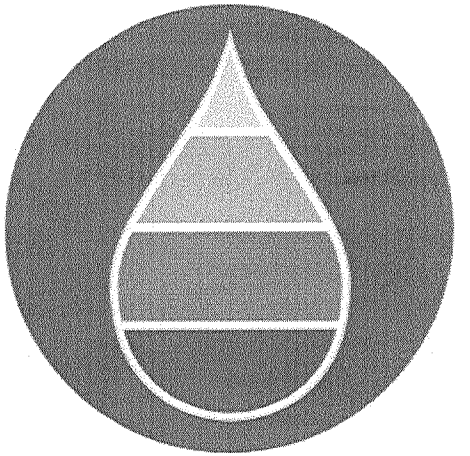
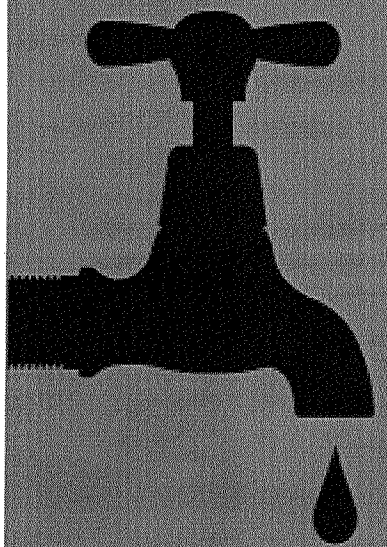
Ceres



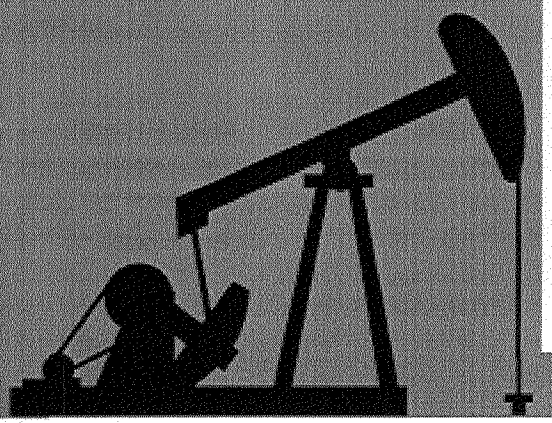
Developing Sustainable Water Systems

Sharlene Leurig
Ceres

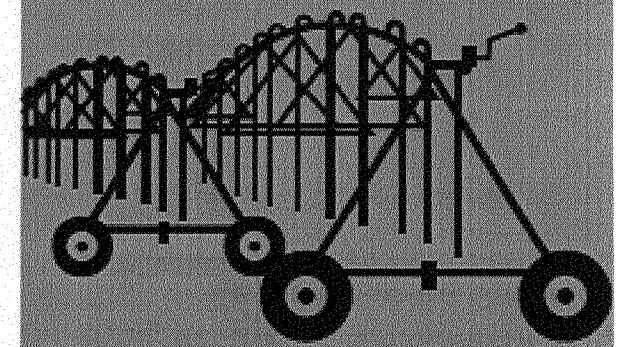
THE BUSINESS OF PUBLIC WATER



WATER RISKS IN SHALE OIL & GAS PRODUCTION



THE THIRSTY BUSINESS OF AGRICULTURE



Ceres

Ceres

What's the goal?

- Meet population growth with more water?
- Allow us to use water in the future like we use it today?
- Substitute dried-up federal subsidies with state subsidies?
- Replace our existing infrastructure?
- Make capital available to water utilities?

Ceres

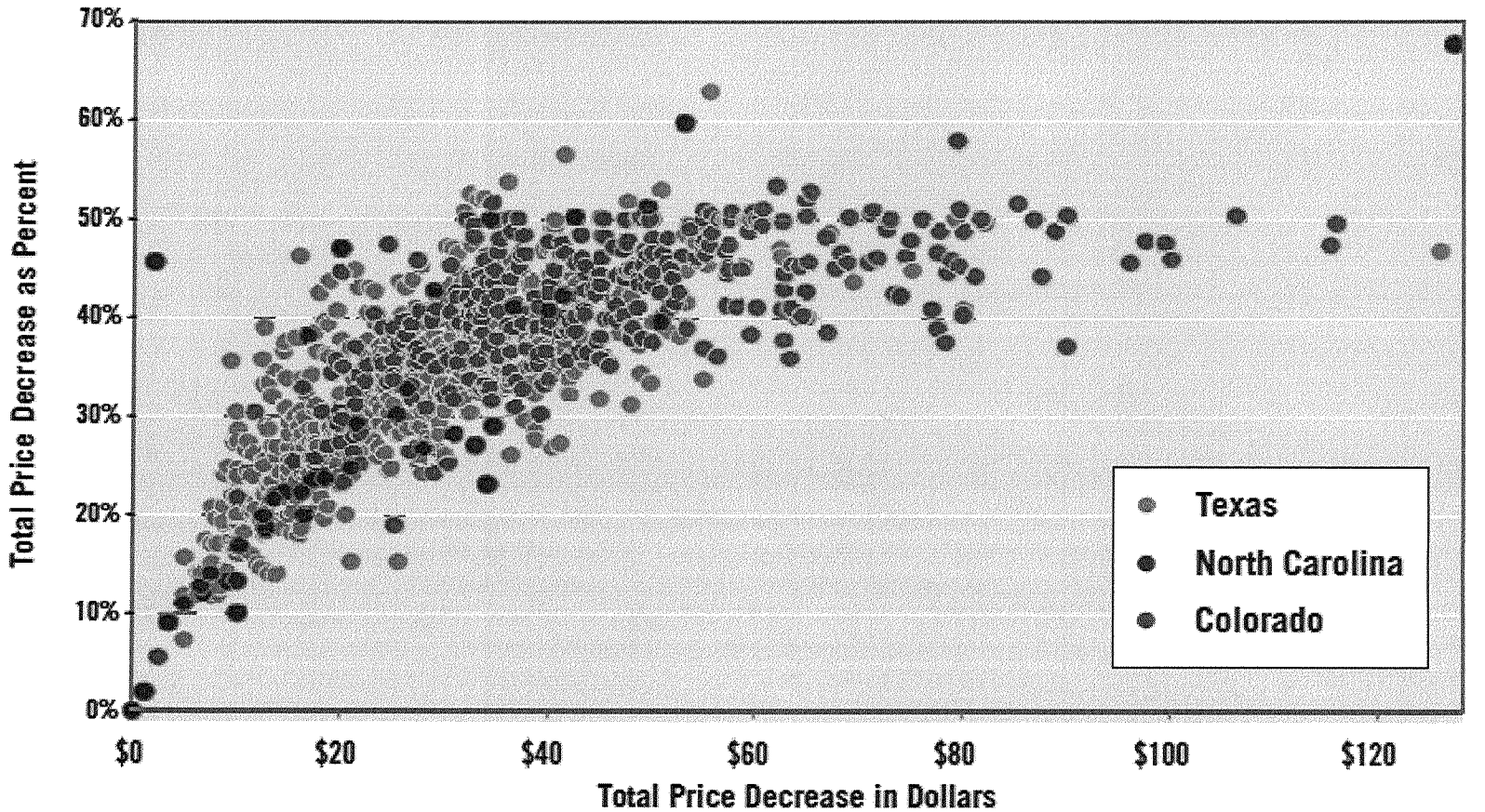
What's the goal?

- ~~Meet population growth with more water?~~
  - Ensure reliable supply of water for the future
- ~~Allow us to use water in the future like we use it today?~~
  - Create a water-efficient economy
- ~~Substitute dried-up federal subsidies with state subsidies?~~
  - Ensure affordable water for essential purposes and transition to a sustainable business model
- ~~Replace our existing infrastructure?~~
  - Target investment to transform our infrastructure
- ~~Make capital available to water utilities?~~
  - Centralized financing model is a symptom of our fixation with centralized water management

Ceres

Pricing is an instrument

Figure 7: Colorado, North Carolina & Texas Reductions in 2012 Water & Sewer Bill for Decrease in Consumption from 10,000-5,000 Gal/Month

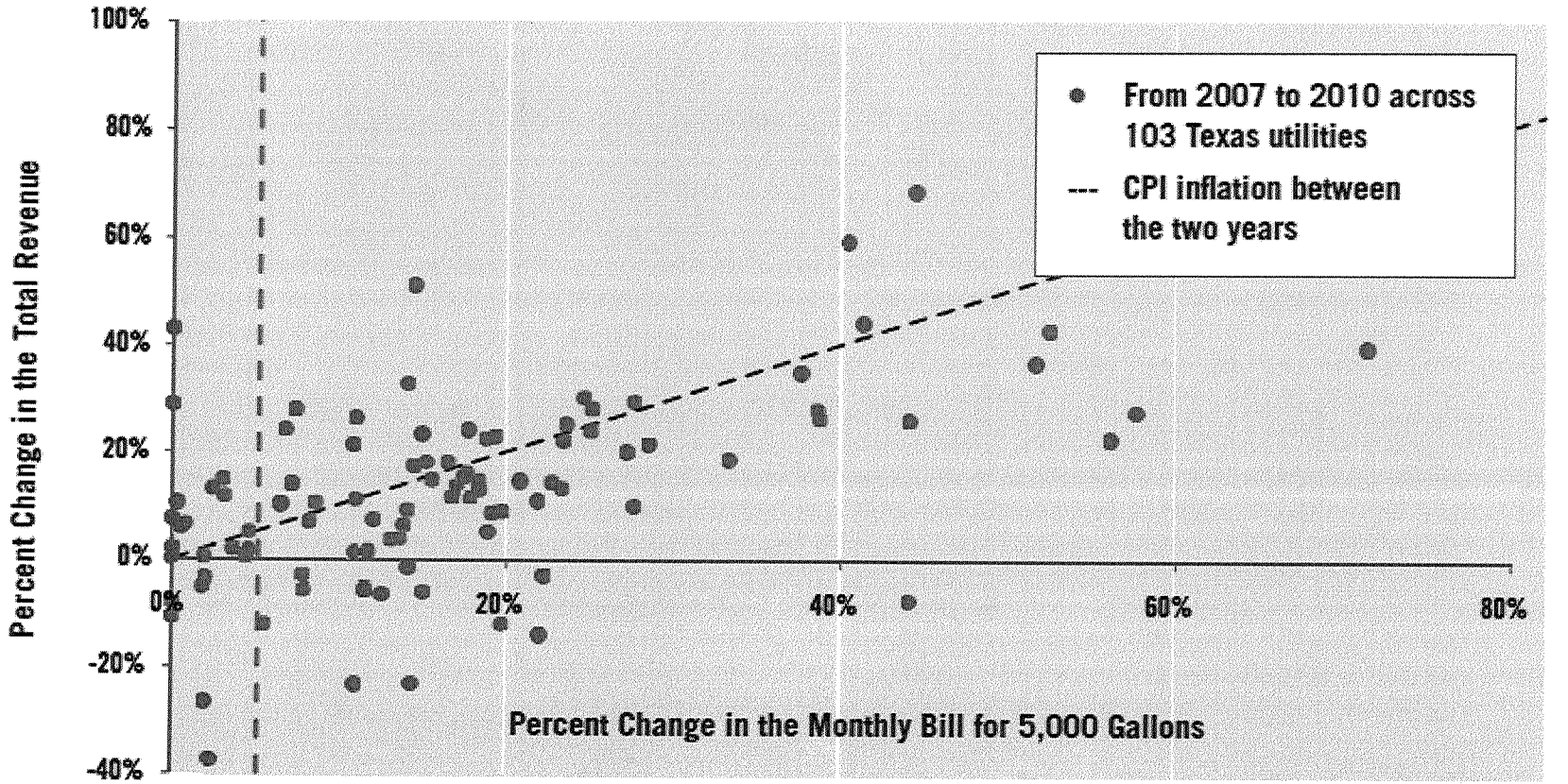


Data analyzed by the Environmental Finance Center at The University of North Carolina, Chapel Hill. Data sources: Texas Municipal League annual TX water and sewer rate surveys (self-reported); NCLM/EFC 2012 NC Water & Wastewater Rate Survey; AWWA and RFC 2013 CA Rates Survey.

Ceres

Pricing is also a source of risk

Figure 11: Driving Revenue Through Rate Increases



Data analyzed by the Environmental Finance Center at the University of North Carolina, Chapel Hill. Data sources: Texas Municipal League annual TX water and sewer rate surveys (self-reported), Texas Water Development Board data from audited financial statements of utilities with outstanding loans.

Ceres

Conservation

- Water loss

  Usually qualifies for state funding, water system bonds

- Indoor retrofits

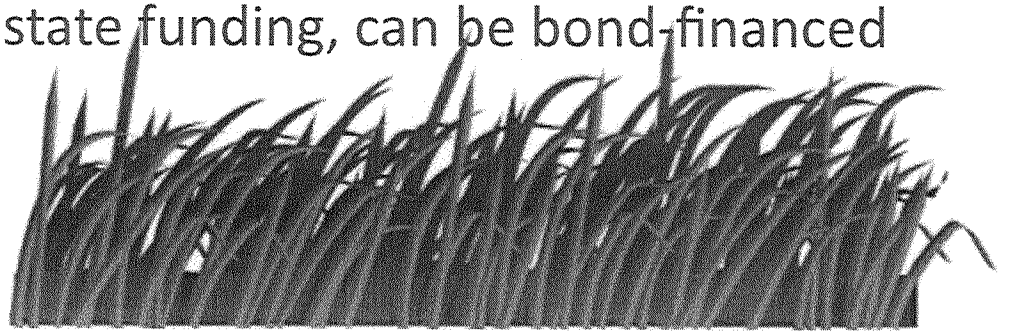
  Generally not eligible for state funding, usually cash-financed (exceptions include NYC, Seattle)

- Urban irrigation
  - Irrigation meters / smart-irrigation systems
  - Lawn buyback programs

  Generally not eligible for state funding, always cash-financed

- Smart meters

  Generally not eligible for state funding, can be bond-financed



Ceres

New conservation financing models

- Clarify that water conservation is a public good, use bonds
- Property Assessed Clean Energy Bonds (residential hamstrung thanks to Fannie/ Freddie)
- On Bill Financing
- Rebates + Credit Union Water Efficiency Partnerships

Same goes for rainwater harvesting…

Decentralization/Consolidation

- Failing rural infrastructure, unaffordable water are symptoms of a failed business model
- What role does point-of-use technology play in Oklahoma's water needs? And what role does it have in the consolidation of its infrastructure?

Consolidation ≠ Centralization

Consolidation ≠ Privatization

(necessarily)

Ceres

How can the state finance water solutions ?

- Typical approach: state provides grant or subsidized loan to water system → augments cash, bonds of water system

- New approach: state offers credit enhancement or subsidized capital as a tranche in a deal that brings in private capital
  - Can be done with water systems as financing party
  - Can be done between state and private capital provider
  - Maybe state isn't needed (water system ← → private capital)

Inviting private capital also demands effective regulation

- Requires proper controls
  - Effective consumer advocacy at Public Utility Commission if an Investor-Owned Utility deal
  - Audit performance & maintenance

Ceres

A word on Public Private Partnerships (PPPs)…

Potential for private capital is hamstrung by fear

Fear is enabled by lack of understanding

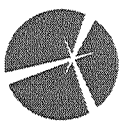
BIG need for common language and trusted messengers

Agricultural Conservation

- Moving beyond state financing
  - Urban financing of on-farm improvements:
    - Metropolitan Water District of Southern California
    - Murray-Darling Basin, Australia
- Corporate supply chains create financing opportunities
  - Movement to low-flow irrigation systems
  - Pricing floors/guarantees

Don't underestimate the need for mandates

- Predicate funding on:
  - Water loss reductions
  - Implementation of conservation plans & drought contingency plans
  - Consolidation
- Tie development permits to water
  - Bring water rights to the table
  - Contributions to conservation funds
  - Low-impact development



Ceres

Ceres

Cultivate corporate advocates

- Multinational corporations do business in areas with greater water stress than the US → this makes them valued partners in transforming water practices here at home
- Their voices are also needed to undo deeply entrenched incentives like corn for biofuel, crop insurance
- Big economic messengers can reframe the "cheap at any cost" message that bubbles up from Chambers of Commerce