



Sustainable Local Water Supply Policy, Innovation, and Decision-Support Tools

Barton “Buzz” Thompson

Stanford Law School

Stanford Woods Institute for the Environment

Imported Supplies



Local Options

- **Technology-Derived Supplies**
 - Recycling
 - Desalination

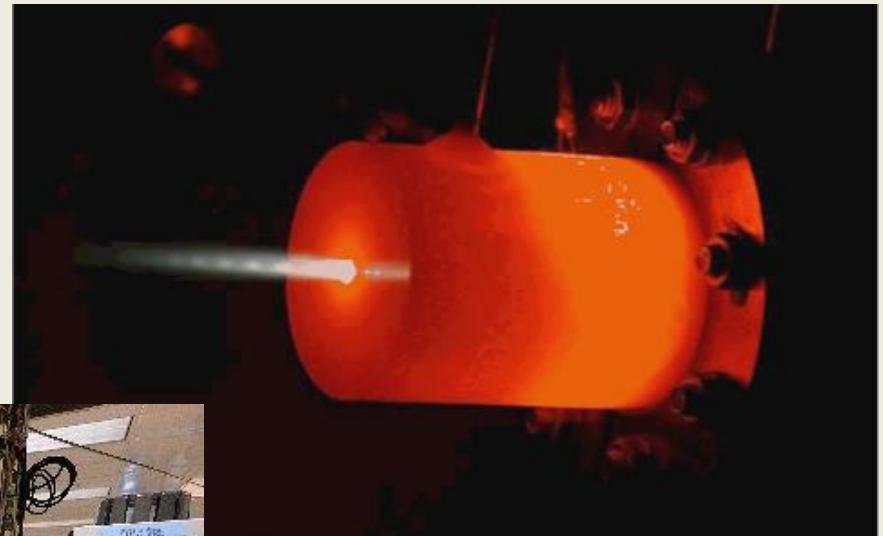
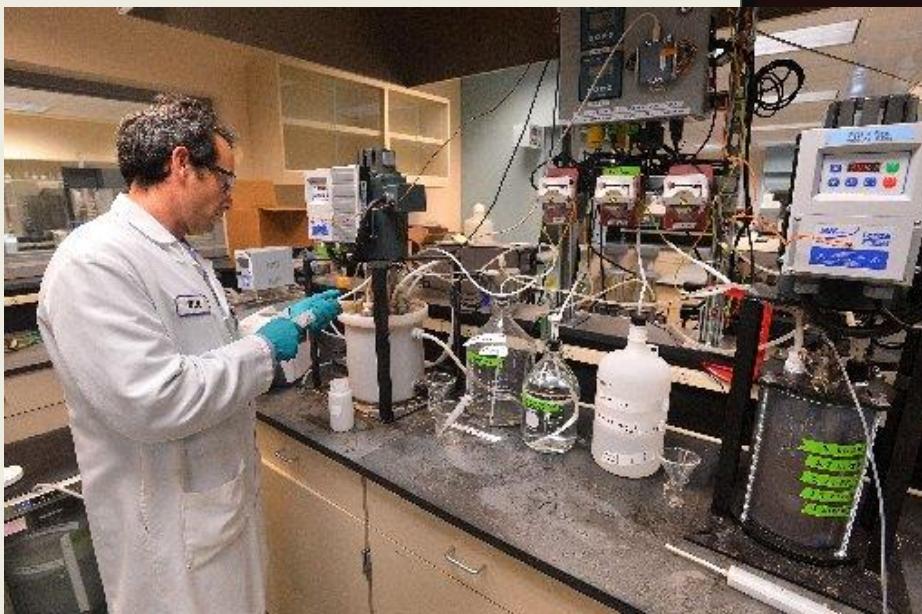


FIGURE 2.

Comparison of U.S. Patents Filed under the Patent Cooperation Treaty for Clean Energy and Water Purification, 1999–2011



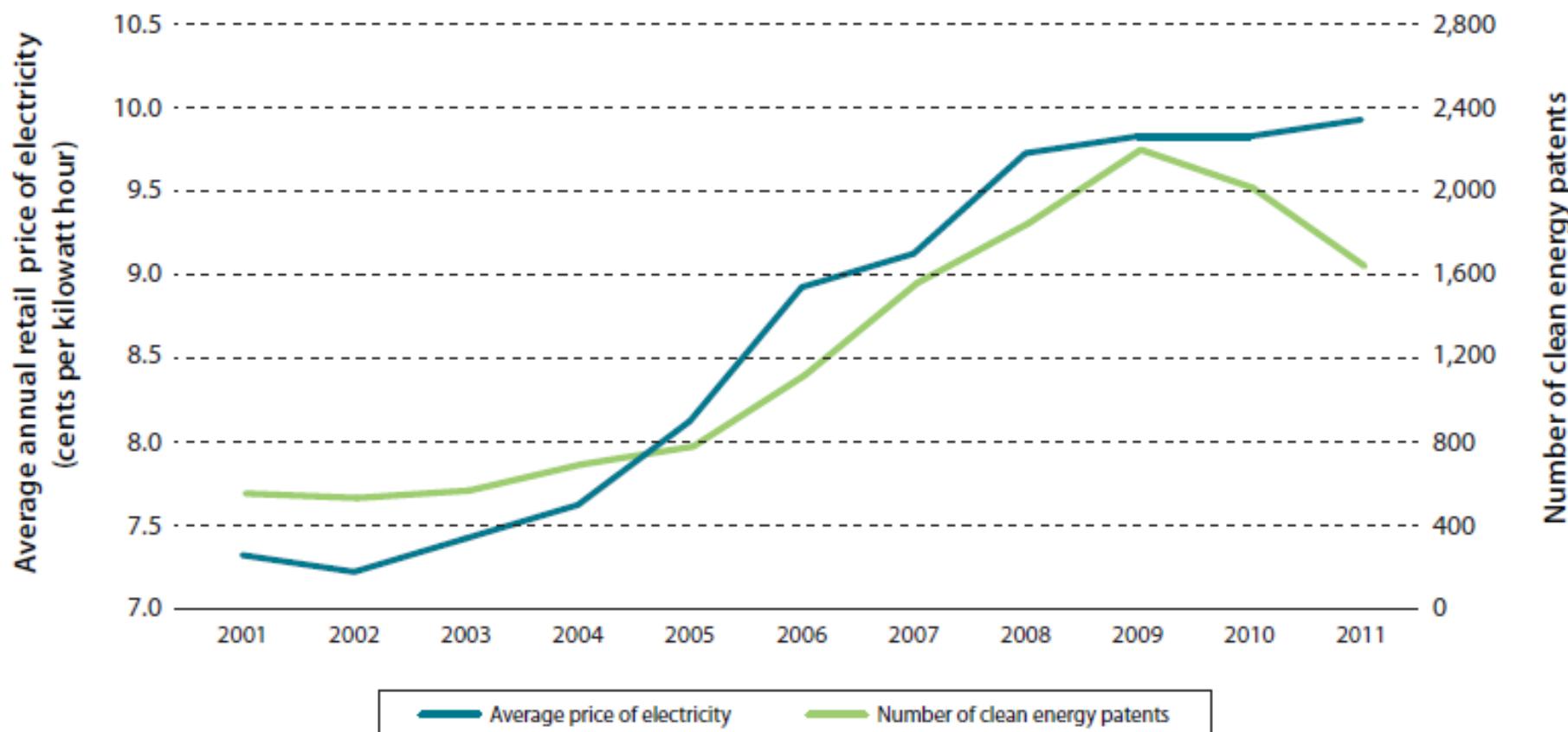
Source: Organisation for Economic Co-operation and Development (OECD) 2014.

Note: Clean energy = biomass generation + energy efficiency + energy storage + geothermal + hydro & marine power + solar + wind; and water purification is the primary contributor to patent filings in the water sector.

Pricing

FIGURE 13.

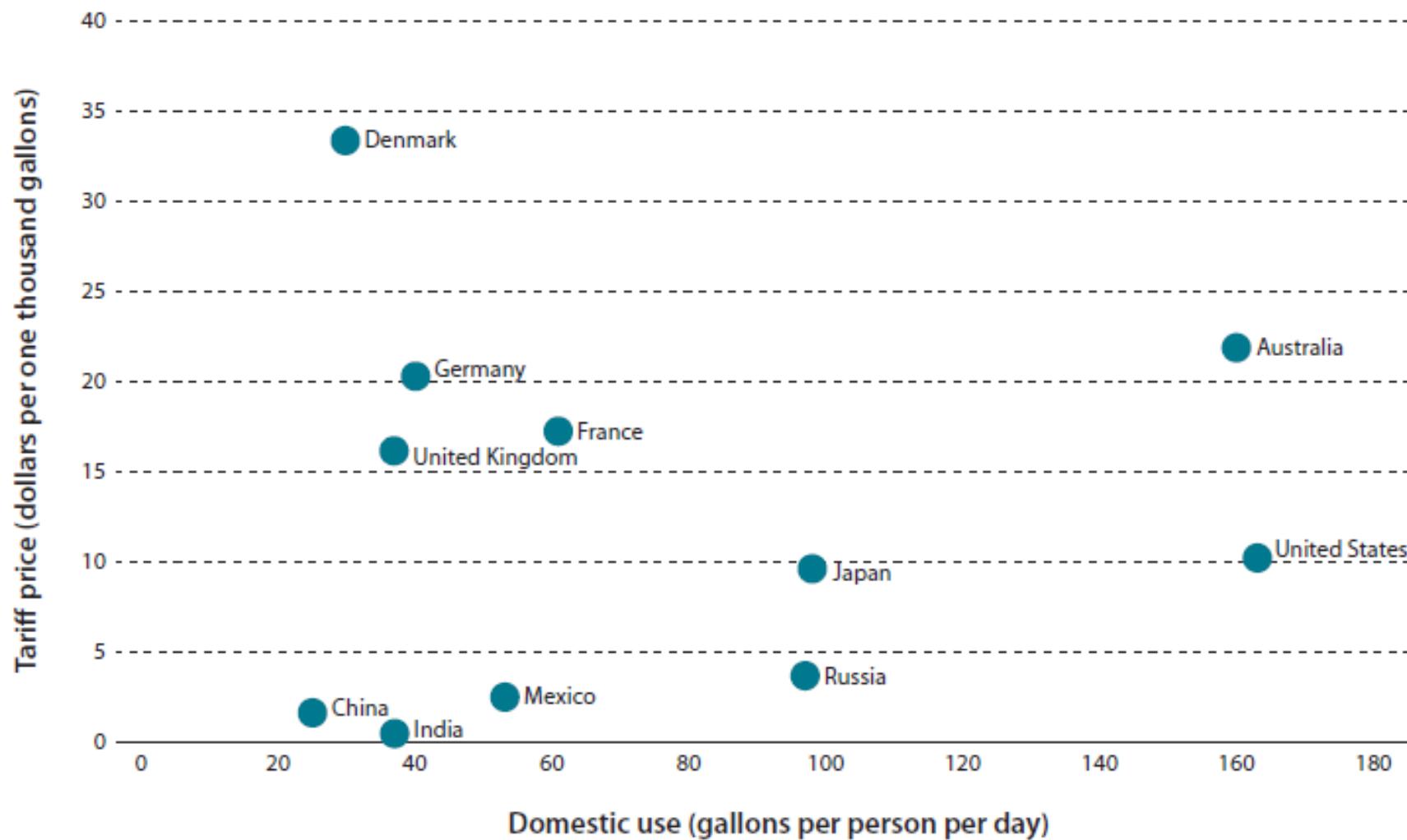
Number of Clean Energy Patents and Price of Electricity, 2001–11



Sources: Energy Information Administration 2014; Organisation for Economic Co-operation and Development 2014.

FIGURE 10.

Tariff Price and Domestic Use per Capita, 2012



Source: Standard & Poor's 2012.

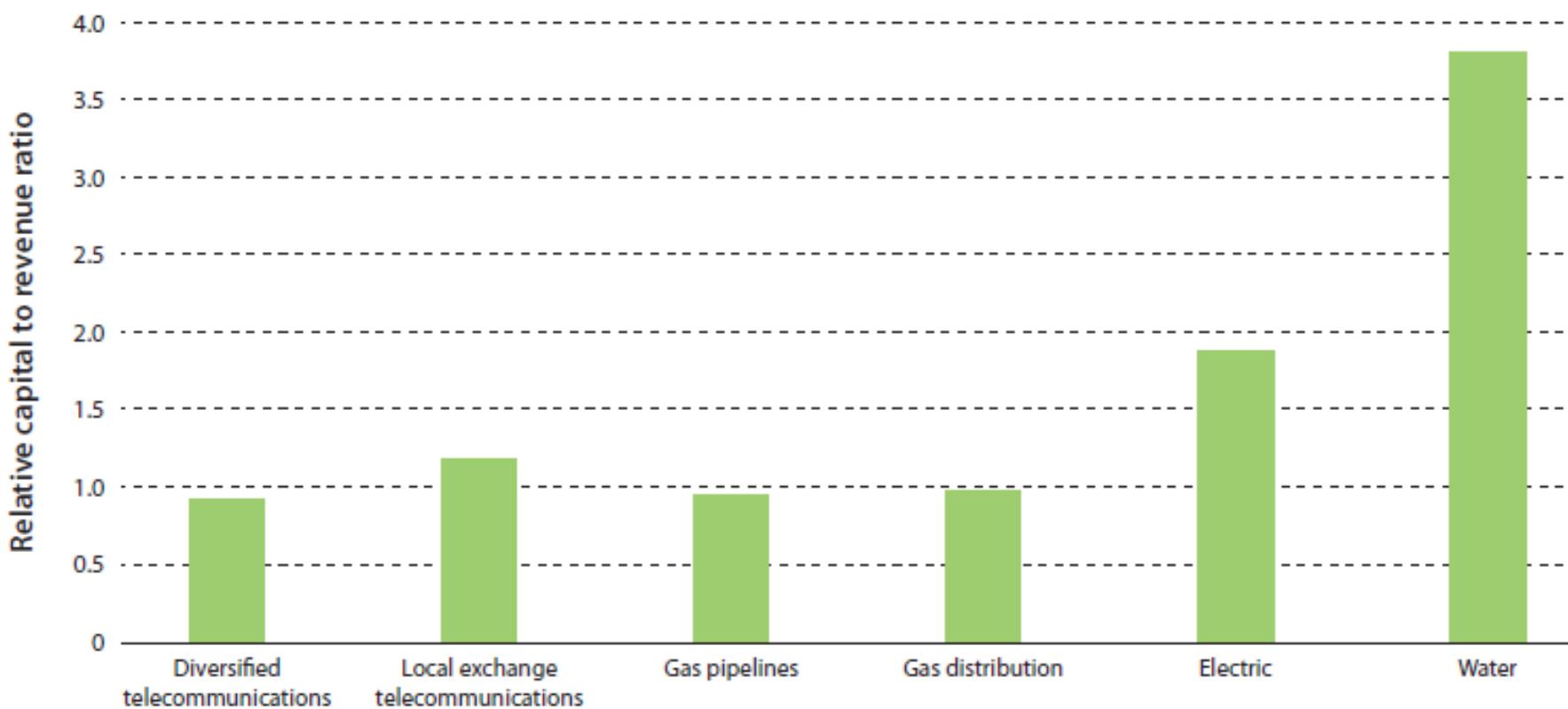
Note: The tariff price includes water and wastewater tariffs and it is the average price among cities in that country.

Pricing

Financing

FIGURE 11.

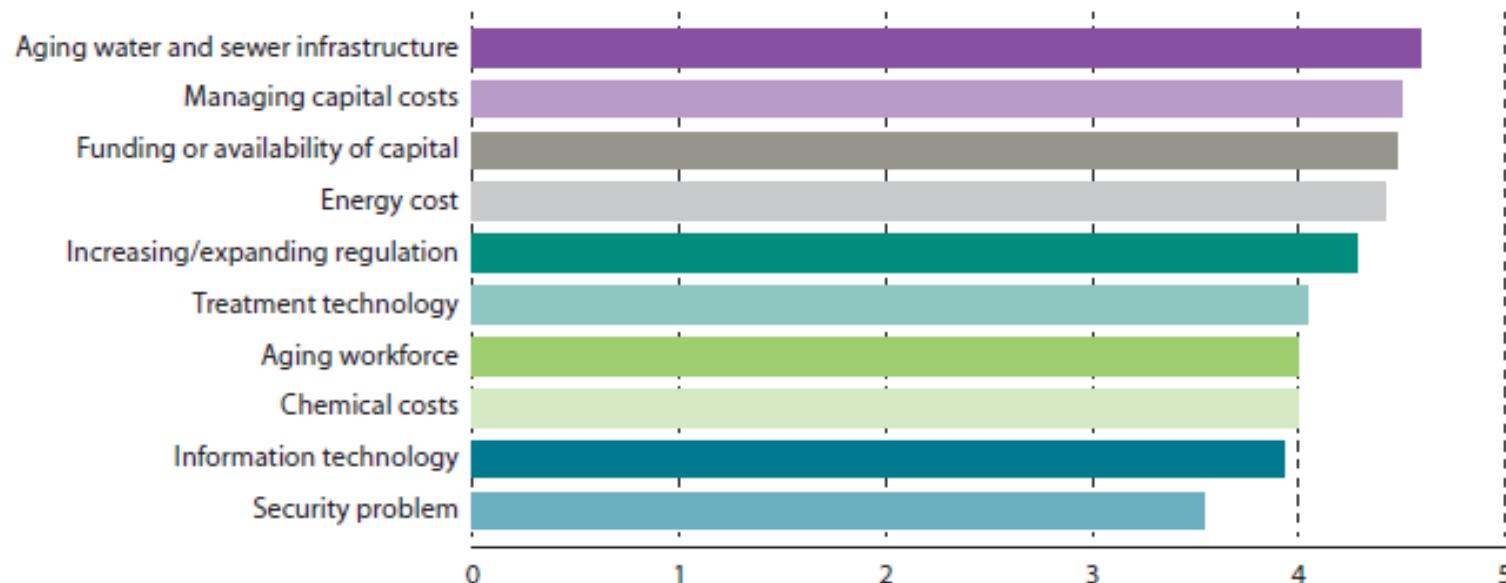
Relative Capital Investment to Revenue Ratio for Several Utility Services



Source: Global Water Intelligence 2010.

FIGURE 12.

Importance of Industry Issues, 2012



Source: Black and Veatch Corporation 2012.

Note: Survey participants were asked to rate the importance of each of the above referenced issues to the water industry based on a scale of 1 to 5, where 1 indicates "very unimportant" and 5 indicates "very important." The results above show the average response for each issue.

Pricing

Financing

Regulations

Pricing

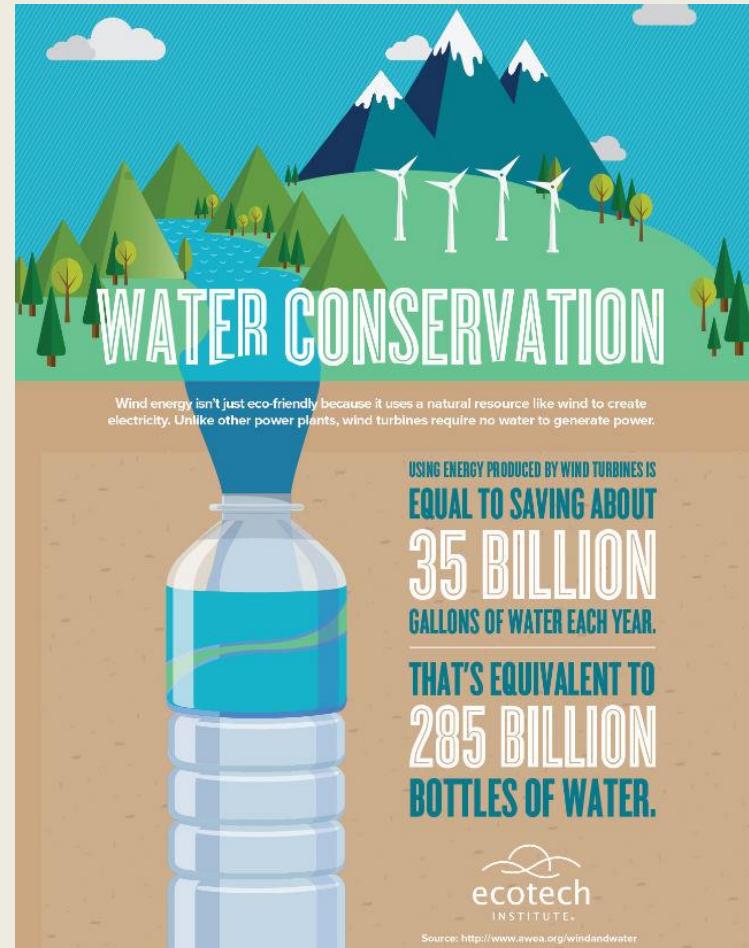
Financing

Regulations

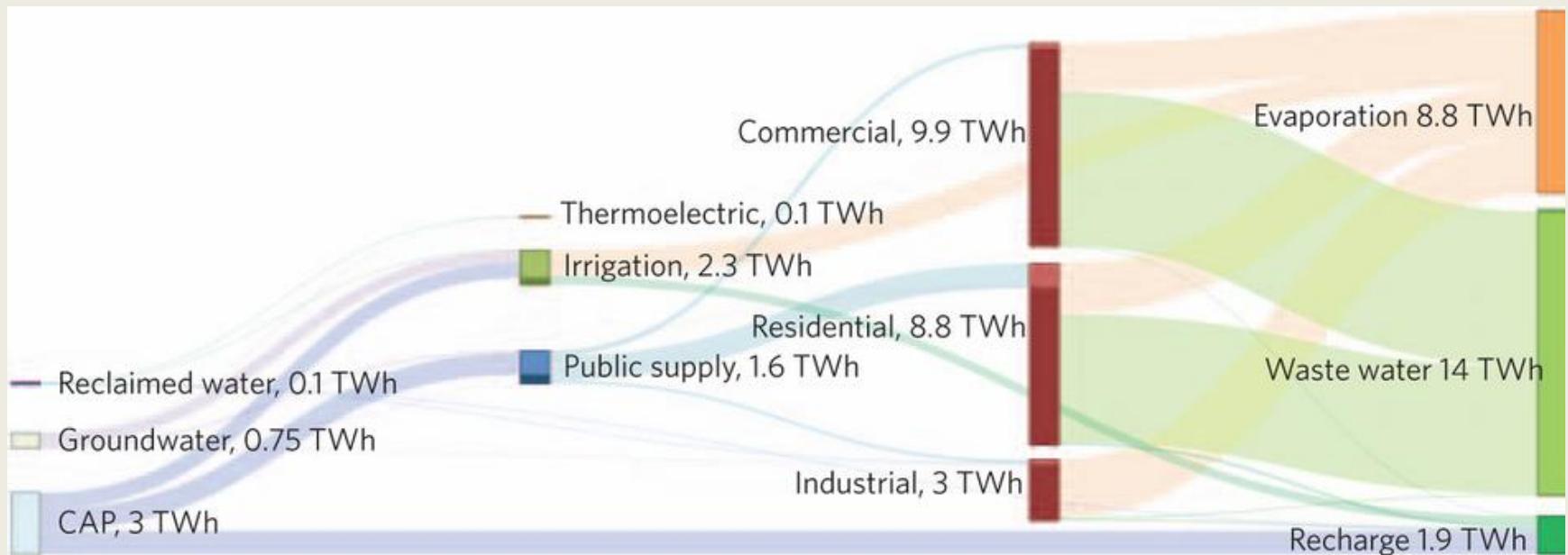
**Office of Water
Innovation**

Local Options

- Technology-Derived Supplies
 - Recycling
 - Desalination
- Conservation & Waste Reduction
 - Gross versus net conservation



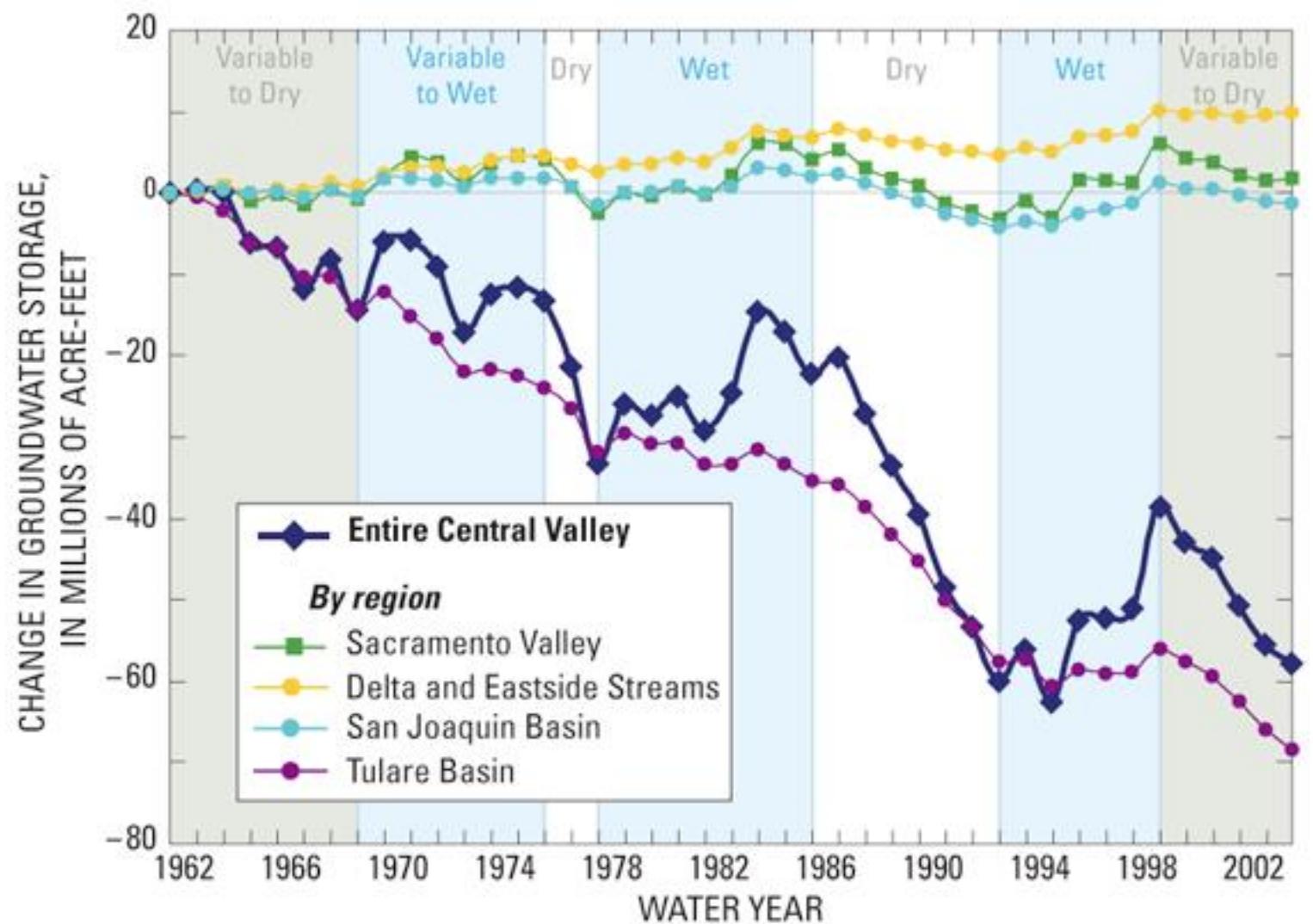
Embedded Energy



Howells & Rogner (2014)

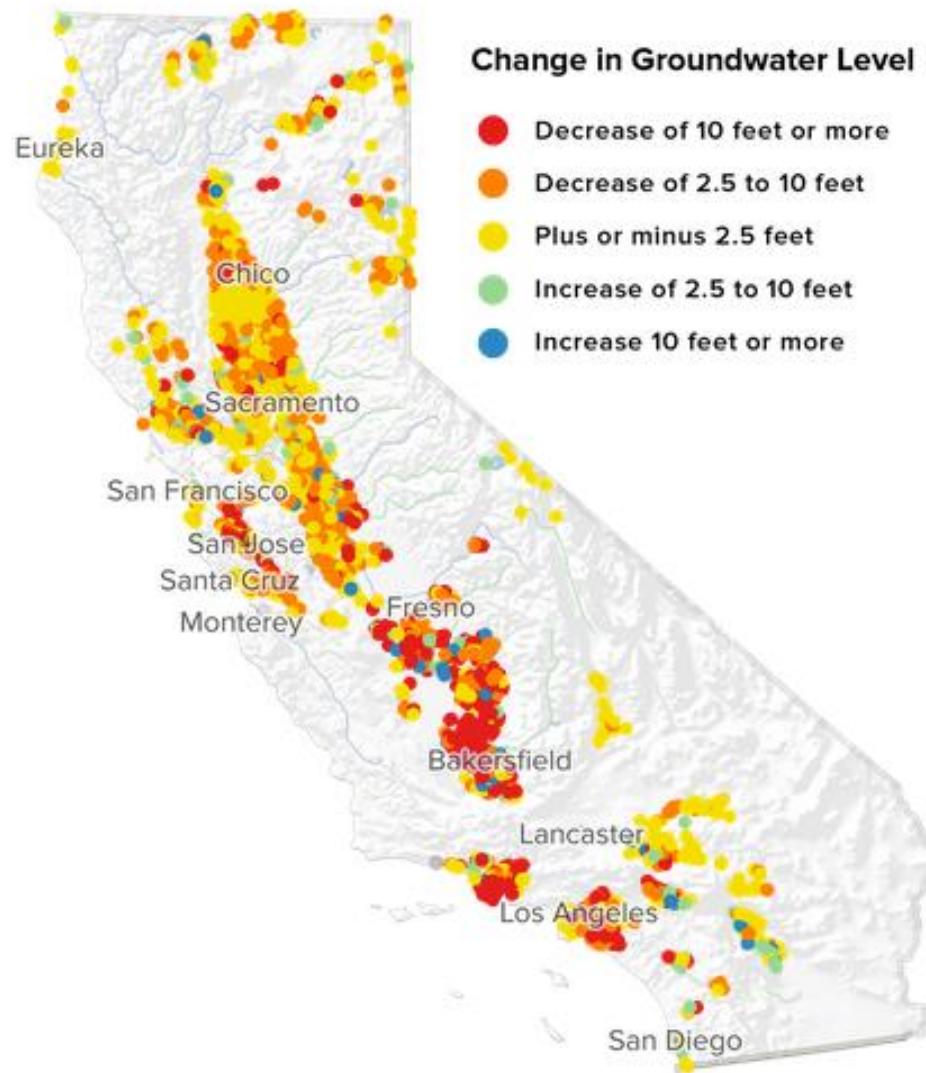
Local Options

- **Technology-Derived Supplies**
 - Recycling
 - Desalination
- **Conservation & Waste Reduction**
 - Gross versus net conservation
- **Groundwater**
 - Including aquifer storage



Change in Groundwater Levels During the...

PAST DECADE PAST YEAR



Source: Department of Water Resources

Groundwater Adjudications



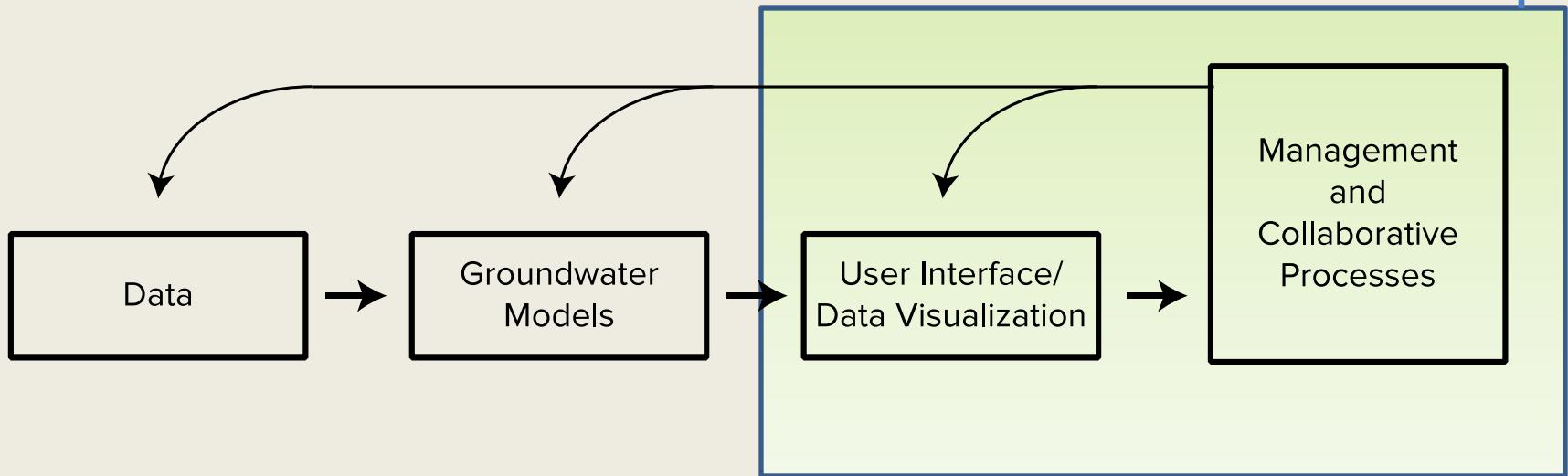
- 24 adjudicated basins in California
- Courts determine water rights and extractions
- Often involve active watermarkets

Sustainable Groundwater Management Act of 214



Adjudications

Sustainable Groundwater Plans



Regionalization

