

Ensuring Sustainable Water Service: Full Cost Pricing in NE Illinois

Presented to:
NORTHWEST WATER PLANNING ALLIANCE
Technical Advisory Committee
May 22, 2012

Presented by
Margaret Schneemann, Water Resource Economist



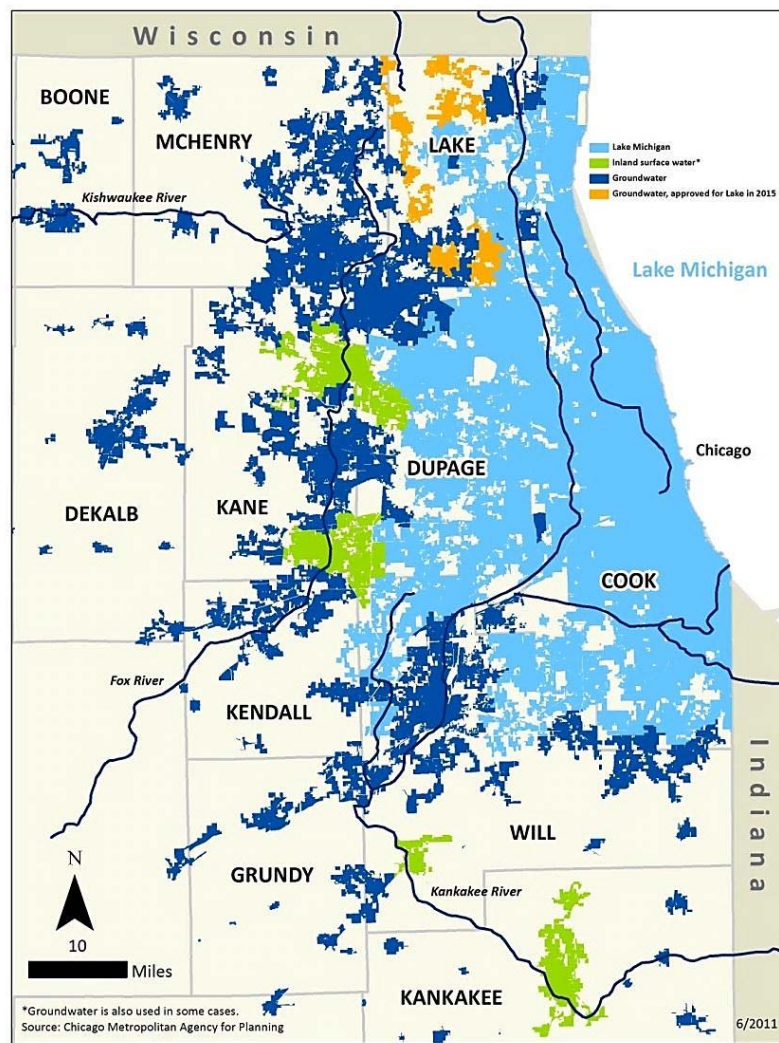
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Sea Grant
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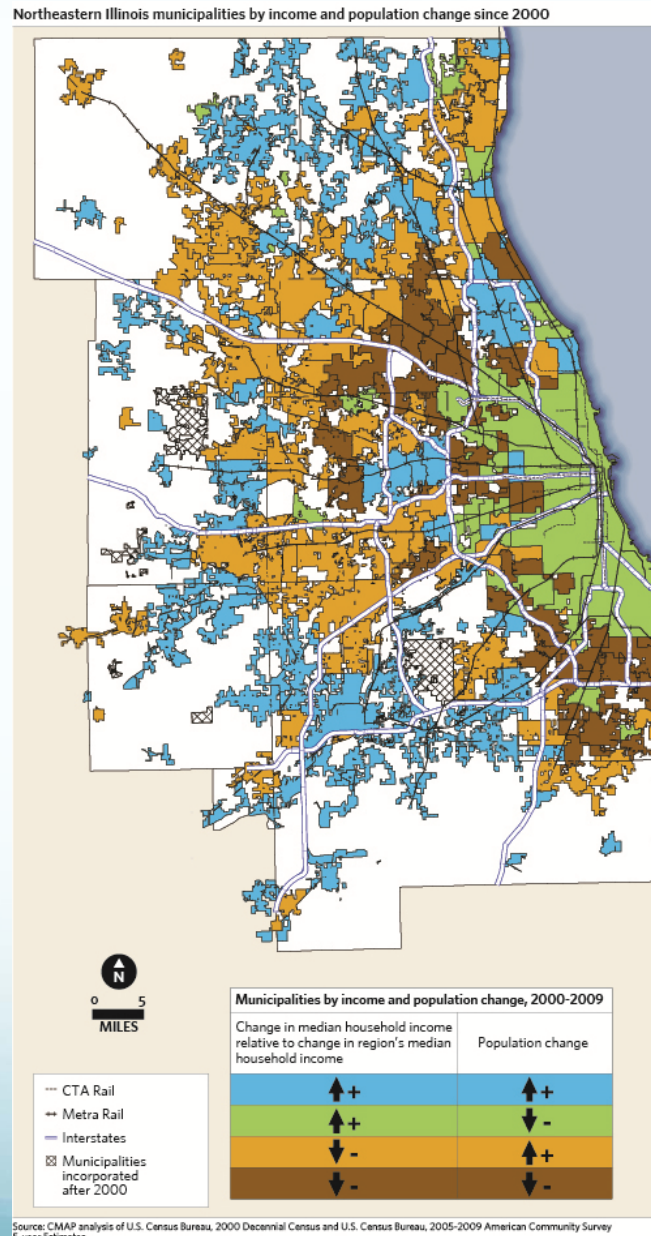


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Importance of Demand Management in the NE IL Region

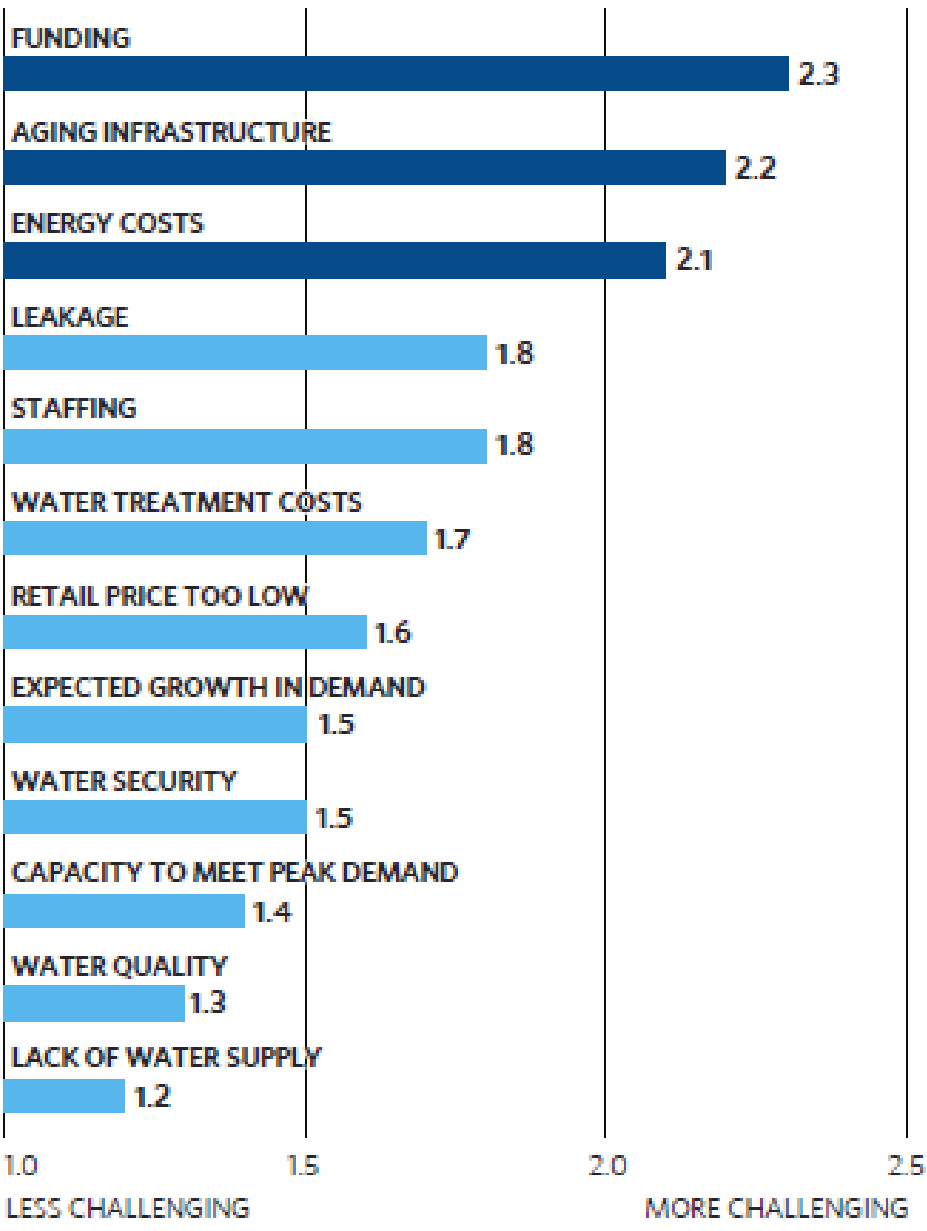


Regional Patterns & Infrastructure Investment



Source: CMAP analysis of U.S. Census Bureau, 2000 Decennial Census and U.S. Census Bureau, 2005-2009 American Community Survey 5-year Estimates

Figure 1. Northeastern Illinois utility challenge ratings



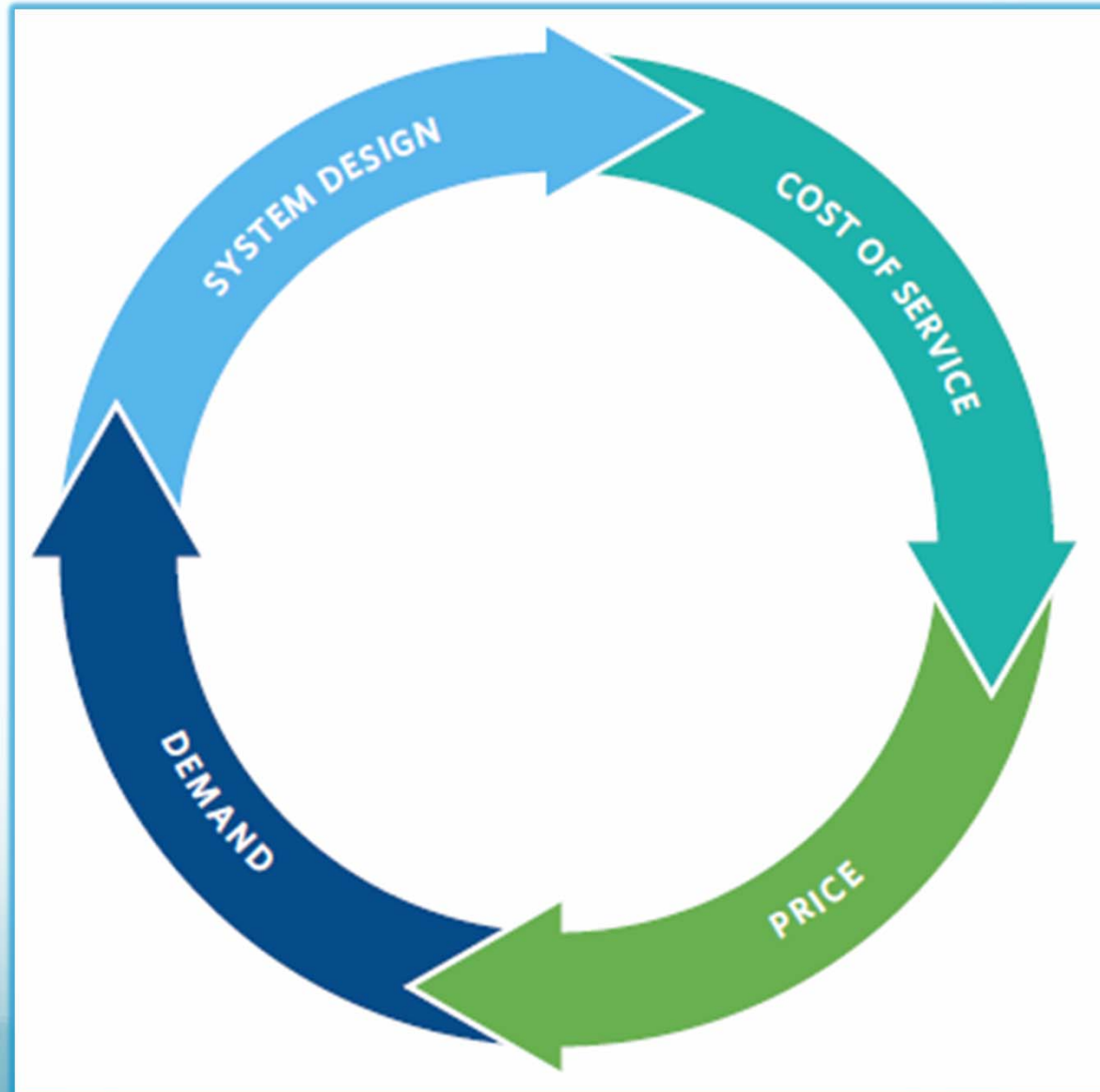
Source: CMAP utility survey, 2008.

Water Infrastructure

- Illinois water infrastructure = D-plus.
- Cost of addressing over \$21.5 billion.
- High costs on communities
- Economic conditions



Why Pricing?



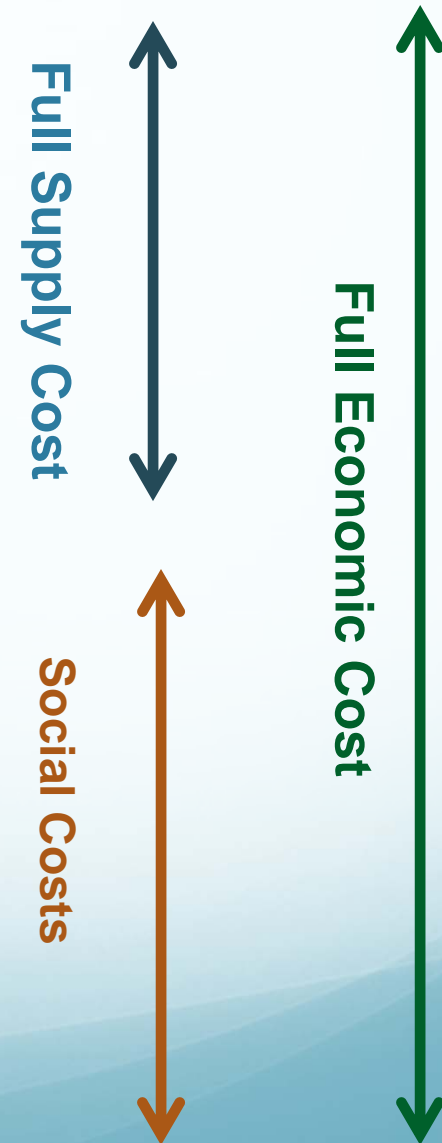
Full cost pricing definition

“implies that **all private and social costs** associated with a product or activity (and determined using full cost accounting) are included in the price of an activity”

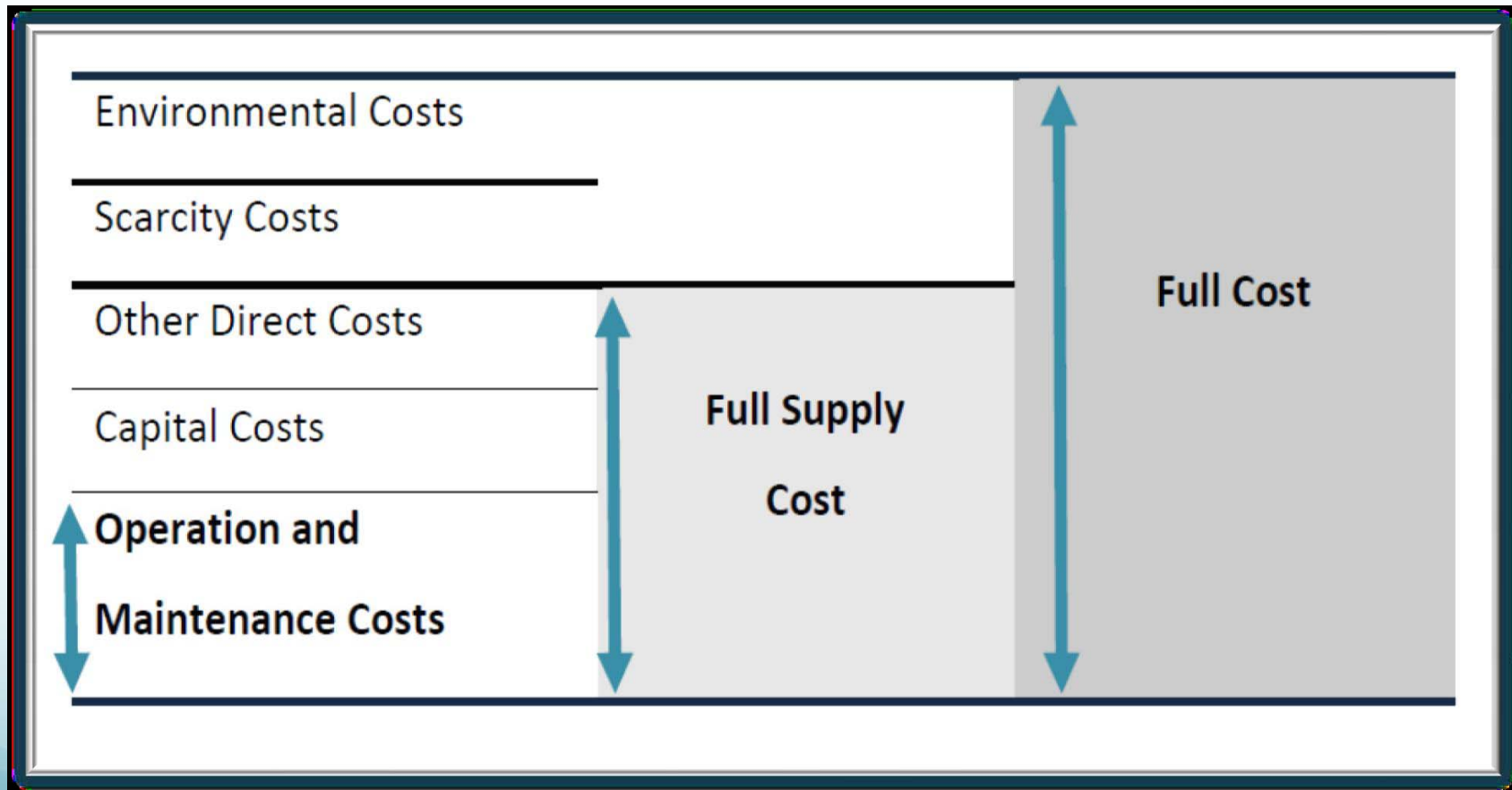
See Conway-Schempf, PhD. *Full Cost Accounting* http://gdi.ce.cmu.edu/gd/education/FCA_Module_98.pdf

Analogy: What is the Full Cost of Driving?

- Gas
- Maintenance
- Operation
- Financing
- Road Construction & Maintenance
- Traffic Congestion
- Emissions Impacts



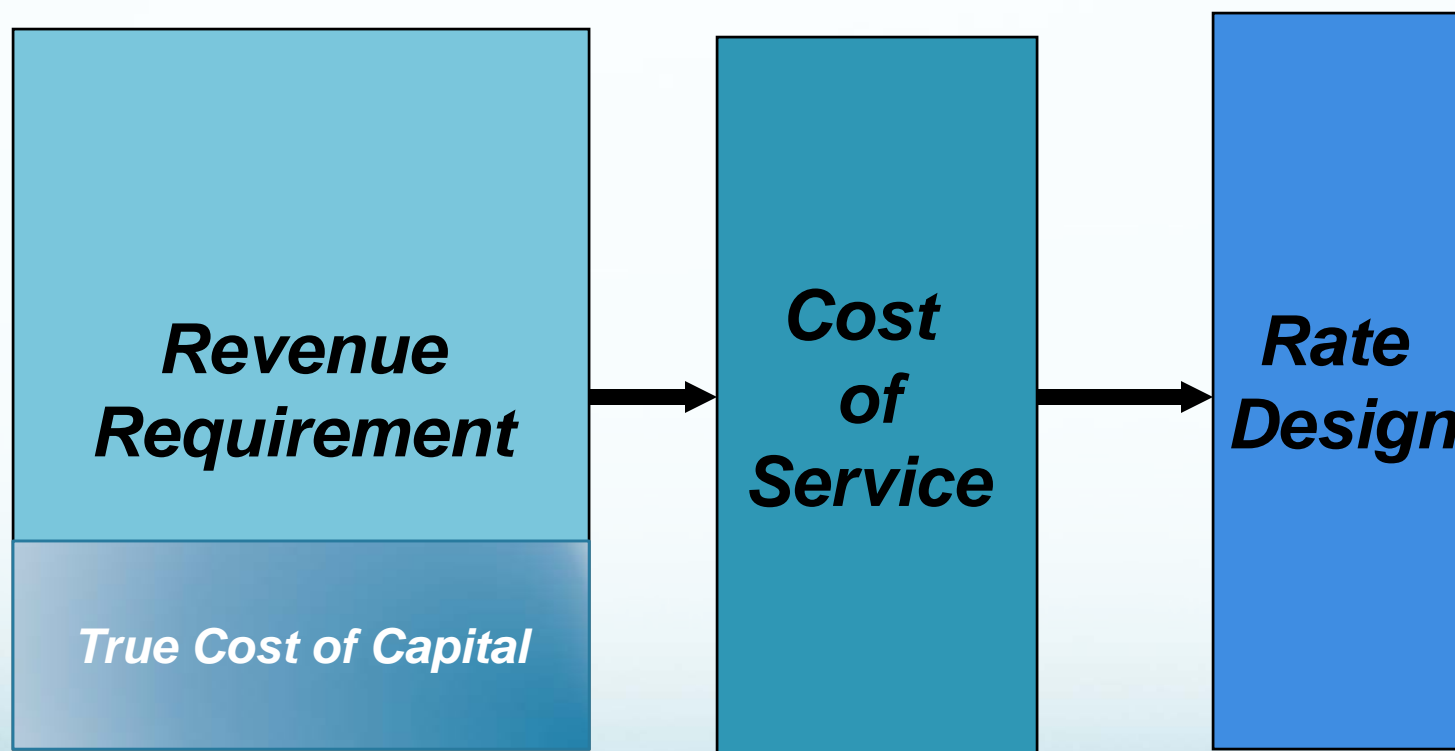
Full Economic Cost Pricing



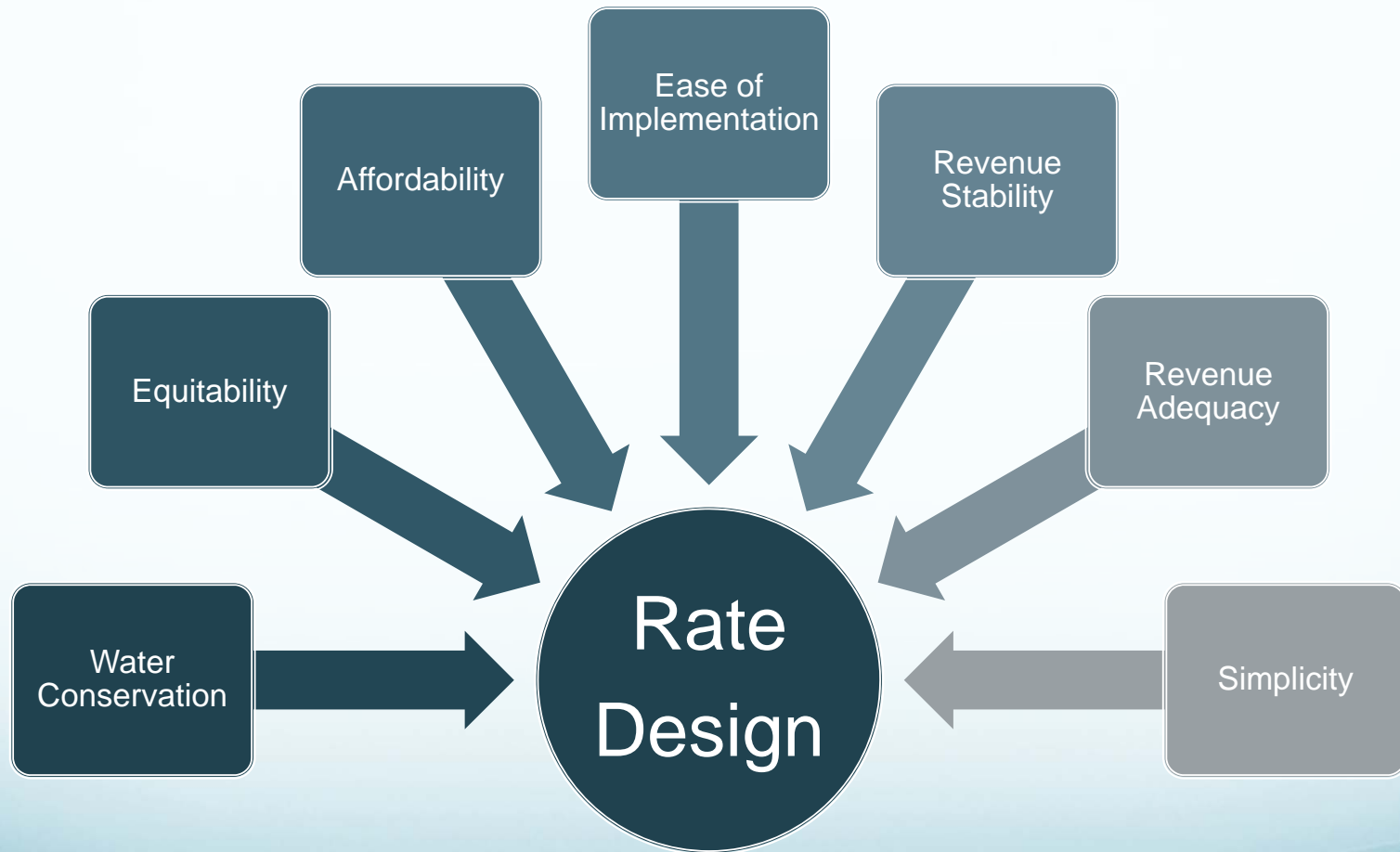
Adapted from Rogers et al 1997

Full Supply Cost

Cost of Service Rate Setting



Community-specific Rate Design: Art, Politics, Science



Role of Water Resource Economics?

Economics is the study of the allocation of scarce resources.

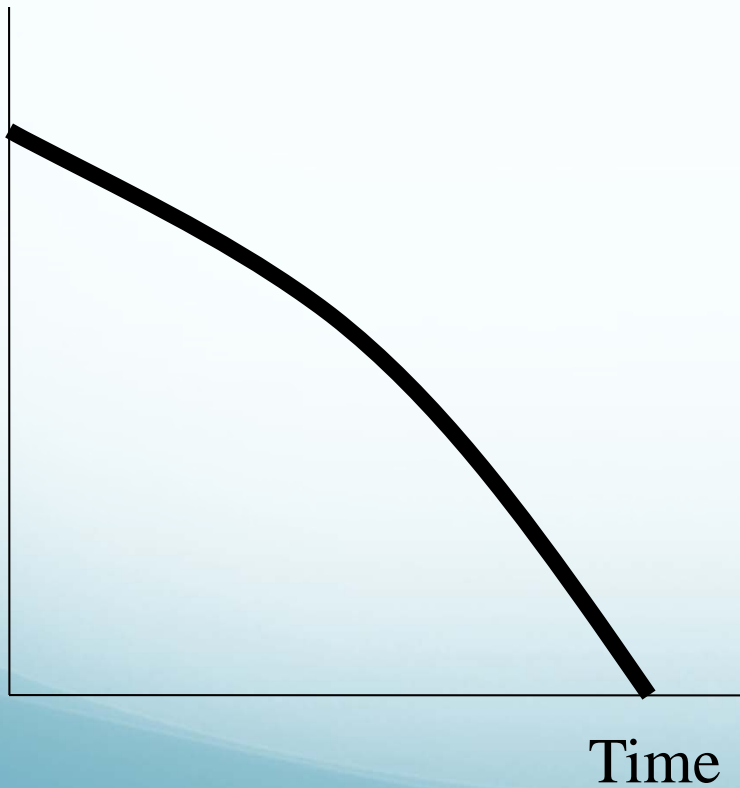
Groundwater Use

1. Will be depleted if the rate of use exceeds the rate of recharge.
2. Efficient allocation of a scarce resource requires a **scarcity cost** be associated with its use.
3. Prices charged for water typically do not include **scarcity cost**.

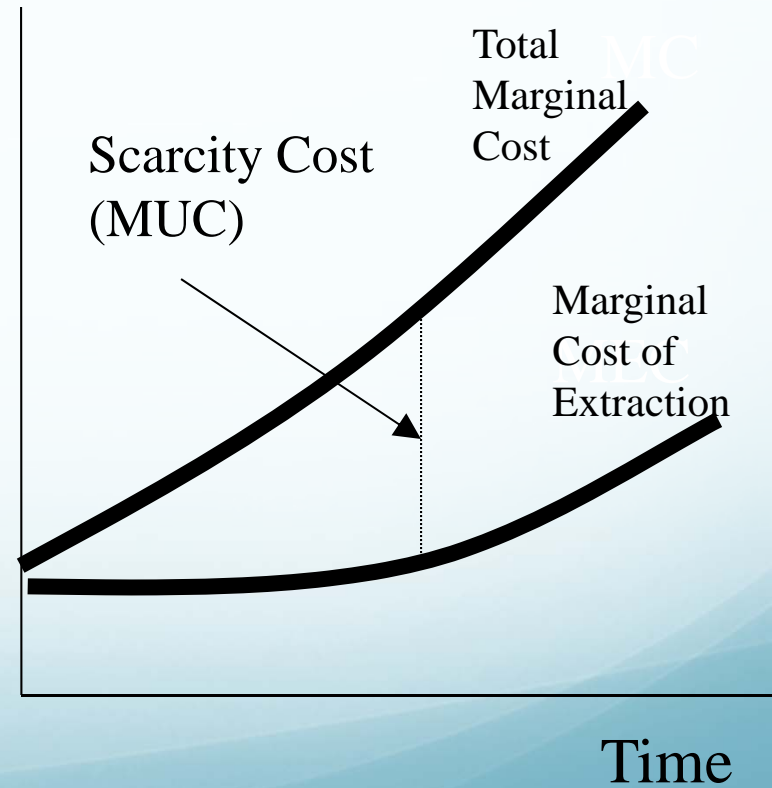
Efficient allocation of groundwater

No substitute

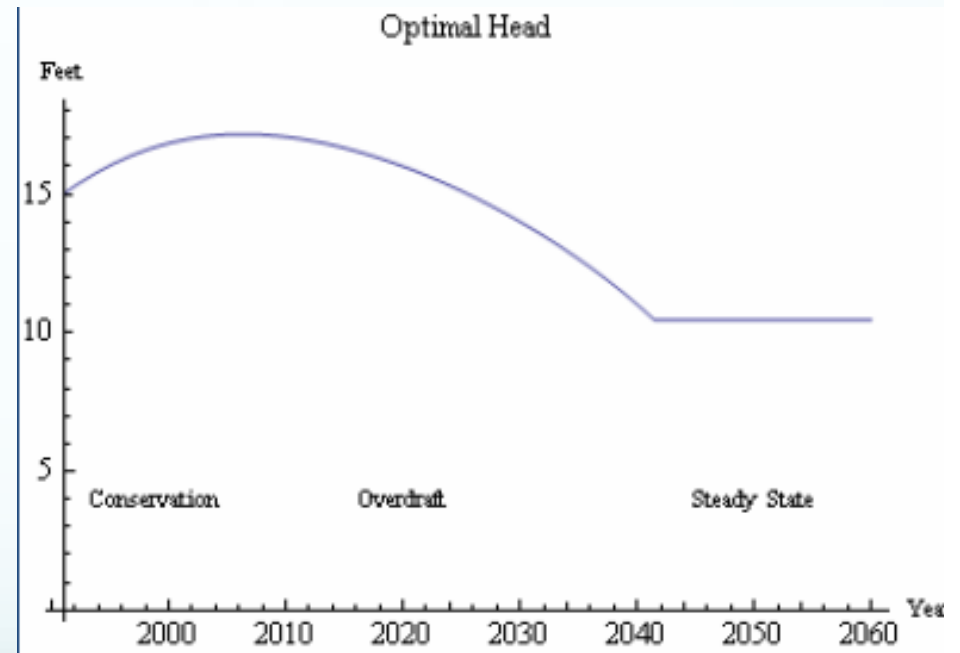
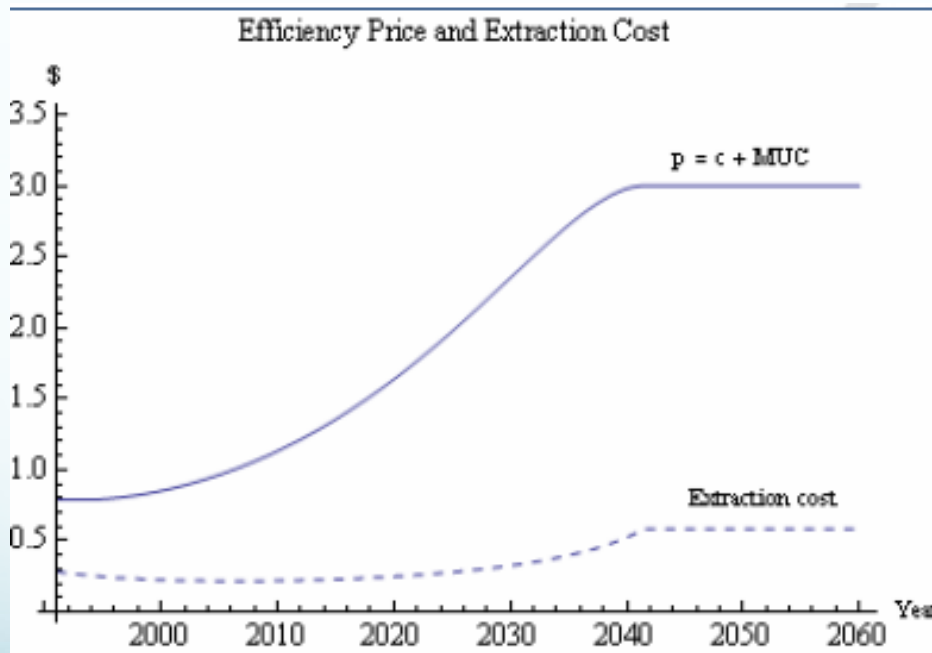
Quantity
extracted



Marginal
cost (\$/unit)



Efficient allocation of groundwater: No substitute, constant recharge

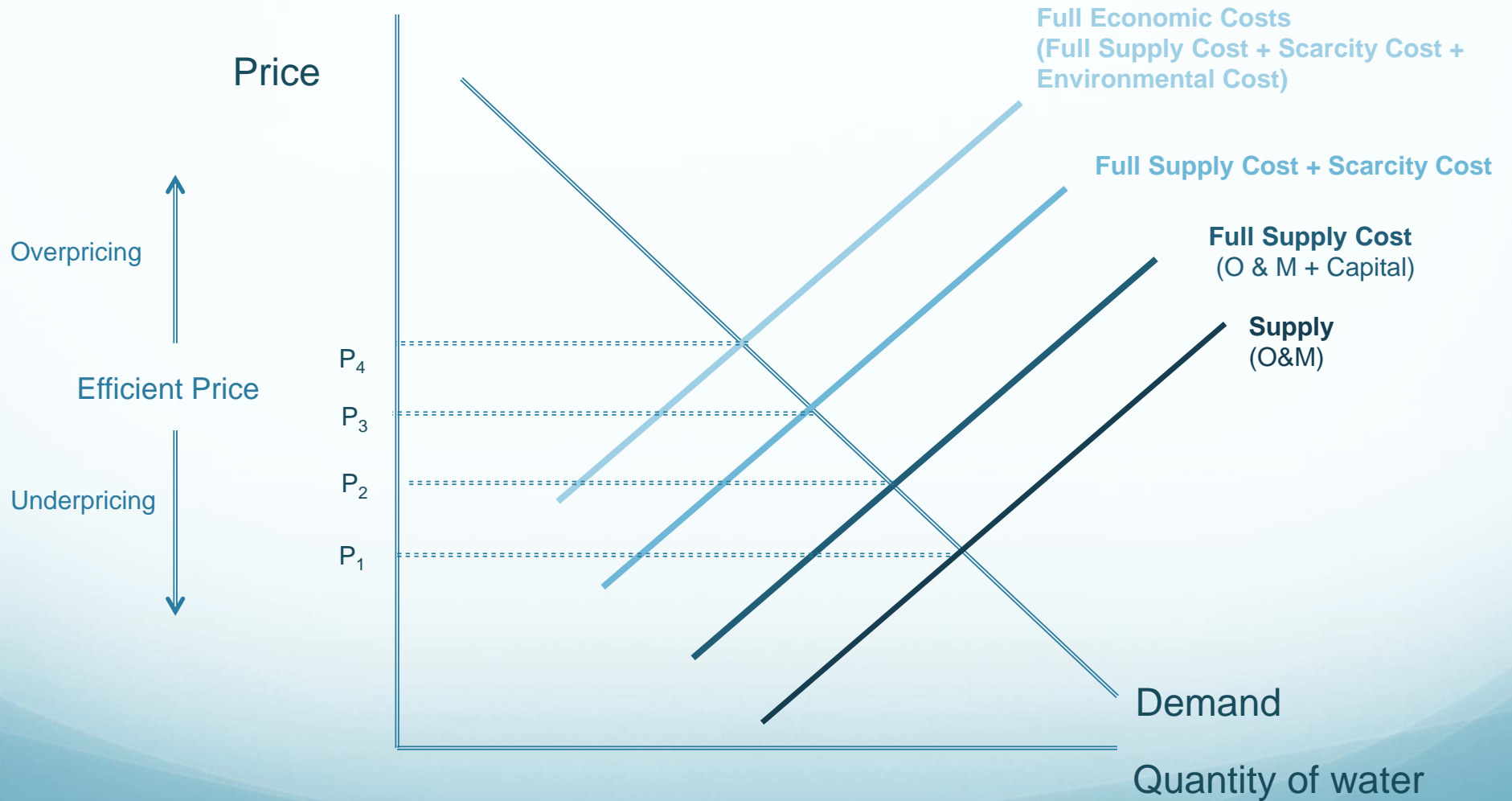


Adapted from Krulce et al 1997 as presented by Sustainability Science for Policy Analysis:
the Case of Watershed Conservation and Groundwater Management James Roumasset & Christopher Wada 12th Occasional California Workshop on
Environmental and Resource Economics November 11-12, 2010.

Scarcity Value Estimates, Examples

- Tucson scarcity value of 58 percent more than existing water prices (Martin et al., 1984).
- Water prices should be 80 percent greater than the current level (Hansen 2009).
- Scarcity value to range from \$1.04 to \$2.39 per 1,000 gallons in Honolulu and Chicago, (Moncur and Pollock, 1988; Ipe and Bhagwat, 2002).
- By 2020 \$1.6 billion will be lost in foregone value from underpriced water in California (Jenkins et al., 2003).

Pricing and Efficiency



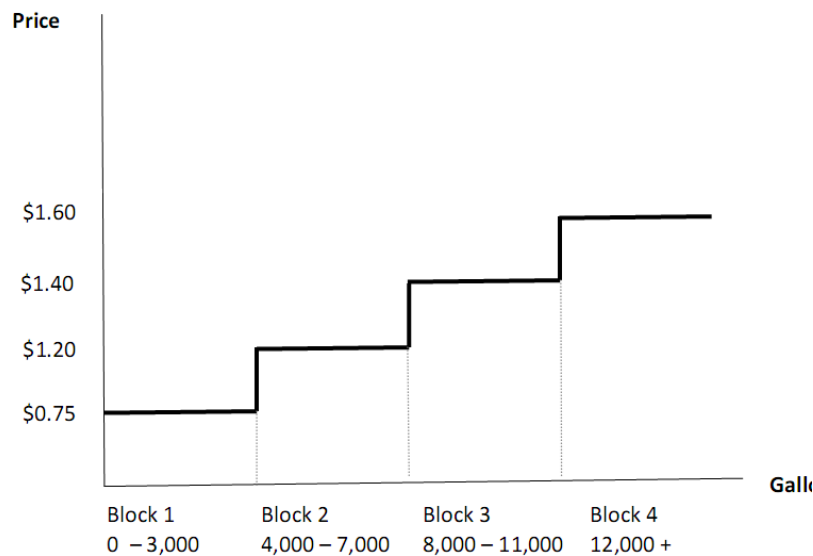
Example Price Response

Adaptive Management & Drought Planning Protocols

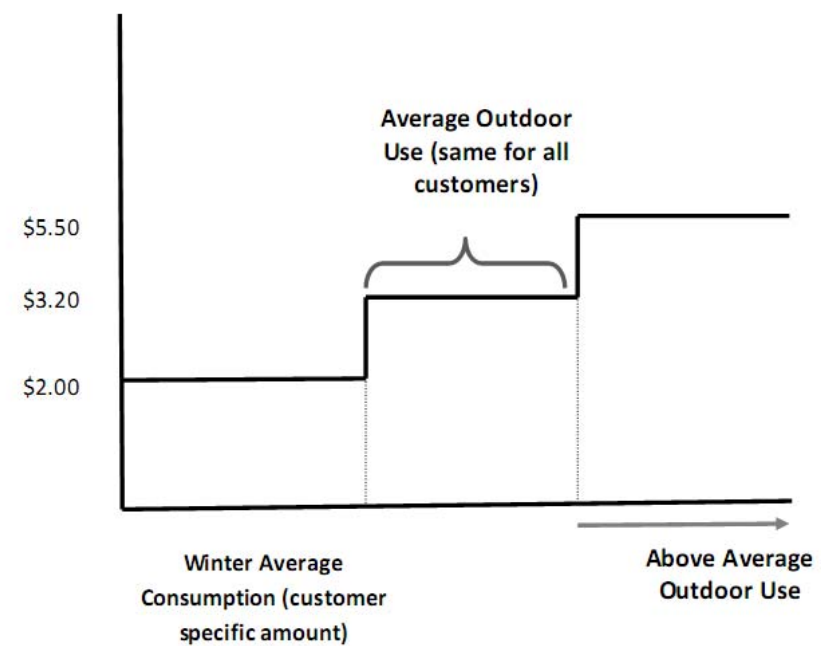
- Drought management programs staged according to indicators of drought severity:
 - Palmer Index (soil moisture)
 - Decline from normal average precipitation levels
 - Decline in surface- or ground-water levels
 - Reservoir capacity
- Interventions range from public information, to demand restrictions, to bans on non-essential water uses depending on drought severity stage
- Pricing Response Options: Include costs of capital, scarcity costs in the pricing structure.

Example Price Response Rate Structure Options

Increasing Block Rates



Seasonal Water Rates

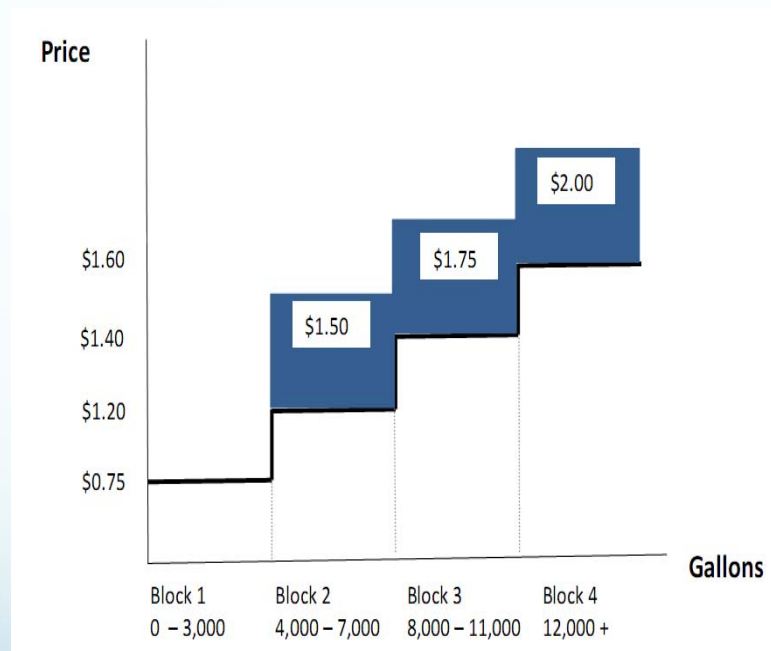


Example Price Response Drought Surcharges

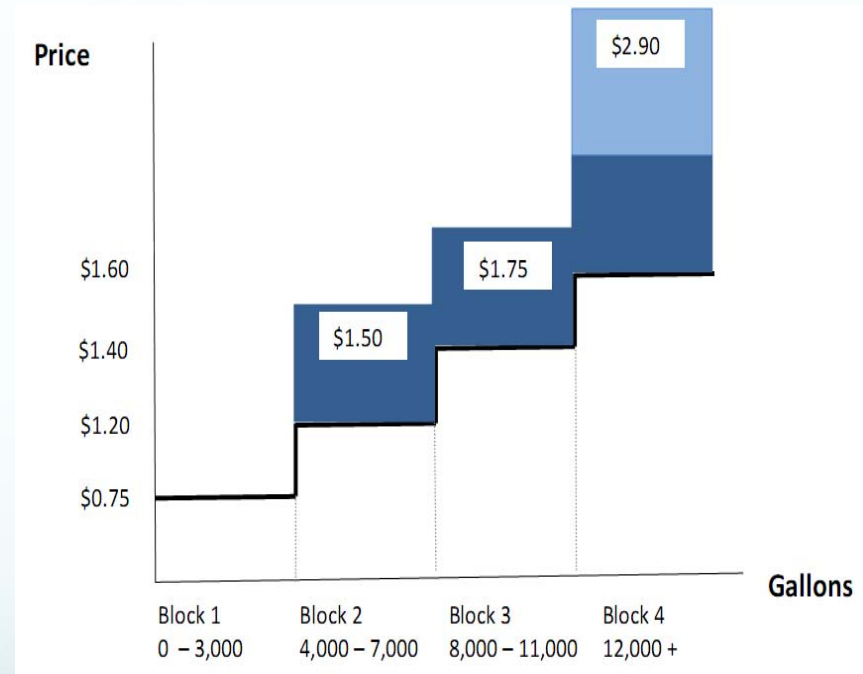
- Often used in local drought planning
- Water prices increase with drought stage or drought severity indicator -- the more severe the drought, the higher the costs of using more water
- For critical conditions, can impose on all water use

Drought Surcharge Strategies

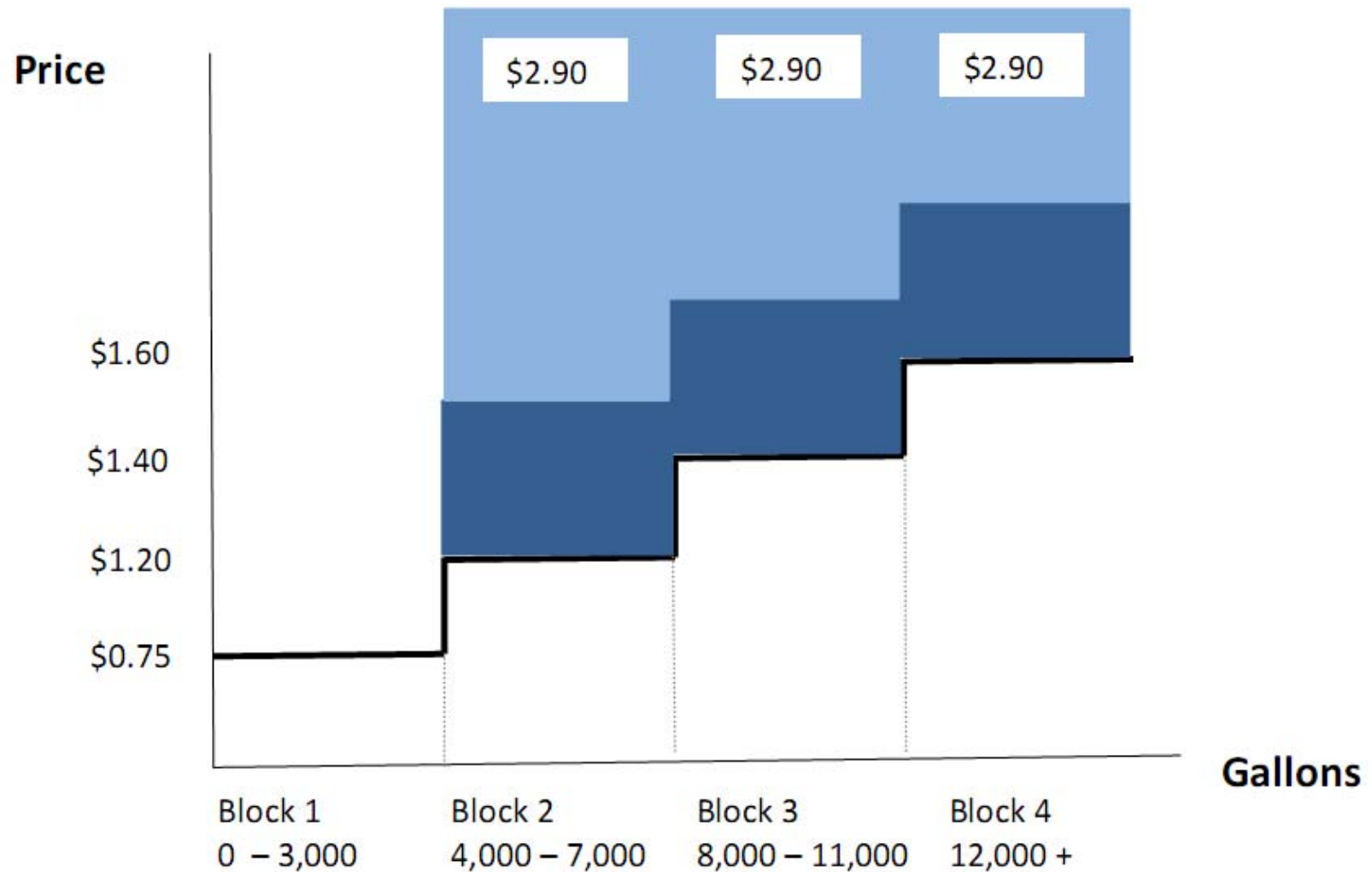
Moderate Conditions



Severe Conditions

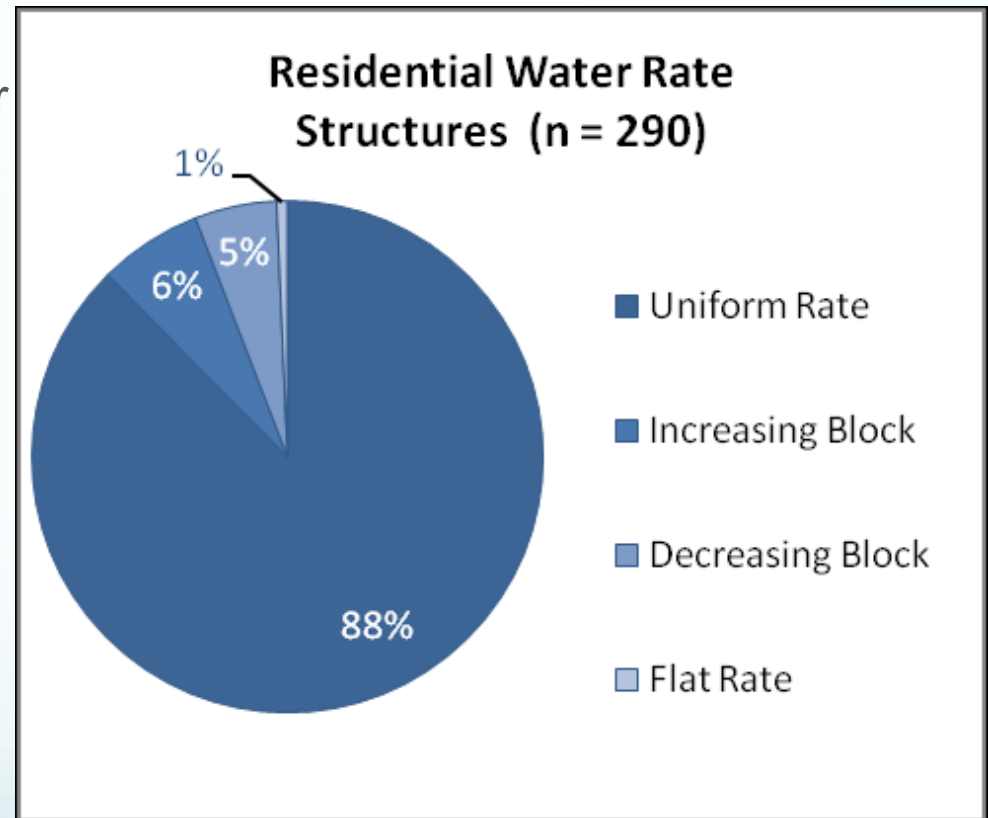


Drought Surcharges: Critical Conditions



Economic Strategies for NE Illinois

- Most communities in NE Illinois use a uniform rate for water pricing
- Some communities (e.g., Chicago) don't even meter residential water use
- Many communities not charging full supply costs.



▶ Source: CMAP's regional water rate survey (2010)

Full Cost Pricing Program

Infrastructure Scarcity

- **Sustainable Infrastructure Planning**
- **Community Rate Setting**
- **Outreach**

Water Scarcity

- **Scarcity Cost Education**
- **Regional Coordination**

WATER
2050

PROJECT DEVELOPMENT & SUSTAINABLE INFRASTRUCTURE PLANNING: Getting your Project to Flow Smoothly

The availability of water and sewer services is a major factor in determining the community's outlook for future economic development. The future growth and sustainability of the community is dependent upon your ability to plan, design, and construct needed infrastructure.

This Sustainable Infrastructure Training will assist communities in identifying actions that can be taken as next steps in fosters and promotes sustainability. These include Water Conservation, Effective Project Development, Energy Efficiency & Asset Management.

Decisions made today will impact your children, grandchildren, and great grandchildren. With increasing demands and the shrinking pool of resources getting the best bang for your project buck is more important than ever. Technical assistance specialists will be on hand to provide follow-up assistance.

Up to 10.0 Illinois EPA Approved Operator Certification Training Hours

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DAY 1: PROJECT DEVELOPMENT

Monday, June 18, 2012
8:30 a.m. to 3:00 p.m.

DAY 2: SUSTAINABLE INFRASTRUCTURE

Tuesday June 19, 2012
8:30 a.m. to 3:00 p.m.

Registration begins at 8:00 a.m.

**McHenry County Government
Administration Building
Conference Room A
2200 N. Seminary Ave.
Woodstock, IL 60098**

Continental breakfast, lunch, and free parking provided.

COST: \$25 for full two-day workshop
\$15 for one-day workshop

MAP & DIRECTIONS:

The event will be held in the upper level of the McHenry County Administration Building located across the street from the McHenry County Courthouse on Ware Road. View the map at <http://www.co.mchenry.il.us/departments/gis/Documents/GIS%20location.pdf>.

Visit www.mchenryh2o.com for registration. For more information, email plandev@co.mchenry.il.us or call (815) 334-4560.



Chicago Metropolitan Agency for Planning

SUSTAINABLE WATER FINANCING

Sustainable water financing

Achieving water efficiency, sustaining infrastructure investment, and reaching environmental protection goals requires adequate financing. At the end of the day, communities must address the question of how to pay for continued reliable and safe water services. Many communities are facing a backlog of needed infrastructure repair and replacement costs to their water and wastewater systems, and are uncertain how they will finance these costs. Other communities are interested in pursuing water conservation, but are wary of the resulting impacts on revenues and water bills. Added to increasing concerns over water quality and increasing extreme weather events, the reality is that innovative and financially sustainable methods for funding water services, water efficiency programs, and environmental protection are required.

CMAA, in partnership with IISG is developing a series of education, outreach, and training initiatives to help communities develop and implement sustainable water services financing programs.

Full Cost Pricing. Frames the full cost pricing issue for northeastern Illinois. Download a powerpoint overview of the issue and a white paper below.

- [Full Cost Pricing in Illinois White Paper](#) [coming soon]

Water Rates and Rate Structures in Northeast Illinois. A survey and evaluation of residential rate structures in the Northeast Illinois region. Download the power point presentation below.

- [Water Rates and Rate Structures in Northeast Illinois](#)

The Economics of Water. Provides information on water resource economics to agencies, water resource managers, current and future planners on water economics issues for improved decision making.

- [Economic Value of Regional Water Supply Planning](#)
- [Economic Analysis and Implementing Water2050](#)
- [The Value of Water: Economics, Environment and Ethics](#)
- [Economic Issues of Water Planning & Economics](#) [coming soon]
- [Sustaining the Triple Bottom Line](#)

Conservation Pricing in Northeastern Illinois An examination of conservation pricing and related policies that make systems more resilient and manage climate and aging infrastructure risks.

- [Conservation Rates](#) [Conservation Pricing Fact Sheet coming soon]
- [Reducing Water Supply Vulnerability in the Chicago Metro Area](#)
- [Water Pricing for Climate Change](#)

Resources

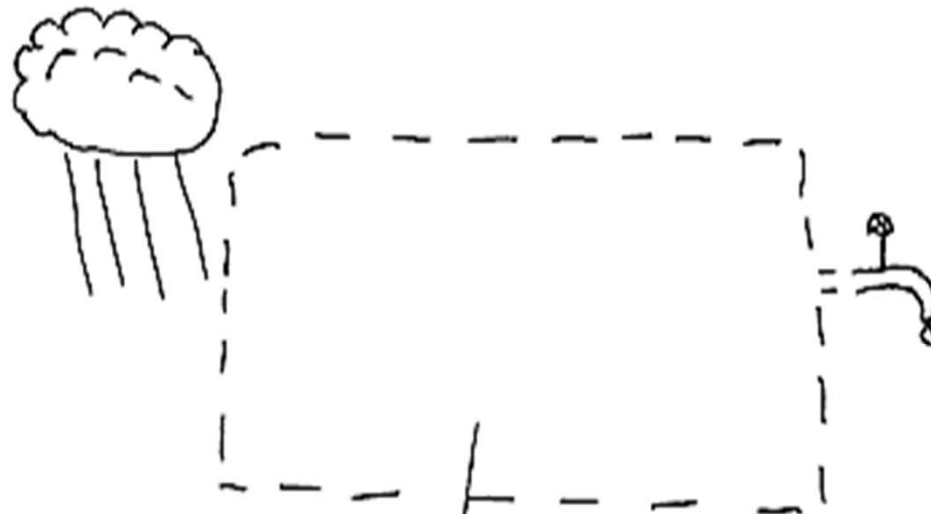
Programs

- Water Conservation and Efficiency Planning
- Ordinance Review and Updates
- Water Financing
 - Training
 - Public Outreach and Education
- Sustainable Water Financing**
- Lawn To Lake



Two Great States
Caring for One Great Lake

HOW WE GET WATER IN OUR HOMES



I DON'T
HAVE ANY
INFORMATION
ON THIS BIT

CartoonChurch.com

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Questions?

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