9. Water Pricing

basic guidance:

Agent Behavior:
$$MB=p$$

Agent Behavior: $MB=p$

Managers should set

p=MC

1

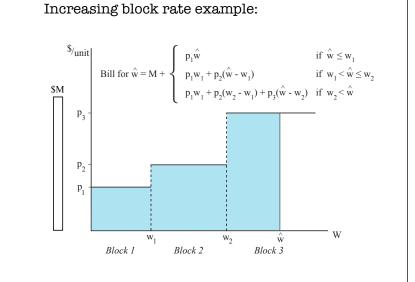
Pricing Lingo

- water price (or water rate); must be volumetric
- water rates, water bills
- flat rates (are nonvolumetric)
- rate structure
 - uniform or constant rate
 - decreasing block rates
 - increasing block rates

2

Pricing Lingo (cont.)

- time of year (TOY) pricing
 - mainly summer & winter (currently)
- meter charge (minimum charge, service charge); flat and recurring each billing period
- connection charge (...); nonrecurring
- winter averaging (wastewater only)



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College Station

WATER RATES

The increasing volumetric rate structure for water outlined below applies to residential single family customers only. Commercial irrigation-only customers, for example businesses and HOA common areas, pay the \$2.68 per thousand gallons rate.

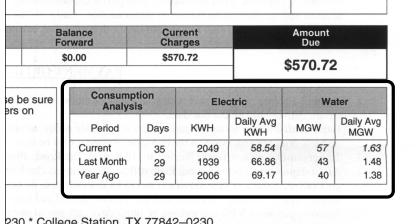
	Usage (gallons)	Rate / 1,000 Gallons		
Residential	0 - 10,000	\$2.26		
	11,000 - 15,000	\$2.94		
	16,000 - 20,000	\$3.61		
	21,000 - 25,000	\$4.28		
	26,000- above	\$4.96		
	Meter Fee	\$10.19		
Commercial - Domestic	Domestic (inside) usage	\$2.49		
Commercial - Irrigation	Irrigation (outside) usage	\$2.68		
	Meter Fee	Varies by meter size		

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WASTEWATER RATES

Inside City Limits - Wastewater Rates effective 10/1/12

Customer Class:	Monthly Service Charge:	<u>Usage</u> <u>Charge</u> :	Maximum Billing:
Single Family Residential:	\$18.78 includes first 4,000 gallons of water metered	\$3.76 / 1,000 gallons	\$41.34
Multi-Family Residential: Less than 50 units, no kitchens	\$16.11 per month (no usage included)	\$3.76 /1,000 gallons	No maximum
Multi-Family Residential: 50 or more units, no kitchens	\$14.91 per month, per unit	No usage charge	\$14.91 (flat rate)
Multi-Family Residential w/kitchens in each unit	\$23.89 per month, per unit	No usage charge	\$23.89 (flat rate)
Commercial	\$16.11 per month (no usage included)		No maximum



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PLEASE DETACH AND RETURN LOWER PORTION

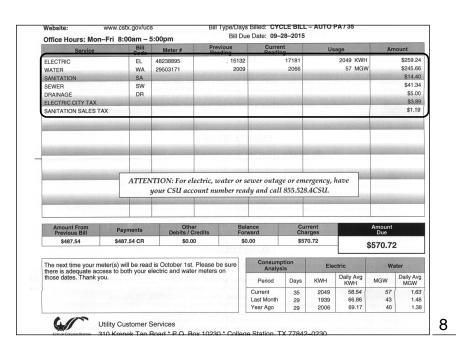
Account #:

120967-147842

Bank Draft Amount:

\$570.72

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Commonly Noted Pricing Goals

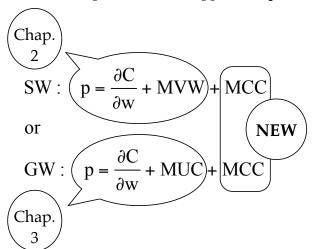
- 1. Revenue sufficiency (cost recovery, revenue neutrality)
- 2. Revenue stability
- 3. Economic efficiency Are these goals
- redundant or 4. Equity; fairness
- 5. Simplicity

opposing?

6. Legality

What Utility Accountants Do:	
a. Focus on breaking even	-
b. So mainstream practice is to estimate	
upcoming costs and to devise rates that will hopefully offset these costs	
 c. Emphasis is on cost allocation, excluding opportunity costs 	
d. Emphasis is on average costs, not marginal	
costs	-
	10
Three Primary Pricing Tools! (applied in unison)	
\ 	
water price	
connection charge	
meter charge	
	-
	-
	11
If we can move beyond accounting practice so as	
to confront water scarcity, a great division of	
duties is:	
1. water price Set these efficiently	
2. connection charge	
3. meter charge Balance the budget	
with this one.	
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Efficient water prices include opportunity costs:



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Nonaccounting opportunity costs:

MVW - marginal value of water (renewable)

MUC – marginal user costs (nonrenewable)

MCC – marginal capacity costs

Some or all of these might be zero.

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Nonaccounting opportunity costs:

- Including any nonaccounting opportunity costs in water price can yield excess revenue for the supplier.
- This revenue is unmatched by accounting costs, so it will create a "profit" unless the surplus can be dispersed in an harmless way.
- Let's disperse it by lowering M, the meter charge.

Accounting costs: Systemwide water use previously (simple): C(W) new & improved: C(W, N, △N) # of client connections	
	16
Making rates efficient 1. Efficient meter charge That is, lower everyone's meter charges to eliminate surplus effectively treating everyone as shareholders of the utility/district. "water dividend" has nice welfare properties, too	17
Making rates efficient	
2. Efficient new connection fee	
We should compute a dynamic version of a new connection's impact upon systemwide costs.	

Making rates efficient

New connections "shift forward" the entire schedule of:

- water development
- capital replacement & maintenance
- depletion
- water rights acquisitions

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Year	Capital costs w new conn's		Capital costs wo new conn's		Δ	ΡV(Δ)
0	\$	_	\$	=	\$	\$
1	\$	_	\$	=	\$	\$
2	\$	_	\$	=	\$	\$
			•			

Sum

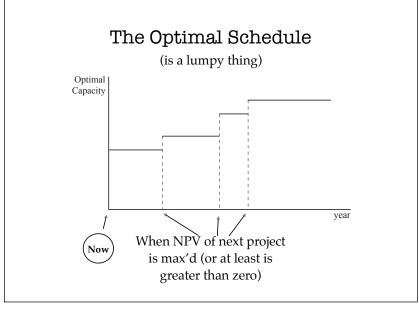
Costs caused by new connections &

∴ basis of new connection charge.

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MCC

Rationing Capacity and Staying on the Optimal Capacity Schedule



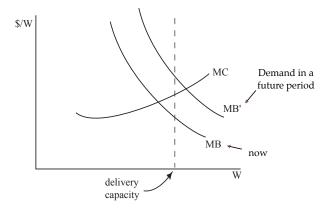
22

Do you want to build capacity in advance of demand for it?

- Asked another way:
 - What's the cost savings of delaying a \$30m project one year?
- The answer depends of the cost of capital (interest rate), but a one-year delay postpones all project expenditures one year,
 - so, for ex., $$30m \cdot 0.05 = $1.5m$
- hmmm

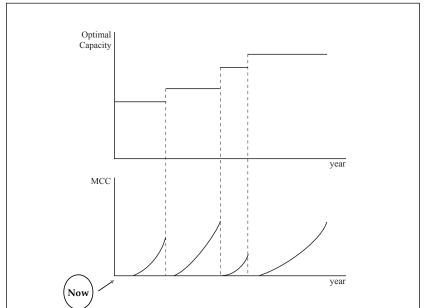
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• So, it doesn't make sense to build a \$30m project that will result in excess capacity unless this year's value of the project is <u>at least</u> \$1.5m.



- Therefore, it can be <u>optimal</u> to have periods in which capacity is "inadequate".
- How should we ration available capacity during these periods?

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- Therefore, MCC moves in concert with capacity.
- An optimal capacity schedule is supported by an optimal MCC schedule and vice versa.
- MCC is in addition to water scarcity value (if MCC is not zero).