

Fees/Water Rates/Alternatives Subcommittee Report

Presented by:

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July 24, 2003

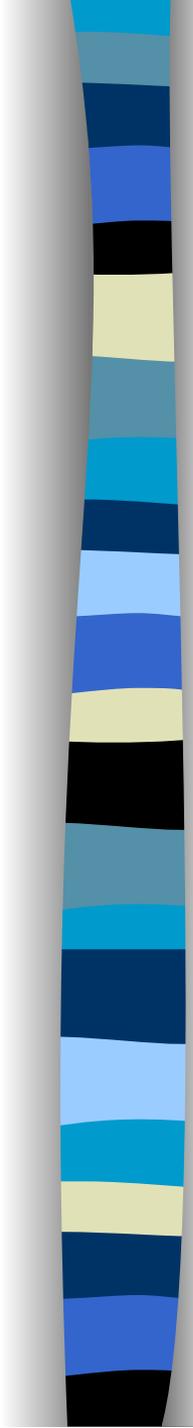
This diverse committee includes representatives from one watershed council, three water supply districts, one wastewater utility, the RI Division of Public Utilities, the RI Clean Water Finance Agency, the Senate Policy Office and members of the public.



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■ Mission Statement

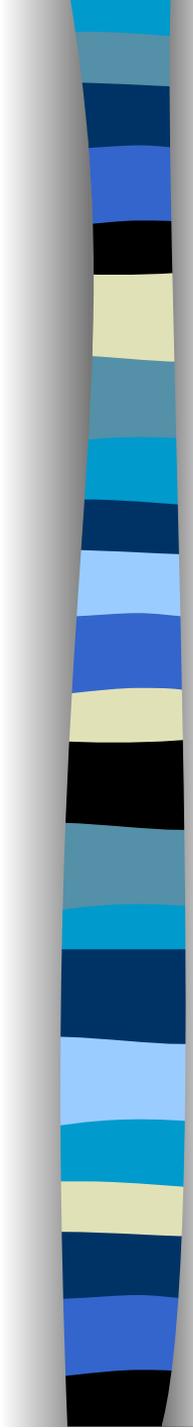
- Using economic analysis and other means, identify ways that water and wastewater rate structures can be modified to better reflect the cost of using water and preserving the resource.
- Proposed rate structures would encourage conservation, efficient water management, and consider affordability and equity implications.
- Investigate the use of fees and other alternative strategies to reduce, reuse, or recycle water.



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■ Deliverables:

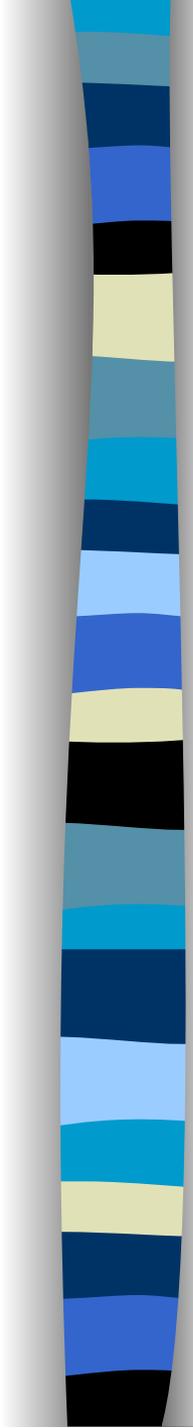
- An assessment of current fee structures and rates (water and wastewater)
- Recommendations for water pricing strategies which consider the full cycle of water and future supply needs.



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■ Priority Tasks

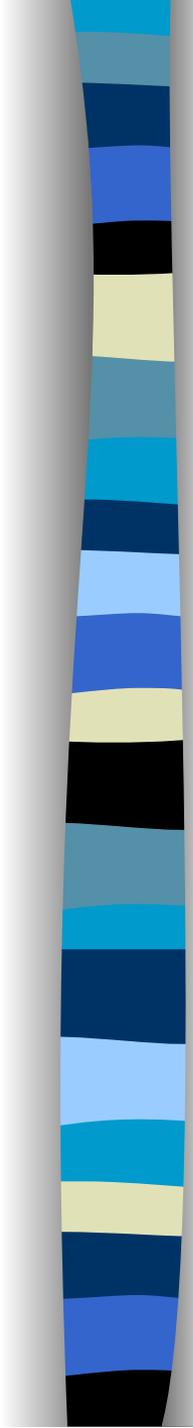
- 1. Prepare a spreadsheet of water rates statewide
- 2. Investigate pricing water according to value, full cycle of water use and future supply
- 3. Consider Demand Side Management (DSM) charge
- 4. Evaluate use of other fees (hydrant fees, registration fees, impact fees)
- 5. Investigate seasonal rates and preferred rates for those that optimize water use



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Task #1 Prepare a spreadsheet of water rates statewide

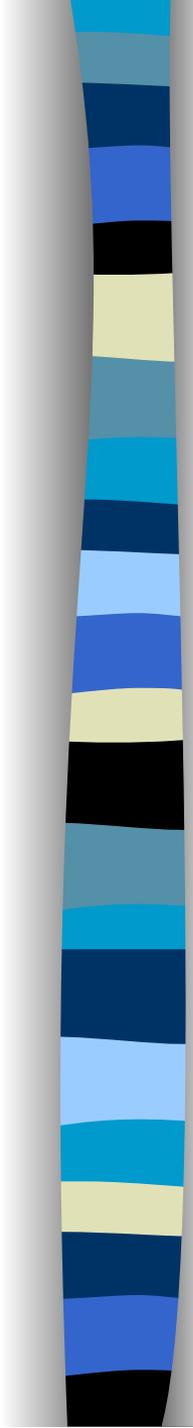
- Rate structures consider customer class (commercial, residential, industrial, etc.), frequency of billing, fixed charges and consumptive charges
- Sewer use rates and fees will be included
- Standardization of water bills for educational and informational purposes will be investigated



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Task # 1 Water rates spreadsheet – Summary

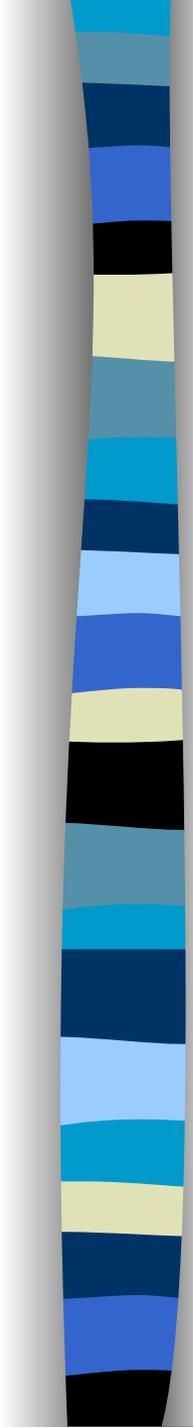
- Most water suppliers bill a flat service charge and a variable consumption charge. They may also use different rates based on customer class.
- Majority bill in HCF and minority bill in gallons
 - (HCF = 748 gallons)
- 10 have inclining block rates
- 15 have flat rates
- 2 have declining block rates
- 1 has seasonal rates
- 1 has inclining, then declining rates
- 1 was unknown



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Task # 1 Water rates spreadsheet – Summary cont'd.

- 14 water suppliers bill quarterly
 - 1 water supplier bills tertiary (3 times per year)
 - 1 water supplier bills semi-annually
 - 6 water suppliers bill annually
 - 8 were unknown
- The typical annual residential bill ranged from a high of \$434 (Bristol) to a low of \$147 (Lincoln), based on 100 HCF or 74,800 gallons. The average is \$226, the median is \$220. (Block Island is the exception with a high of \$1,290.)



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Task # 1 Sewer rates spreadsheet – Summary

- Most wastewater districts bill a variable consumption charge. Some charge different rates based on class.
- Most bill in HCF
 - (HCF = 748 gallons)
- 6 have a flat charge plus a volumetric rate
- 7 have a flat annual charge, regardless of consumption
- 5 have a volumetric rate only
- 1 is built into the property taxes



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Task # 1 Sewer rates spreadsheet – Summary cont'd.

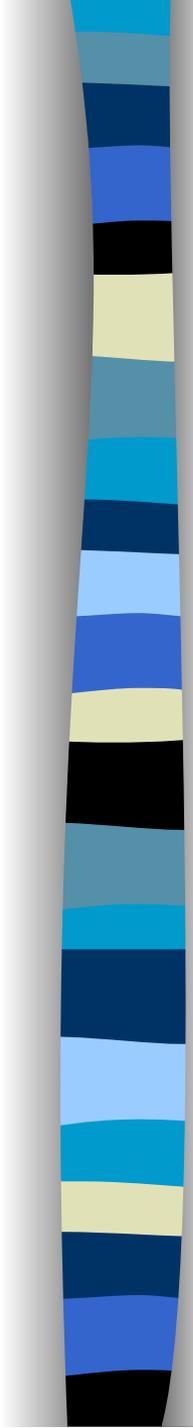
- Billing frequency was not determined
- The typical annual residential bill ranged from a high of \$430 (Middletown) to a low of \$123 (Westerly), based on 97.6 HCF or 73,005 gallons. The average is \$256, the median is \$240.



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Task # 1 Investigate the possible standardization of water bills for educational/informational purposes

- The committee compared water bills to the RI Division of Public Utilities' standards and prepared a summary
 - 1 Consumption history and the use of a comment section for water conservation messages were two areas that need additional focus for further educational value.
 - 2 Increasing the frequency of billing would provide better information, but may be difficult or not practical to implement.



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Task # 2 Investigate pricing water according to a) value, b) full cycle of water use and c) future supply

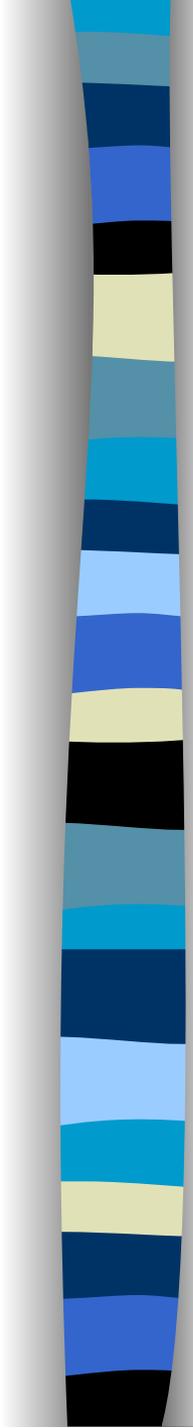
- ❖ Currently the cost of water primarily includes:
 - ❖ Source of supply
 - ❖ Treatment
 - ❖ Transmission and distribution
 - ❖ Administrative costs
 - ❖ There is virtually no cost for the raw water itself.
- ❖ Aggregate the cost of water and wastewater
- ❖ Water suppliers often factor future supply considerations into rate studies, but the committee did not have sufficient time and resources to develop this element to date.



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Task # 2 Investigate pricing water according to a) value, b) full cycle of water use and c) future supply - cont'd.

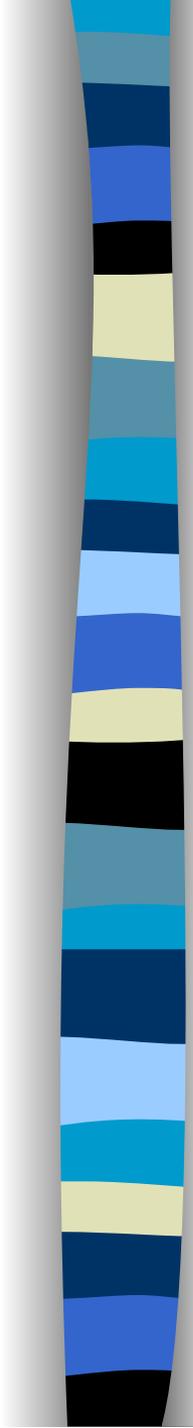
- ❖ Review per capita spending for water and wastewater
- ❖ Median household income in RI is \$42,091
(2000 Census)
- ❖ The median water bill is \$211 and the median sewer bill
\$240
- ❖ Federal and state spending for water quality programs
approximates \$50 per household
- ❖ In RI, combined water and wastewater charges equal
approximately 1% of median household income. The
USEPA considers 2.5% or less to be “affordable” for water
supply
- ❖ An index for water and wastewater would range from 3-5%



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Task # 3 Consider Demand Side Management (DSM) charge

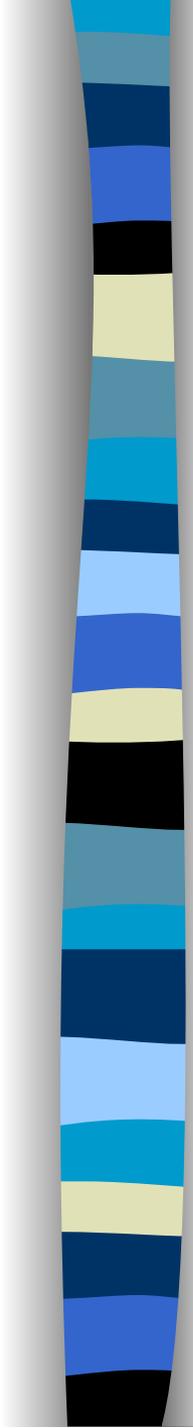
- ❖ Modeled after the electric utility industry
- ❖ Demand Side Management programs attempt to reduce demand on a system to avoid future supply needs.
- ❖ The committee calculated potential revenue from a DSM charge using water consumption data from major suppliers
- ❖ The committee analyzed public water suppliers to determine the feasibility of a DSM charge
- ❖ The committee reviewed legislation for existing DSM charge in electric industry



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Task # 3 Consider DSM charge – cont'd.

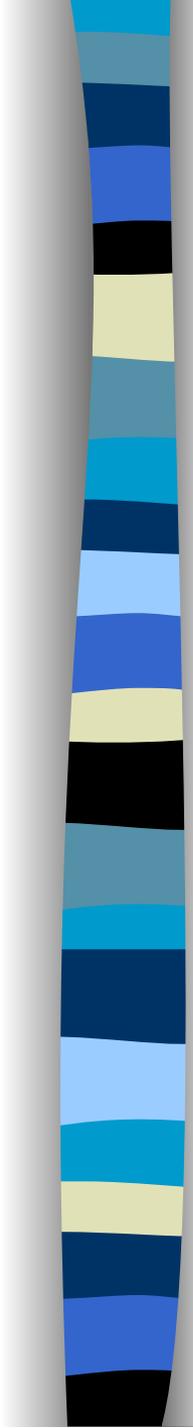
- * Purpose was to estimate a potential revenue source for *demand side management programs*, such as water auditing, metering/billing, replacing fixtures, etc.
- * Became expanded to consider other water allocation and conservation initiatives
- * Intended for all water users, public and self-supplied.
- * Must pass the legal sufficiency test: equitable, tied to a tangible service or benefit and based on best info
 - Public benefit includes enhanced reliability and preservation of supply



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Task # 3 Calculate potential revenue from a DSM charge

- Revenue can be calculated in two ways, if the cost of water allocation programs is known, then a rate per gallon used could be calculated.
- Since the cost is unknown, we chose several rates and determined the potential revenue that could be derived.
- Spreadsheet illustrates revenue at \$.002/100 Gal, \$.004/100 Gal, and \$.01/100Gal.
- Potential revenue would range from approximately \$700,000 to \$3.5 million.
- Customer impact would range from \$1.50 to \$7.48/year
- Current Water Quality Protection Charge is \$.0292/100 Gal.
- Current DEM assessment for wetlands alteration is \$0.04/sf



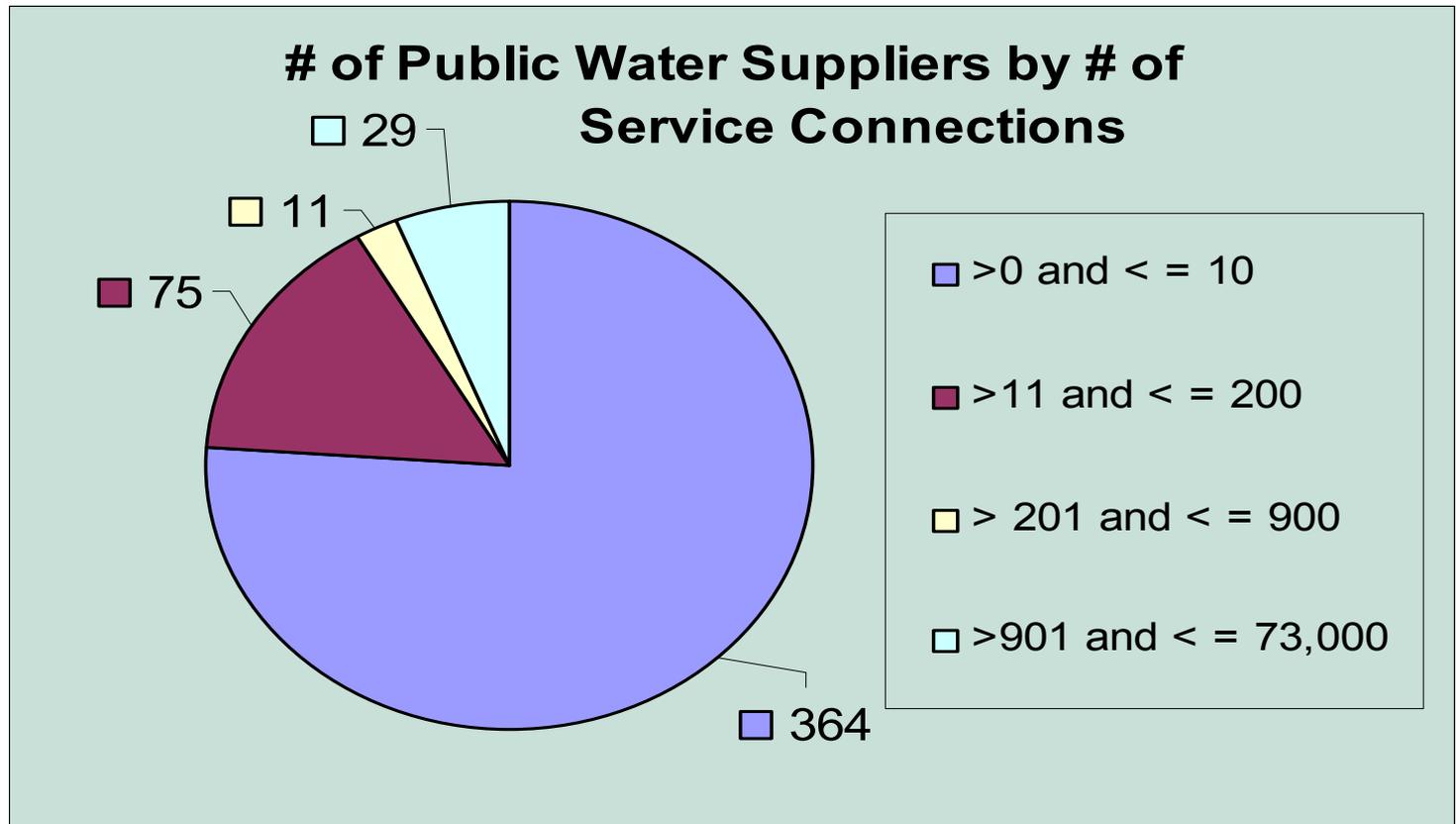
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Task # 3 cont'd.

- Assessment would have to consider equity and feasibility
- To determine how fees could be captured and to assess the practicality of program implementation, the committee analyzed public water supplier service connections
- Out of 479 water suppliers, 364 have 10 or fewer connections, 86 have between 11 and 900 connections and 29 have between 901 and 73,000 connections.
- **The 29 water suppliers, (6%) of the total, account for 97% of the total service connections**

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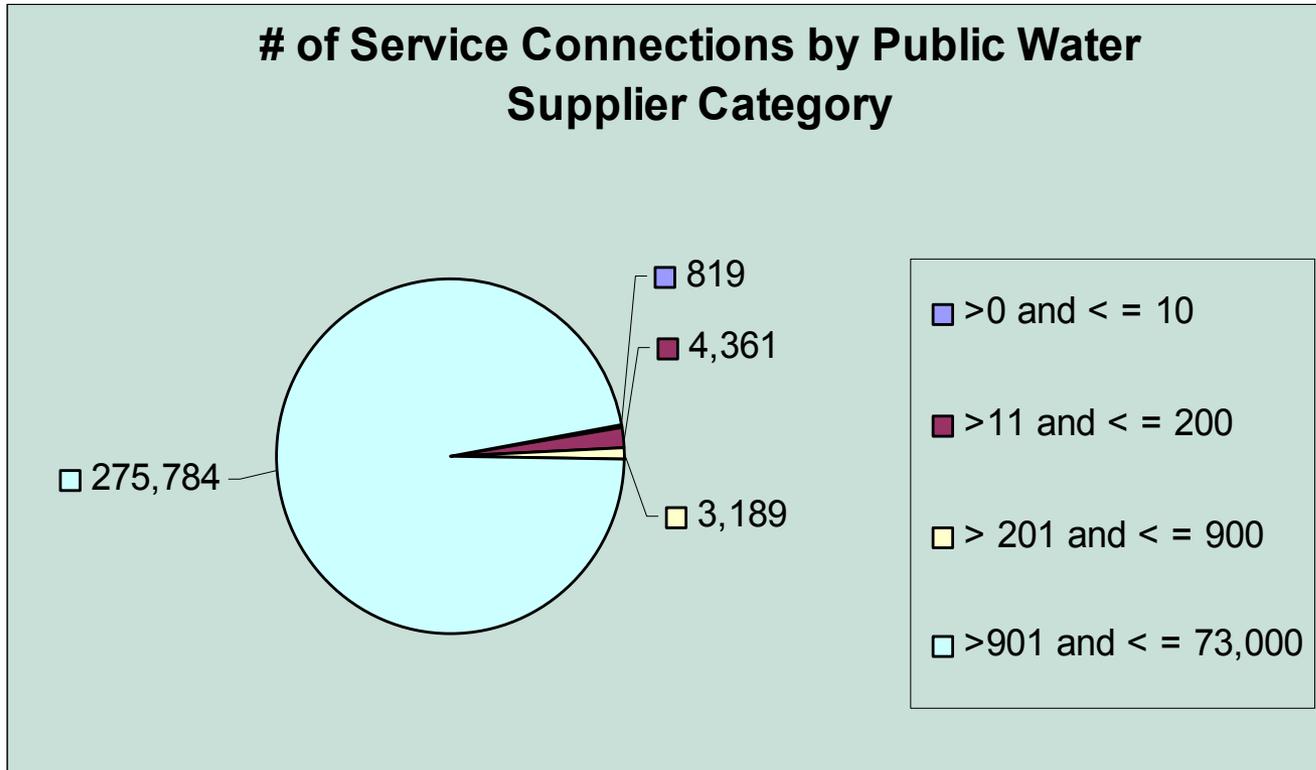
Task # 3 cont'd.



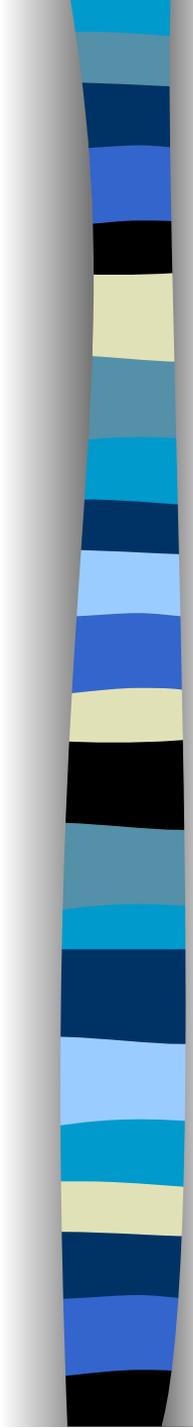
Total 479

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Task # 3 cont'd.



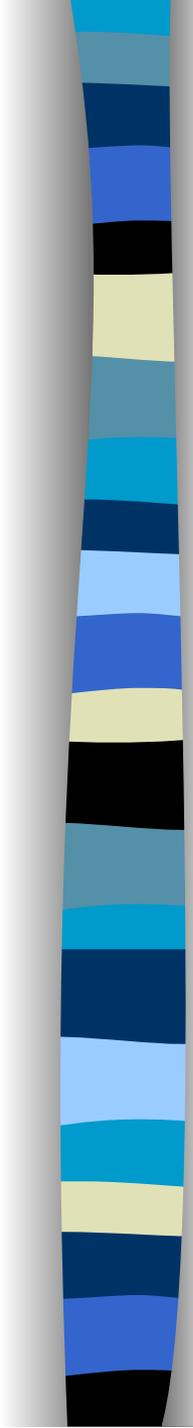
Total 284,153



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Task # 3 cont'd

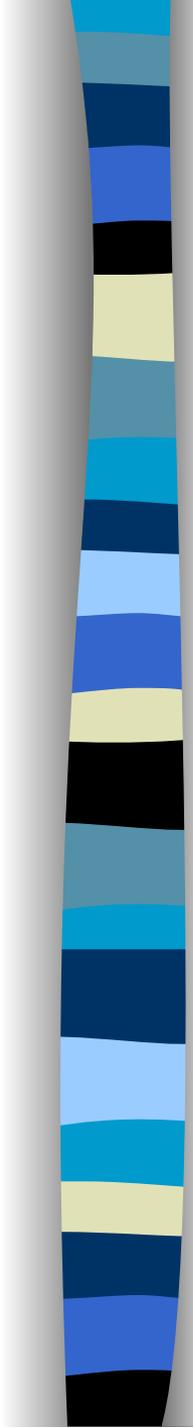
- DSM charge could be a Water Allocation Program (“WAP”) fee for all water users
- Public water supply systems are known
- Well drilling records would have to be entered into a database to capture and bill self-supplied users
- Fee could be administered by a central authority, a local authority, a nonprofit organization or some combination
- Rollout and ongoing system administration implementation costs need to be estimated
- Compliance and additional metering needs assessment approximately every five years



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Task # 4 Evaluate use of other fees to encourage conservation or subsidize more favorable rates for those who reuse water

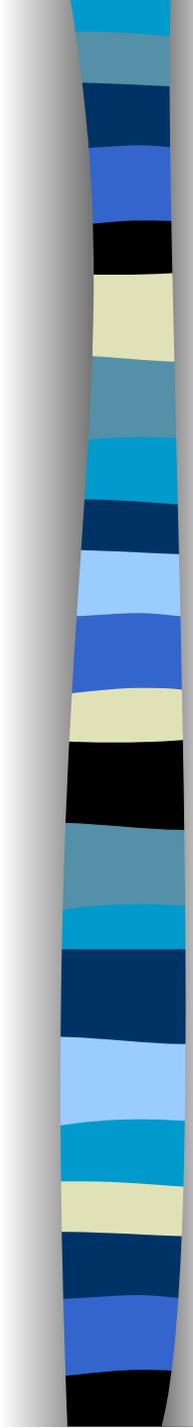
- ❖ Hydrant surcharge fees based on water used
- ❖ Impact fees utilized for system expansion and growth (Lincoln and Cranston currently utilizing)
- ❖ Peak User Fee
- ❖ Excess Use Fee
- ❖ Automatic Lawn Irrigation System Fee
- ❖ Registration fees for water users



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Task # 5 Investigate seasonal rates and preferred rates for those that optimize water use

- Investigate feasibility of seasonal rates
 - Block Island doubles the rates during peak season
 - Barriers to implementation include lack of timely meter readings
- Investigate conservation rates
 - Research indicates that conservation rates result in only small reductions in water use that are not sustained over time.
- Investigate drought surcharges which would be assessed regionally during periods of water scarcity. The surcharge could pay for additional monitoring of water resources.



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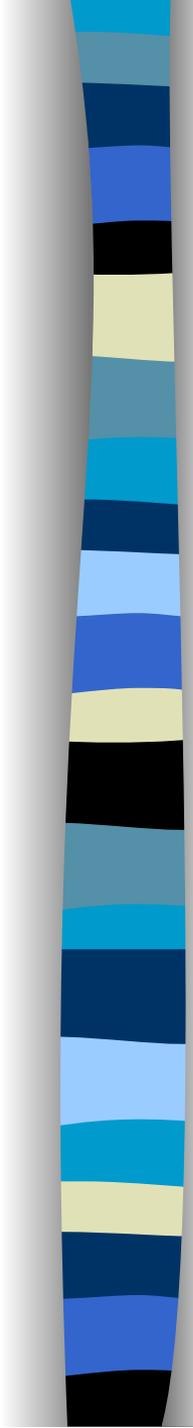
Task # 5 cont'd.

American Water Works Association Research publications reviewed:

- Impacts of Demand Reduction on Water Utilities
- Water Affordability Programs
- Effectiveness of Residential Water Conservation Price and Non-price Programs
- Long-Term Effect of Conservation Rates

Impacts of Demand Reduction on Water Utilities

- Demand Reduction (DR) techniques range from conservation kits to price increases through rates.
- Fixed rates do not charge for consumption, and thus, are not effective in sending price signals
- The price elasticity of water is inelastic – customers tend to consume the amount of water that they are accustomed to, regardless of small and moderate increases in price
- When demand pricing is implemented, there tends to be a cyclical process of small to moderate decreases in revenue and operating costs, where rates must be adjusted over time
- The major benefit of Demand Pricing is the down-sizing of Capital Projects.
- Other benefits include the reduction of environmental impacts to sensitive water bodies



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Water Affordability Programs

Models can evaluate the cost and effectiveness of various methods of reducing water bills

- The use of inclining (or inverted) block rate structures which encourages conservation is increasing nationally

Those who use less water are charged less for consumption within the first block

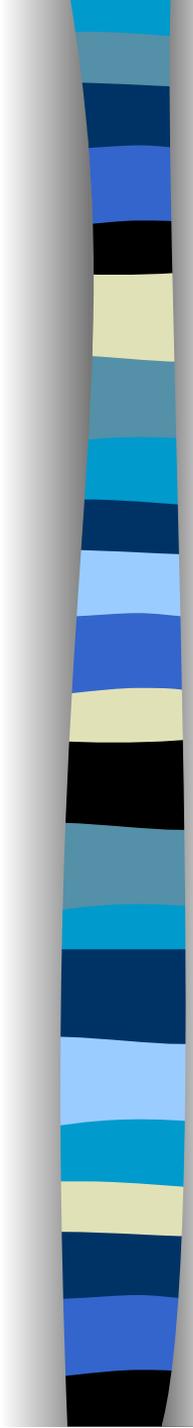
- Low-income households tend to pay more per capita for basic water use than average-income households.

It is best if the number of people in a household can be taken into account in determining the size of blocks

A new rate model should consider affordability

- **AWWA Suggested Model**

Users are rewarded for saving water, but are charged more over an established threshold that relates to the average number of people in the house



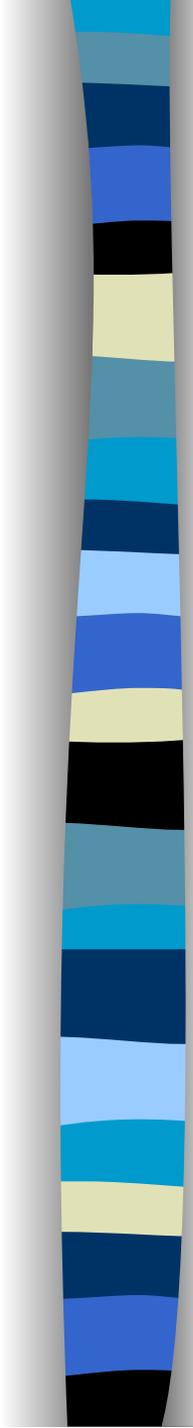
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Water Affordability Programs

- AWWA Suggested Model- A lifeline rate with three usage blocks, plus an inverted block rate structure to be made available to the whole residential class
 - 1st block is for a minimum amount of essential use (determined by the average use for households of a given size) at a discounted rate
 - 2nd block includes everything over the minimum amount of essential use up through average use at the regular rate
 - 3rd block (tail block) includes everything above the average usage at a higher rate

Effectiveness of Residential Water Conservation Price and Non-price Programs

- Consumer response to price predicts a relatively small reduction in water use based on conservation pricing
- Consumer response to non-price programs, i.e., water restrictions, predicts a slightly better response and can help avert infrastructure costs, especially if public awareness is high



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Long Term Effects of Conservation Rates

- The study was conducted in southwestern US where people value water

Major findings:

- The price of water is inelastic; conservation pricing ultimately does not work. I.e. with a 50% price increase, only a 10% reduction in use occurs. This is still a lot of water saved, but behavioral changes are not sustained.
- Need a generation of conservation education to be effective



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■ Other Areas to Explore

1. Review relevant sections of the Regulated Riparian Model Water Code
2. Quantify un-metered water use to determine lost revenue potential
3. Investigate other sources of revenue to pay for WAPAC recommendations (ex: bottled water bill)
4. Conduct more research regarding water & wastewater integration (Westerly)
5. Classify suppliers in terms of methods used to fund water system operations

■ Other Areas to Explore

6. Investigate a Master Price Agreement to pay for technical assistance, including financial analysis

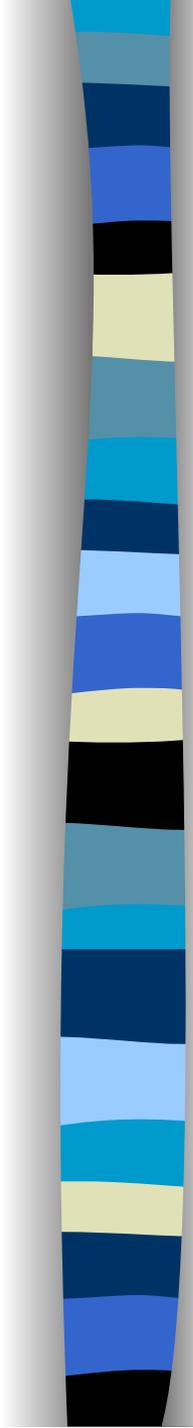
7. Investigate the feasibility of a RISE counterpart (RISW: Rhode Islanders Saving Water)

8. Assess ROI from conservation kits and Best Management Practices

Residential audits have a payback period of about 2 years

Utilities have a longer payback period –need to reduce it to 3-5 years

9. Investigate whether nearly all suppliers should be regulated

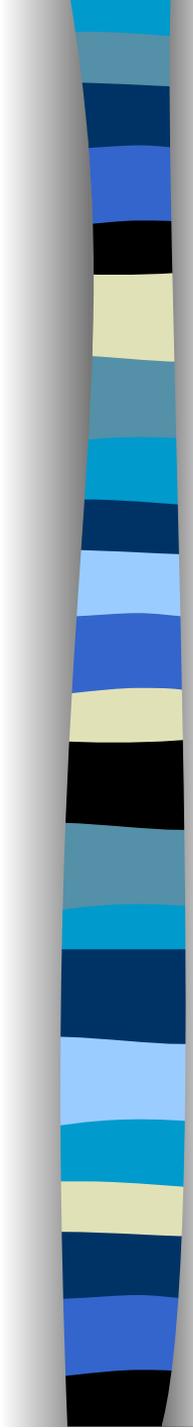


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Recommendations being explored

1. Fair and reasonable rates

- Eliminate flat or fixed water and sewer rates and tie rates to volume
 - Use preferred (lower) rates for those using less water or reusing water
 - Use seasonal (higher) rates or temporary drought surcharges during periods of water scarcity
- Establish a “consumption per capita” standard which considers household size
 - Consider an excess use rate over the standard



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Recommendations being explored

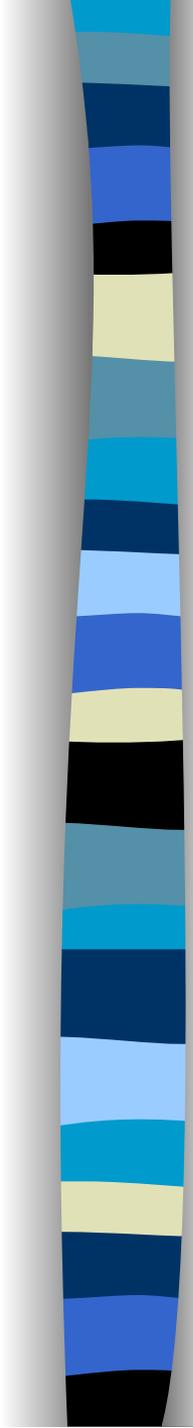
2. Fees

- Consider a Water Allocation fee for all water users, public and private

Prepare a list of WAP initiatives that the fee would pay for

Conduct a feasibility analysis regarding program implementation (user groups, fee collection process, administering authority, restricted receipts, etc.)

- Consider other fees, such as Impact Fees



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Recommendations being explored

3. Alternatives

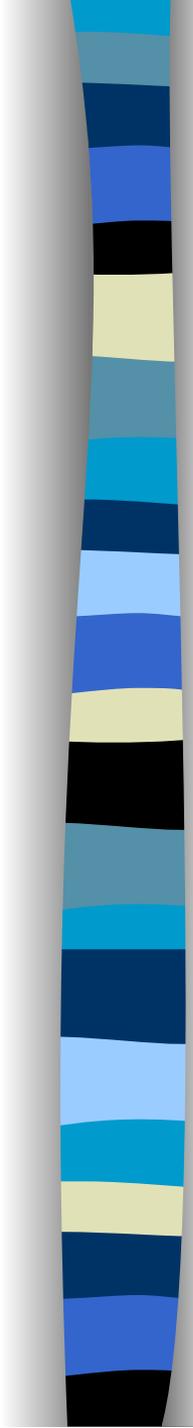
- Billing Standardization

Encourage suppliers to increase frequency of billing, depict # of days in the billing cycle, show consumption history , and reserve space for conservation messages

Encourage suppliers to convert HCF to gallons on bills

Encourage suppliers to follow national accounting standards for the industry

Investigate combined water/wastewater billing (full cycle)

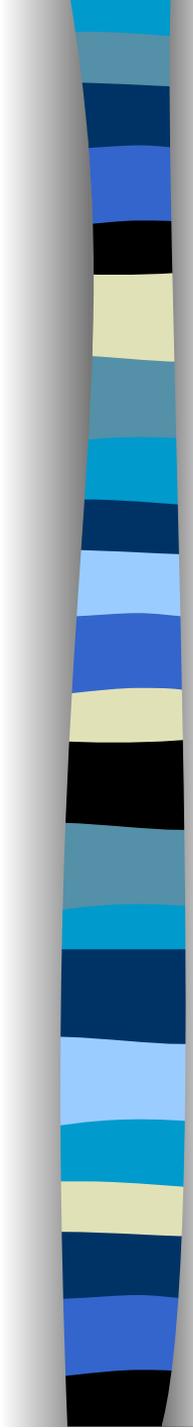


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Recommendations being explored

3. Alternatives:

- Revise state plumbing and building codes and/or local ordinances to require plumbing upgrades and water meter installation. Equip irrigation meters with sensors for automatic shut off
- Encourage communities and suppliers to standardize response to drought (water restrictions, drought surcharges, etc.)
- Have the PUC recommend water suppliers consider seasonal rates in new rate filings
- Conservation Education: encourage a conservation mindset among water suppliers and the public



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Committee Members:

John Bell, Secondary Lead

Brian Bishop

Jeanne Bondarevskis, Primary Lead

George Burke

Ken Burke

Ted Garille

Guy Lefebvre

Ken Payne

Anthony Simeone