

Controlling Costs

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Session Objectives

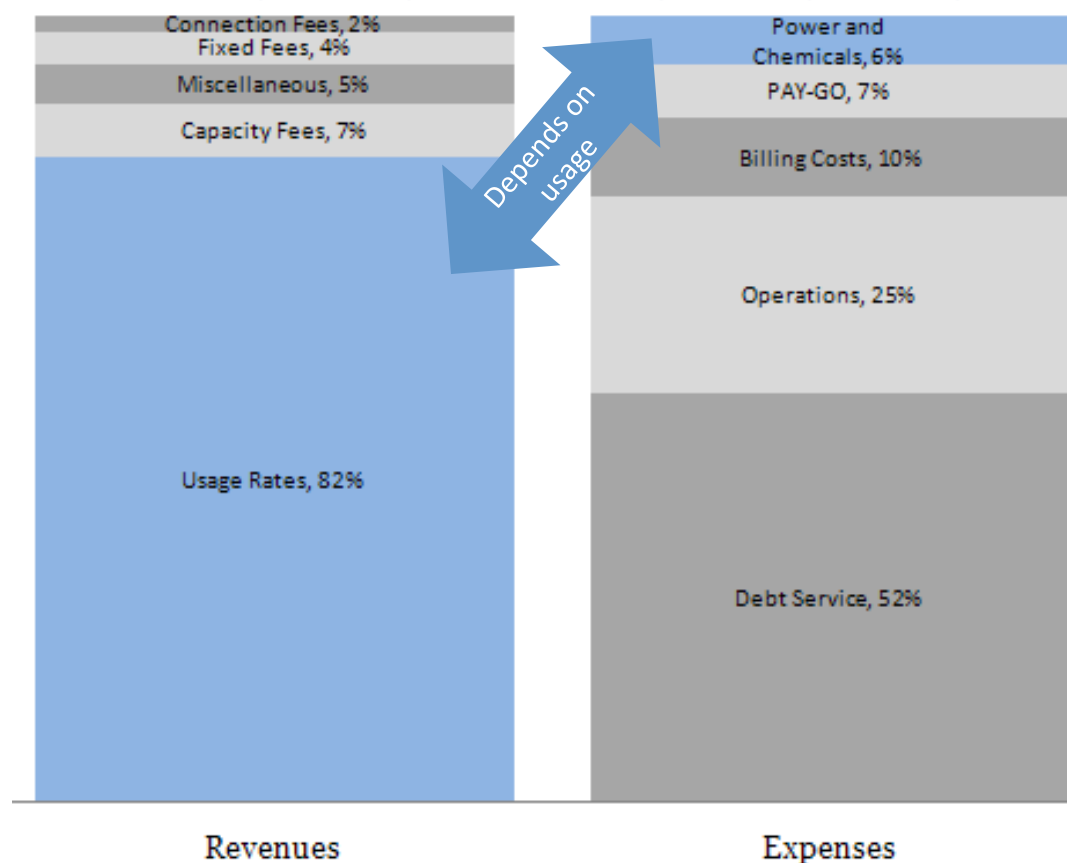
- Understand the fixed vs. variable costs of water systems
- Explore partnership and regionalization options
- Discuss energy management



Fixed & Variable Costs/Revenues

Utilities' costs are mostly fixed, not dependent on the amount of water sold/used by the customers. But the majority of revenues come from the amount of water sold. If customers conserve, revenues drop significantly but not costs.

Revenue and Expenses for Charlotte-Mecklenburg Utilities in a Given Year



Source: CMU Director Doug Bean's presentation to the Charlotte City Council on December 1, 2008.

Control Costs

- Partner with other water systems to arrange a bulk purchase of chemicals
- Perhaps consider sharing staff or equipment with other water systems



Control Costs

- Merge with another water system— regionalization allows systems to take advantage of economies of scale from larger-scale operations



Control Costs

- Manage your energy expenses—the largest controllable cost for water systems
- Have an energy audit, change your processes, replace equipment with more efficient models



Resources on Water System Partnerships

efc.unc.edu/projects/partnerships.htm



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Search × Water System Partnerships, Interconnections and Interlocal Agreements

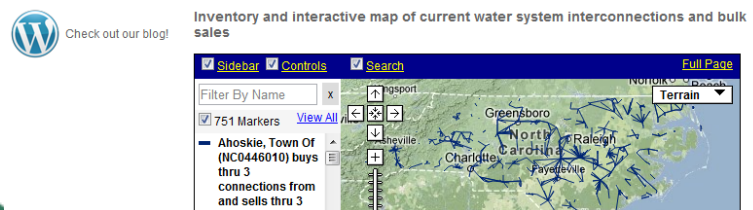
Part of the Water System Capacity Development Support [View all pages](#)

What forms of partnerships exist between water systems in North Carolina? How many water systems are physically interconnected and what are their characteristics? What are the geographically feasible interconnection options for water systems that are currently not connected? What should a utility consider while creating a new inter-local water agreement?

After extensively reviewing and creating databases, examining hundreds of interlocal agreements, and working very closely with certain communities across NC that are attempting to create new regional partnerships, we produced the following tools, documents and trainings to answer these questions and to assist water system managers in their capacity to partner with their neighboring systems.

- Inventory and interactive map of current water system interconnections and bulk sales
- Tips and guidelines for establishing water partnership agreements
- Assessment of current and potential water system interconnections in NC
- Presentations and training materials on water system partnerships in NC
- Direct assistance to several communities in NC considering new regional partnerships
- Background: Why focus on inter-system partnerships?

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Check out our blog!

Inventory and interactive map of current water system interconnections and bulk sales

Full Page

Filter By Name x

751 Markers View All

Ahoskie, Town Of (NC0446010) buys thru 3 connections from and sells thru 3

Tips and Guidelines for Crafting Inter-local Agreements

Thanks to Public Water Supply Section (NC DENR) and local governments



EFC Contacts: Shadi Eskaf, Jeff Hughes



www.efcnetwork.org

Do You Know ...

... what to discuss when you are creating an inter-local water agreement?

... if it's geographically feasible to interconnect with a water system near you?



Hands up if your water system:

Is owned by a company or organization that owns and operates multiple utilities

Contracts out management or operations services to towns/ companies that serve other utilities

Buys chemicals or shares equipment or personnel with other utilities

Buys or sells water to another system

Is an “Authority” or special unit of government serving multiple communities

... and more



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Inter-Local Water Agreements



Crafting Successful Inter-local Agreements

Available at

efc.unc.edu/projects/partnerships.htm

Format

- Questions to consider, descriptions, example text
- Advice for getting inter-local agreements right, avoid pitfalls
- NOT draft contract
- NOT every issue that will come up in every document

Crafting Inter-local Water Agreements

Tips relating to issues you may not have thought of or that you were hoping to avoid....

Prepared by:
UNC Environmental Finance Center

For
Public Water Supply Section
Division of Environmental Health
North Carolina Department of Environment and Natural Resources

6/24/09

*Note: Example text is provided in these guidelines to illustrate different concepts. These excerpts are designed to generate discussion and inspire development of agreement clauses appropriate to local conditions. These excerpts are **NOT** presented as, nor should they be considered as, model contract clauses that can be copied into agreements.*

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Option 1: Partnering with Other Systems to Reduce Costs



Bulk Sales Agreements

- {Costco cheaper than convenience store
— put in images}



What Can You Buy In Bulk?

- Chemicals
- Testing supplies
- Office equipment
- What else?



Items to Share

- Heavy equipment
- Testing equipment
- Vehicles
- What else?



Services to Share

- Billing
- Reporting
- What else?



People to Share

- Operators
- Managers
- Accountants
- Who else?



Liquids to Share

- Water
- Wastewater



What are Issues you Discuss or Put Down in Writing in your Inter-local Agreements?

- Service area boundaries
 - Usage limits
 - Meter maintenance and ownership
 - Water quality
 - Capital costs
 - Resale or capacity
 - Water pressure
 - Communications, service interruptions
 - Conservation status and measures
- ... and more.



Option 2: Asset Transfer



**How many of you would like
to get out of the water
business?**

Has anyone here tried?



When is it time to transfer a water system?

- Is it possible?
 - Current compliance status with regulatory agencies
 - Potential interconnection
 - Another organization with interest
 - State of system's assets
 - State of system's finances
- The owner must consider these issues in determining the potential of an asset transfer to a new owner



Current Compliance Status

- Does your water source currently require treatment?
- Are there proposed rules that will significantly impact your financial health?
- Is your system in compliance with your permit?



Potential Interconnection

- Do you have an interconnection?
- If you are a stand alone system, what is your back up plan in the event your current water source fails?



Another Organization With Interest

- There are a number of considerations that sets the value of your system.
- Is there an urban boundary surrounding your system?
- Can your system increase the number of loops in the event of a water main break?
- Are your rates higher than a neighboring system?
- Is the organization a Municipality, District, Non Profit, Corporate, HOA, or Nontransient non corporate?



State of Your System's Assets

- When was your system built?
- Do you have an asset management plan that includes a restricted liquid assets?
- Are your customers metered?
- Is your distribution system looped?
- Have you replaced the mechanical equipment since its construction?
- Have you replaced the distribution line since its construction?
- What is your water loss percentage?



State of System's Finances

- Is your operating ratio, greater than one
– $OR > OE$
- Is your system reinvestment reserve account equal to 80 percent of your system's original cost?
- Do you make bulk water sales?
- Do you give away water?
- Are you carrying debt?



Other Considerations

- Does the owner take a salary?
- Does the owner have invested equity?
- Is the owner on a debt guarantee?
- If the decision is made to “sell the business” setting value is different than simply putting the business up for sale
- Limited buyers will have restrictions
 - Example municipalities can only pay net assessed value
- Obligation to serve requires continuous service



Option 2: Energy Management



Energy Use and Water Utilities

- Energy represents the largest controllable cost of providing water services to the public
 - Over 52,000 Community Water Systems
 - Over 18,000 Non-Transient Non-Community Water Systems
 - Over 86,000 Transient Non-Community Water Systems
 - The total inventory is about 157,000 Public Water Systems
 - small systems (3,300 or less) make up about 94% of all systems



Energy Use at Water Systems

- Pumping water is the largest consumer of energy
- Energy use is expected to increase
 - increases in demand
 - new energy intensive technologies (ozone, membranes, UV)
- Water-stressed states are shifting to more energy-intensive technologies to address current and future water-scarcity concerns
 - desalination plants
 - interbasin water pipelines



Water Systems are Energy Users

- In 2010 water systems used 12.6% of the nation's total annual energy consumption

= annual consumption of
~40 million Americans



Water System Goals

- Primary Goal – meet regulatory requirements to protect human health and environment
- Secondary Goal – provide services for reasonable and fair user fees or rates
 - When “life-cycle costs” aren’t considered in budgeting, poor decisions can be made



Energy Management

- Goals of the Water System remain the same, however rising energy costs cause
 - Greater financial burden being placed on local governments
 - Public sentiment toward sustainability decreasing
- Therefore, improving energy management is paramount



Energy Management Goals

- Improve Energy Efficiency & Manage Total Energy Consumption
- Control Peak Demand for Energy
- Manage Energy Cost Volatility
- Improve Energy Reliability

These goals often overlap with other management practices (i.e. preventive maintenance program improves motor efficiency and improves reliability)



Improve Efficiency & Manage Total Consumption

- Cost of electricity is based on two main components
 - Quantity of electricity used (kilowatt-hours or kWh)
 - Demand for electricity
- On-peak vs. off-peak consumption affects rates
- Understanding the electric utility's pricing policies (rate structures) is critically important



Control Peak Demand for Energy

- Electric utilities typically include a “demand charge” in their rate structure
 - 30-60% of the overall cost of electricity
- Lower variability in electric demand over time (flattened demand curve)
 - Minimize changes in peak demand throughout the course of a billing period
 - Shifting loads from peak periods, typically during daylight hours, to off-peak periods
- Significant cost savings by minimizing demand charges
 - Indirectly – supplemental storage tanks
 - Shifting loads to off-peak periods
 - Minimize the overlap between treatment processes



Develop a Baseline of Energy Use

- Collect and organize equipment, energy use, and hydraulic data
- Develop an understanding of where, why, and when energy is used
- Create a baseline of energy use, and performance metrics to be used for comparison and evaluation purposes
- Understand energy bills and the rate structure that is used to set energy costs



Portfolio Manager

- <https://www.energystar.gov/istar/pmpam/>
- Portfolio Manager is an interactive energy management tool that allows you to track and assess energy consumption in a secure online environment
- The tool allows you to
 - Track multiple energy and water meters for each facility
 - Customize meter names and key information
 - Benchmark your facilities relative to their past performance
 - View percent improvement in weather-normalized source energy
 - Monitor energy and water costs
 - Share your building data with others inside or outside of your organization
 - Enter operating characteristics, tailored to each space use category within your building.



Possible Areas of Evaluation

- Raw and Finished Water Pumping
- Chemical Mixing
- Backwashing
- Well Systems
- Ozonation
- Load Shifting
- Distribution
- Supervisory Control and Data Acquisition (SCADA)
- Energy Efficient Motors



Questions?

