Developing and Implementing Water Policy

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Strategy and Tactics

• Water Strategy for a Utility
  ▪ Long Term Planning
  ▪ Performance Monitoring
  ▪ Resource Sustainability

• Water Tactics for a Utility
  ▪ Customer Education/Engagement
  ▪ Addressing Political Constraints
  ▪ Dealing with Water Districts
Legislative and Regulatory Context

- **U.S. Water Law**
  - East: no property right in water, only right to use
  - West: “Prior appropriation” Doctrine

- **Florida 1970-71 Drought**
  - Crisis led to Water Resource Act
  - Does it always take a crisis for action?

- **Current System: Water Management Districts**
  - Regional Management vs. “Local” interests
  - Water Permit system: Flexibility and Certainty
Florida Water Law - *Consumptive Use Permits*

“The 3 Prong Test” for permit issuance – The proposed use:

1. Is a **reasonable-beneficial** use as defined in §373.019(4);
2. Will not interfere with any **presently existing legal use** of water; and
3. Is consistent with the **public interest**
Florida Water Law - *Consumptive Use Permits*

**#1: Reasonable-beneficial Use:**
- Demand /need for the use
- Quantity requested (i.e. conservation)
  - Varies by use class
- Extent & amount of harm caused
Florida Water Law - *Consumptive Use Permits*

**Certainty of Supply =**

Knowing water will be available when you need it (i.e., during 1 in 10 drought)
Florida Water Law - *Consumptive Use Permits*

Reasonable-Beneficial Use

- What level of certainty to allocate?
- Drought means more supplemental water needed
- Certain ‘tensions’ in demand:
  - Locks up water supply / prevents more allocations (Existing legal user)
  - Protect from economic loss
  - Impacts limit allocation
  - Alternative water supplies required
Florida Water Law - *Consumptive Use Permits*

#2: Not Interfere with Existing Legal User

- Prior Appropriation concept
- “Timeline” continuum
- Cumulative Impact Analysis
  - Environmental impacts
  - Impacts to presently existing legal users
    - Quantity and quality considerations
  - Solutions vary
Florida Water Law - *Consumptive Use Permits*

# 3: Consistent with Public Interest:

- Specific Statutory tests:
  - Inter-district transfers
  - Local sources first
  - Alternative water supply (AWS) sources
CUP Groundwater Allocations
Institutional Innovation: Central Florida Coordination Area (CFCA) now CFWI

- Interim rule adopted in 2008
- Limit groundwater withdrawals in 2013
- Interim rule does not apply to until permit renewals in 2014.
- Interim rule sunsets December 31, 2012
- Districts underway to replace interim rule
  - Transient groundwater model
  - Environmental Assessment
Regulatory Challenges – Minimum Flows and Levels (MFL)

- Limit beyond which further withdrawals would significantly harm water resources or ecology
- Several proposed lakes and springs in Orange, Seminole and Lake Counties may impact OUC
- OUC Impacts
  - Groundwater withdrawals could be reduced
  - May be required to avoid or mitigate environmental impacts
- Notice of proposed rule expected in late 2012
Regulatory Challenges – Conservation Rule Enhancements

- District’s to initiate conservation rulemaking in late 2010
- District’s proposed rule changes include:
  - CUP allocations (metrics) based on stringent conservation goals
  - Irrigation system design requirements for new construction
  - Adoption of water conservation ordinances
- Groundwater withdrawals could be reduced
- Statewide Conservation approach
Policy Discussion

- The cost of alternatives
- The certainty of alternatives
- Once you have developed alternatives what is the fate (certainty) of the traditional sources
- How far does conservation go?
- The risk of stranding assets
- Long term investments
When is an Apple a Bowling Ball?

- Can the alterations in surface water be mitigated by the Consumptive Use Rate Payer?
- Should it be?
- When does a Rule trigger a public works project?
- How do you plan for already platted subdivisions when the economy returns?
- And who pays?
Comparison of Supply and Demand

Area of focus for additional water resources.
Potable Water Demand – Historical and Projected

- Average annual growth rate of 1.69%
- Average annual growth rate of 1.32%
Water Resource Alternatives

- Groundwater
- Conservation
- Reclaimed Water
- Alternative Water Supplies
  - River Water
  - Ocean Water
Comparison of Resource Alternatives

<table>
<thead>
<tr>
<th>Water Resource</th>
<th>Source Water Quality</th>
<th>Environmental Impact</th>
<th>Permitability</th>
<th>Reliability</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Groundwater</td>
<td>Good</td>
<td>Medium</td>
<td>Medium</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Conservation</td>
<td>Good</td>
<td>Low</td>
<td>Easy</td>
<td>Low</td>
<td>Medium</td>
</tr>
<tr>
<td>Reclaimed Water</td>
<td>Poor</td>
<td>Low</td>
<td>Easy</td>
<td>Medium</td>
<td>Medium</td>
</tr>
<tr>
<td>River</td>
<td>Moderate</td>
<td>High</td>
<td>Hard</td>
<td>Medium</td>
<td>High</td>
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<tr>
<td>Ocean</td>
<td>Poor</td>
<td>High</td>
<td>Hard</td>
<td>High</td>
<td>High</td>
</tr>
</tbody>
</table>
Water Resource Cost Comparison

Average Life Cycle Cost by Resource Type

<table>
<thead>
<tr>
<th>Resource Type</th>
<th>Cost ($/MGD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Groundwater</td>
<td>$0.20</td>
</tr>
<tr>
<td>ERRWDS Reclaimed</td>
<td>$1.07</td>
</tr>
<tr>
<td>RENEW</td>
<td>$1.42</td>
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<tr>
<td>Conservation</td>
<td>$1.50</td>
</tr>
<tr>
<td>Retrofit Reclaimed</td>
<td>$2.79</td>
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<tr>
<td>River Water</td>
<td>$5.16</td>
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<tr>
<td>Sea Water</td>
<td>$10.78</td>
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</table>
Groundwater

- **Best resource**
  - Highest quality
  - Lowest cost
  - High reliability

- **Challenges to maintaining allocation**
  - Lower projected water demands (economic downturn)
  - Regulatory efforts to reduce groundwater usage (CFCA, MFL, Conservation)
Conservation

- Most programs are less expensive than AWS
- Savings must be sustainability (reliability of supply)
- More enforcement of programs will be required (watering days, volumes) many programs are not associated with enforcement capabilities
- Causes upward pressure on rates (increased costs and less usage)
Reclaimed Water

- Next best resource
- Limited quantity
  - Rule of thumb: Wastewater from 4 homes needed to supply 1 home reclaimed and changing with new building codes
- Seasonal variation of supply and demand
Reclaimed – Seasonal Supply and Demand

SUPPLY / DEMAND (MGD)

MONTH

SUPPLY (mgd)

WATER SHORTAGE (FROM SUPPLEMENTAL WELLS)

UNUSED WATER (TO DISPOSAL)

LEGEND

Supply (mgd)

Demand (mgd)
Alternative Water Supply

- **River Water**
  - Closer source of water than the ocean
  - Second most expensive water supply option
  - Permitting requirements are difficult

- **Ocean Water**
  - Most plentiful source of water
  - Most expensive water supply option
  - Permitting requirements are difficult
Water Integrated Resource Planning

Possible Mix of Sources to Meet 2030 Total Water Demands

- AWS
- Total Conservation
- West Orlando Reclaimed
- East Orlando Reclaimed
- Groundwater

Possible Alternatives

2030 Total Water Demand (mgd)

<table>
<thead>
<tr>
<th>Possible Alternative</th>
<th>2030 Total Water Demand (mgd)</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Orlando Reclaimed</td>
<td>109</td>
</tr>
<tr>
<td>East Orlando Reclaimed</td>
<td>103</td>
</tr>
<tr>
<td>Groundwater</td>
<td>100</td>
</tr>
<tr>
<td>Total Conservation</td>
<td>90</td>
</tr>
</tbody>
</table>

0 20 40 60 80 100 120 140
## Estimated Annual Water Rate Increases

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</thead>
<tbody>
<tr>
<td>Current Rate Path - 109 MGD</td>
<td>0.0%</td>
<td>-0.3%</td>
<td>3.1%</td>
<td>2.3%</td>
<td>2.5%</td>
<td>4.9%</td>
<td>2.4%</td>
<td>1.8%</td>
<td>3.3%</td>
<td>4.0%</td>
</tr>
<tr>
<td>Scenario 1 - 103 MGD</td>
<td>0.0%</td>
<td>-0.3%</td>
<td>3.1%</td>
<td>2.3%</td>
<td>2.5%</td>
<td>4.9%</td>
<td>2.4%</td>
<td>1.8%</td>
<td>3.3%</td>
<td>4.0%</td>
</tr>
<tr>
<td>Scenario 2 - 100 MGD</td>
<td>0.0%</td>
<td>-0.3%</td>
<td>3.1%</td>
<td>2.3%</td>
<td>3.4%</td>
<td>4.8%</td>
<td>2.4%</td>
<td>1.8%</td>
<td>6.5%</td>
<td>3.8%</td>
</tr>
<tr>
<td>Scenario 3 - 90 MGD</td>
<td>0.0%</td>
<td>-0.3%</td>
<td>3.1%</td>
<td>2.3%</td>
<td>16.5%</td>
<td>4.1%</td>
<td>2.0%</td>
<td>1.4%</td>
<td>2.7%</td>
<td>3.4%</td>
</tr>
</tbody>
</table>
Water Integrated Resource Plan

Purpose:
To identify the “best” combination of resources to meet the future total water demands of OUC customers, while assessing:
- cost,
- water quality,
- reliability,
- environmental stewardship, and
- permitability.
Water Integrated Resource Planning Strategy

• Pursue maximum groundwater allocation without environmental impact
• Increase conservation to highest level of sustainable water savings that is more cost effective than the next available water resource
• Maximize reclaimed water utilization
• Optimize timing and participation in alternate water supply options
Thank You.
Questions?
Appendix:
Timeline of Legislative And Regulatory Developments
Possible Timeline for Environmental Regulatory Requirements for the Utility Industry

**Ozone**
- Revised Ozone NAAQS
- Beginning CAIR Phase I Seasonal NOx Cap
- CAIR Vacated
- CAIR Remanded
- NOx Primary NAAQS
- SO2 Primary NAAQS
- Proposed CAIR Replacement Rule Expected
- Final CAIR Replacement Rule Expected
- SO2/NO2 Secondary NAAQS
- Effluent Guidelines Final rule expected
- Next Ozone NAAQS Revision
- 316(b) final rule expected
- 316(b) Compliance 3-4 yrs after final rule
- Effluent Guidelines Compliance 3-5 yrs after final rule

**SO2/NO2**
- Proposed Rule for CCBs Management
- Final Rule for CCBs Mgmt
- Next PM 2.5 NAAQS Revision
- Final EPA Nonattainment Designations
- HAPs MACT final rule expected
- Compliance with CAIR Replacement Rule
- HAPs MACT Compliance 3 yrs after final rule

**CAIR**
- New PM-2.5 NAAQS Designations
- Proposed CAIR Replacement Rule Expected
- CO2 Regulation
- Proposed rule
- Effluent Guidelines proposed rule expected
- 316(b) proposed rule expected
- 316(b) Compliance 3-4 yrs after final rule
- Effluent Guidelines Compliance 3-5 yrs after final rule
- 316(b) final rule expected
- CAIR Phase II Annual SO2 & NOx Caps
- Beginning CAIR Phase II Seasonal NOx Cap
- Final CAIR Phase I Annual SO2 Cap
- Begin CAIR Phase I Annual SO2 Cap
- Begin CAIR Phase I Seasonal NOx Cap
- CAIR Remanded
- CAIR Vacated
- Revised Ozone NAAQS
- PM-2.5 SIPs due ('97)

**Water**
- Effluent Guidelines Final rule expected
- Effluent Guidelines Compliance 3-5 yrs after final rule

**PM2.5**
- PM-2.5 SIPs due ('06)
- Next PM-2.5 NAAQS Designations
- Final EPA Nonattainment Designations
- HAPs MACT final rule expected
- Compliance with CAIR Replacement Rule
- HAPs MACT Compliance 3 yrs after final rule
- 316(b) Compliance 3-4 yrs after final rule

**Ash**
- Final EPA Nonattainment Designations
- HAPs MACT final rule expected
- Compliance with CAIR Replacement Rule
- HAPs MACT Compliance 3 yrs after final rule
- 316(b) Compliance 3-4 yrs after final rule

**Hg/HAPS**
- Preliminary Rule for CCBs Management
- Proposed Rule for CCBs Management
- Final Rule for CCBs Mgmt
- Next PM 2.5 NAAQS Revision
- Final EPA Nonattainment Designations
- HAPs MACT final rule expected
- Compliance with CAIR Replacement Rule
- HAPs MACT Compliance 3 yrs after final rule
- 316(b) Compliance 3-4 yrs after final rule

**CO2**
- CO2 Regulation
- Reconsidered Ozone NAAQS
- SO2/NO2 Secondary NAAQS
- Effluent Guidelines Final rule expected
- Effluent Guidelines Compliance 3-5 yrs after final rule
- 316(b) final rule expected
- CAIR Phase II Annual SO2 & NOx Caps
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- Revised Ozone NAAQS
- PM-2.5 SIPs due ('97)
Legislative and Regulatory Overview

- Water Supply
  - Water Law in U.S.
  - Florida Water Law
  - OUC’s CUP
  - Potential Regulatory Challenges
United States Water Law

- Eastern United States Common Law
  - Humid climate, more water available
  - “Reasonable Use” Doctrine
    - Courts developed “reasonableness” factors
    - No property right in water, only right to use
    - Flexible system – adapts as society / uses change
United States Water Law (Continued)

- **Western United States Common Law**
  - Dry climate
  - “Prior appropriation” Doctrine
    - First in time is first in right
    - Junior users have subordinate rights
    - Property right in water
    - Perpetual right, no expiration
  - “Beneficial use” theories
    - Conservation
Florida Water Law

- Severe Drought in 1970 – 1971
- A Model Water Code
  - Renowned experts at University of Florida
  - Proposed statutory system for regional water management
  - “Plucked” best attributes of common law systems
- 1972 – Florida’s Legislature passed “The Water Resources Act”
  - Chapter 373, Florida Statutes
Florida Water Law (Continued)

• Created Water Management Districts
  ▪ Broad Authorities
  ▪ 4 Mission Areas
  ▪ Endorses regional water management & insulation from “local” interests

• Consumptive Use Permit Program
  ▪ Exclusive District authority, not local governments
Florida Water Law (Continued)

• Chapter 373, Fla. Stat.
• Based new program on blend of eastern and western common law doctrines
• Certainty & Flexibility
• Users must obtain a permit to have a right to use water in Florida
  ▪ Exclusive water management district authority
  ▪ No property right to water
  ▪ Permits expire
Florida Regulatory Timeline

1970-1971 – Severe drought

1972 - FL Legislature passed Water resources Act (Chapter 373) and WMD’s were created.

1978 – 10-Yr. CUP issued by SJRWMD & SFWMD for 70.8 mgd.

1989 – SJRWMD issues 10-Yr. CUP for 110.9 mgd.

1990 – SFWMD issues 9-Yr. WUP for 111 mgd.


1999 – OUC submits CUP renewal application to SJRWMD.

2004 – 20-Yr. CUP issued by SJRWMD for 109.2 mgd, District Interagency Agreement signed, settlement agreement w/Orange & Lake Counties signed.

2008 – OUC submits 1st 5-Yr. compliance report to SJRWMD.

2009 – OUC pays SFWMD $475,950 for wetlands mitigation.

2010 – CUP modification based on 5-Yr. report issued.

2011 - ERRWDS construction complete.

2013 - RENEW Phase 1 construction complete.

2014 – OUC CUP expires if RENEW not constructed.

2015 - RENEW Phase II construction complete.

2023 – OUC CUP expires if RENEW constructed.

1990 – Water Supply Plans started by WMD’s.

2000 – Severe Drought

2001 - SJRWMD initiates 2-day per week watering restrictions.


2009 – SJRWMD initiates 1-day per week watering restrictions in winter; SJRWMD proposed conservation rule enhancements; EPA numeric nutrient rulemaking initiated.

2010 – Proposed MFL’s in Orange and Seminole Counties; SJRWMD conservation rulemaking initiated; CFCA rulemaking will be initiated.

2011 - SJRWMD to start using transient groundwater model.

2012 - CFCA rule sunsets.

LEGEND
WMD  Water Management District
SJR  St. Johns River
SF  South Florida
MFL  Minimum Flows and Levels
CFCA  Central Florida Coordination Area

Florida
Regulatory
Timeline