

# **Water Contingency Planning Task Force**

## **Findings and Recommendations**

**December 21, 2009**

# Georgia's Response to Ruling

## Governor pursues multi-prong strategy

- **Multi-prong Strategy:**
  - Appeal the decision
  - Negotiate with Alabama and Florida
  - Congressional Reauthorization, as directed by Judge
  - Contingency Planning to address gap in supply
- **Water Contingency Planning Task Force** convened by Governor to address gap.
  - Directed members to analyze crisis as if it were a threat to their business
  - Develop a fact-base to educate leaders on Georgia's water situation and the implications of judge's ruling
  - Define a time-driven action plan prioritizing specific options for conservation, supply enhancement, and water policy

# Reminder: Lake Lanier best option- economically and environmentally

**While the Task Force is charged with evaluating alternatives to Lanier, this does not suggest these alternatives are superior**

**All alternatives pose significant incremental cost we don't currently face**

- Economic costs (all options)
- Quality-of-life costs (all options)
- Environmental costs (many options)

**Cost of inaction is massive- we must act...**

**...though attempting to replace Lanier as a water source would pose real burdens and require significant time**

**All analysis of alternatives re-affirms that Lake Lanier is the best water source for Metro ATL**

# What is cost of inaction? 2012 water shortfall could reduce Metro Region economic output by >10% (\$26B+/yr)

Types of costs	Approach	Result
<div style="background-color: #006633; color: white; padding: 10px; text-align: center;">                     Lower economic output of existing businesses                 </div>	<ul style="list-style-type: none"> <li>• Referred to studies documenting impact of water supply shortfalls<sup>1</sup> on business output</li> <li>• Tailored assumptions to suit local situation-consulted local economists</li> </ul>	<ul style="list-style-type: none"> <li>• Implies a potential 10-15% reduction in output</li> </ul> <p style="text-align: center;">↓</p> <p>Translates into roughly <b>\$26-\$39B per year</b></p>
<div style="background-color: #cccccc; padding: 5px;">Reduced investment for future growth</div> <div style="background-color: #cccccc; padding: 5px;">Reduced quality of life</div> <div style="background-color: #cccccc; padding: 5px;">Property value decline</div>	<p><i>Costs are significant— but not explicitly quantified by Task Force</i></p>	
Shortfall costs begin accruing now, as businesses evaluate metro ATL suitability... we need to ACT!		

1. Measures to Reduce the Economic Impacts of a Drought-Induced Water Shortage in the SF Bay Area, SFPUC (2007) ; Estimating business and residential water supply interruption losses from catastrophic events, Brozovic (2006) ; Economic Loss Estimation of Water Supply Shortage Based on Questionnaire Survey in Industrial Sectors, Jiang (2005)  
 Note: Assessed impact to Metro Atlanta GDP from potential water shortfall of ~35%, Assumed shortfall borne equally by all sectors (ie, did not re-allocate supply)

# Summary: Task Force Findings (I of II)

## Conservation playing a major role for Metro district- low impact, cost-effective

- Only conservation contributes by 2012. Conservation is a necessary, but not sufficient, part of solution
- Metro ATL per capita usage, after considering existing plans combined with TF options reach levels comparable to leading metro areas

## Do not see ability to meet gap by 2012- even with extremely aggressive conservation scenarios

## There is a potential 2015 contingency solution- though it is very expensive and difficult to implement

- Solution largely defined by large Indirect Potable Reuse option; there is not a broad set of sizable, cost-effective alternatives potentially available by 2015
- Solution capital intensive (\$3B) and overall twice as costly (long term \$/MG) than 2020 solution
  - 2015 average cost efficiency (\$/MG) level of **\$~890/MG**, with capital expense **\$~3.0B**
  - Total 50-yr cost of portfolio is **\$~5.0B** which is significantly higher than 2020 cost optimal portfolio (**\$~480/MG** difference which equates to **\$~2.4B** over 50 yrs)
  - Funding this portfolio could increase overall retail water rates by **~\$2.70/kgall** or **~55%**<sup>1</sup>
- Additionally, the Indirect Reuse option poses a number of feasibility questions (timing, funding, environmental impact)

1. Ga Association of Water Professions; assumes incremental portfolio costs borne by utilities (directly or indirectly). Analysis assumes ~\$5/kgall weighted average retail rate baseline.

# Summary: Task Force Findings (II of II)

## By 2020 a broader set of potential solutions exist, and there are more cost-effective potential solution portfolios

- The theoretical "cost optimal" 2020 portfolio has cost efficiency of **\$~410/MG avg**, with capital expense **\$~2.3B**; equates to **~\$2.6B** over 50 years
- Based on Task Force feedback, an Alternate 2020 portfolio was defined- balancing cost efficiency with concern for environmental impacts and implementation feasibility
  - While there is not consensus, there is general agreement on core set of conservation and capture options. These alternatives differ primarily on the mode of conservation (ie, desired extent of mandates) and the mix of reservoir expansions vs. new builds
  - No Interbasin transfer options are contained in the 2020 alternate portfolios under evaluation. This is based primarily on relative cost effectiveness, as well as on Task Force input and on implementation feasibility

# Summary: Task Force Recommendations (I of II)

## 1. Continue to pursue reauthorization of Lake Lanier

- Aggressively pursue other three prongs of Governor's 4 prong-plan (negotiations, appeal, Congressional action)

## 2. Pursue aggressive conservation program- in support of current plans and incremental Task Force options. While the Task Force is evaluating the degree of mandates recommended, the specific areas of focus include, at a minimum

- ***Expanded efficiency programs (fixture retrofits, sub-metering, cooling tower standards, etc):*** Georgia Assembly to pass statute that requires local government to create incentive or mandated efficiency programs, AND appropriate funding to help support these programs
- ***More aggressive conservation pricing:*** Enact policies on minimum rate differentials across usage tiers and usage information levels to be provided on bills
- ***More aggressive utility leak abatement programs:*** Pass statute that requires annual water loss audits, loss data reporting to EPD, and leak abatement programs
- ***Time-of-day restrictions on outdoor watering:*** Pass statute that requires outdoor watering restriction of no day-time watering
- ***Funding for conservation education program:*** Appropriate funding for holistic conservation education program
- Evaluate incorporation of conservation plan and efficiency criteria in permitting applications
- Evaluate conservation efficiency criteria in GEFA low-interest loan qualification, and to consider prioritization of SRF Green project reserve funds for these projects

## Summary: Task Force Recommendations (II of II)

3. **Only devote resources towards the 2015 Contingency Solution if outlook on negotiations and reauthorization demands. Metro ATL should only pursue this if required**
  - If 2015 Contingency Solution is deemed necessary, the State must ensure a funding mechanism exists to address joint liability issues.
    - Indirect Potable Reuse project would be so costly and involve so many counties, resolving funding liability issues would be a key challenge
  - Smaller groundwater options included in the 2015 plan should be evaluated by local governments
  
4. **If we must pursue a contingency plan, but we are able to pursue a 2020 solution, we recommend initiating feasibility studies and permitting on capture options in the recommended 2020 Portfolio (to be finalized ~15 December)**
  - Confirm yield, cost, and timing estimates. Specifically, incorporate outputs from forthcoming state water plan and EPD hydrology modeling to ensure the portfolio incorporates best available information

# Comparison of solution portfolio cost and yield

Note: there is no possible solution by 2012

	2015 portfolio	"Alternate" 2020 portfolio
Yield (MGD)	~340 MGD	~360 MGD
Capex (\$B)	~ \$3.1 B	~ \$1.7 B
Cost efficiency (\$/MG)	~\$890 / MG	~\$460 / MG
50-year cost (\$B)	~ \$5.0 B	~ \$2.9 B

# Recommended options for 2012 contingency plan

Option	Cost Efficiency (\$/MG)	Capital Cost (\$M)	Yield (MGD)
Water restrictions (no daytime watering)	10	0	5
Rain sensors (retrofit 25% existing systems)	60	6	5
Spray rinse valves (rebate program)	115	1	0.7
Conservation pricing	125	14	6
Multi family sub-metering (retrofit 50% existing homes)	165	6	2
Cooling towers (rebate program)	170	6	3
Showerheads and faucets (increased rebate program)	300	8	3
Toilet retrofits (increased rebate program)	375	25	2
Residential clothes washers	1,050	14	0.2
Leak abatement	1,200	17	9
	<b>Wtd. Avg. ~410</b>	<b>~100</b>	<b>~35</b>

Source: Technical Advisor Panel estimates

Note: Expected 2012 yield shown for conservation options

# Recommended options for 2015 contingency plan

Option	Cost Efficiency (\$/MG)	Capital Cost (\$M)	Yield (MGD)
Water restrictions (no daytime watering)	10	0	6
Rain sensors (retrofit 25% existing systems)	60	6	4
Spray rinse valves (rebate program)	115	1	0.5
Conservation pricing	125	14	6
GW for non-potable use	155	8	15
Multi family sub-metering (retrofit 50% existing homes)	165	6	2
Cooling towers (rebate program)	170	6	3
Lawrenceville GW system	300	5	6
Showerheads and faucets (increased rebate program)	300	8	2
Spalding county GW system	325	7	6
Bartow county GW system	345	11	7
Suwanee GW system	375	10	5
Palmetto GW system	375	3	2
Toilet retrofits (increased rebate program)	375	25	2
Lawrenceville ASR	900	19	4
Small Quarry	1,010	95	8
Residential clothes washers	1,050	14	0.4
Indirect potable reuse (6 county)	1,070	2,800	252
	<b>Wtd. Avg. ~890</b>	<b>~3,060</b>	<b>~340</b>

Source: Technical Advisor Panel estimates

Note: Expected 2015 yield shown for conservation options

# 2020 Portfolio Endorsement

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## **When asked which portfolio they would endorse, Task Force members chose "Alternate" portfolio by a narrow margin**

- While almost all recognize the need for, and are willing to endorse mandates in a "dire" situation, significant proportion feels strongly that initial implementation be incentive-based

## **However, all report generally high levels of support for several options indicating strong endorsement of the common core options**

- TF primarily divided over willingness to accept conservation mandates as the "norm"
- Many suggest a balanced mix of incentives *and* mandates as optimal approach

## **Task Force members do suggest additional consideration/ analysis in three main areas**

- Analyze potential impact on downstream resources before implementing any option
- Evaluate cost-benefit of additional reregulation capacity on the Chattahoochee below Buford Dam (eg, dredge Morgan Falls reservoir)
- Consider developing more widely incorporated, bi-directional system interconnections to facilitate flexibility in supplying water to areas of need

# Recommended options for "Alternate" 2020 portfolio

Option	Cost efficiency (\$/MG)	Capital cost (\$M)	Yield (MGD)
Water restrictions (no daytime watering)	10	0	7
Rain sensors (retrofit 50% existing systems)	70	6	6
Spray rinse valves (direct install program)	110	1	2
Conservation pricing	125	14	6
GW for non-potable use (parks, golf courses, etc)	155	8	15
Multi family sub-metering (retrofit 100% existing units)	170	6	3
Cooling towers (required standards)	170	6	5
Tussehaw Creek reservoir expansion	260	64	20
Lawrenceville GW system	300	5	6
Dog river reservoir expansion	300	230	48
Showerheads and faucets (direct install program)	250	8	10
Spalding county GW system	325	7	6
Bartow county GW system	345	11	7
Suwanee GW system	375	10	5
Palmetto GW system	375	3	2
Toilet retrofits (direct install program)	350	25	15
Big Haynes Creek reservoir expansion	390	270	47
Richland creek reservoir (larger)	580	620	80
Etowah River Dam No. 1 reservoir expansion	615	350	41
Leak abatement	1,200	17	27

Note: Expected 2020 yield is shown for conservation options  
 Source: Technical Advisor Panel estimates

**Wtd. Avg.**  
**~460**

**~1,660**

**~360**

# Looking Forward

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- Governor Perdue will continue to pursue negotiations with Alabama and Florida to determine water allocation between the three states. The state will also continue with the legal appeal of Judge Magnuson's ruling and working with our Congressional delegation towards reauthorization of Lake Lanier.
- The Task Force has delivered to Governor Perdue a clear set of findings and recommendations for closing the water supply gap created by the ruling.
- The next critical step is action by the Georgia General Assembly on conservation measures, capture options and control policies which support the Task Force recommendations.
- **Our Work is not done and the time for action is now.**