

No. 142, Original

**In The
Supreme Court of the United States**

STATE OF FLORIDA,

Plaintiff,

v.

STATE OF GEORGIA,

Defendant.

**DIRECT TESTIMONY OF
ANNA KATHRYN KIRKPATRICK, P.E.**

October 26, 2016

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I. INTRODUCTION & OVERVIEW

1. I, Anna Kathryn Kirkpatrick, P.E., offer the following as my Direct Testimony.

2. I am currently the Vice Chair of the Metropolitan North Georgia Water Planning District (“Metro Water District”). I am also the Chief Policy Officer for the Metro Atlanta Chamber of Commerce, Inc. (“Metro Atlanta Chamber”), a 501(c)(3) nonprofit corporation that represents the interests of approximately 3,000 businesses to promote the development of the Atlanta Metropolitan Statistical Area (“MSA”).

3. I have over 20 years of experience in water supply and planning, environmental engineering, and public policy and government affairs. I have served in various key roles shaping environmental policy and overseeing water-related issues in Georgia, particularly as it relates to the metro Atlanta region. Prior to my current position of Chief Policy Officer, I was the Vice President of Environmental Affairs at the Metro Atlanta Chamber. I was also the Senior Vice President of Policy, Innovation, and Entrepreneurship at the Metro Atlanta Chamber.

4. I have served on the Metro Water District Board as the citizen representative appointed by the Speaker of the Georgia House of Representatives since June 2009. I have served as Vice Chair of the Metro Water District, an elected position, since July 1, 2011. In that role, I have been involved in the development of the District’s Water Supply and Water Conservation Management Plans, Watershed Management Plans and Wastewater Management Plans, and I have personally attended the meetings of the Board of the Metro Water District.

5. I also served as the management lead for Georgia’s Water Contingency Planning Task Force (“Task Force”), an emergency task force convened by former Governor Sonny Perdue in response to a judicial ruling, later overturned, that restricted metro Atlanta’s access to storage in Lake Lanier for water supply. In that role, I worked closely with stakeholders and business leaders to identify water supply alternatives for metro Atlanta in the event that Lake Lanier could no longer be utilized. The Task Force was also instrumental in developing the framework for the historic Georgia Water Stewardship Act of 2010.

6. Prior to my work on the Task Force, I served as a Georgia Water Council Designee supporting the development of Georgia's first Comprehensive Statewide Water Management Plan. In addition, in my role at the Metro Atlanta Chamber, I grew and led the Georgia Water Alliance, a group of more than 40 statewide organizations working toward sustainable water supplies.

7. I have also held numerous civic positions related to water planning in Georgia. I served on the board of Sustainable Atlanta, and I am a past board member and past board chair of the Institute for Georgia Environmental Leadership.

8. I earned a bachelor's degree in civil engineering from Auburn University and am a registered professional engineer in Georgia and Alabama.

II. MUNICIPAL & INDUSTRIAL WATER PLANNING AND CONSERVATION

A. Background on Metro Water District

9. As Vice Chair of the Metro Water District and the head of the Governing Board Working Group, I am extensively involved in the work of the District, especially the development of its water supply and conservation planning and forecasting activities. The Metro Water District is a water planning district comprised of fifteen counties and ninety-three cities, including most of metro Atlanta. Today, there are approximately 4.2 million people that physically reside in the Metro Water District and the metro Atlanta portion of the Georgia ACF. GX-863 (2016 Metro Water District Population Memo). Further, there are approximately 5.1 million people living in Georgia that depend on the water resources of the Georgia ACF as a daily source of municipal and industrial water supply. GX863 at 6. By contrast, there are just 90,000 people in the State of Florida that rely on the ACF Basin for water supply. GX-863 at Attachment A, p. 2.

10. Similarly, the majority of employment in the ACF Basin is concentrated in the Metro Water District, particularly in metro Atlanta. As of 2015, approximately 96% of the total employment within the ACF Basin was located in Georgia, while Florida accounted for just 1.2% of employment in the basin. GX-863 at Attachment A, p. 4.

11. As with population and employment, the vast majority of the economic activity in the ACF Basin takes place in Georgia. Metro Atlanta, sometimes referred to as “the capitol of the South,” is currently the ninth largest metropolitan statistical area in the nation. It is a thriving and growing metropolitan area that offers a vital mix of infrastructure, institutions of higher education, cultural attractions, and business opportunities. Metro Atlanta is home to the world’s busiest airport, nearly 150,000 businesses, and approximately 3,000 international facilities that employ more than 169,000 people. Some 70 countries are represented in metro Atlanta with 79 full and honorary consulates and trade offices, and 38 bi-national chambers of commerce.

12. In recent years, metro Atlanta has been home to the corporate headquarters of Delta Air Lines, Georgia Pacific, the American Cancer Society, UPS, Intercontinental Hotels Group, The Home Depot, General Electric Energy, and several other recognizable companies that employ tens of thousands of people in Georgia. Today, sixteen Fortune 500 companies are headquartered in metro Atlanta.

B. Metro Water District Planning

13. The legislation creating the Metro Water District requires the District to establish comprehensive plans for managing Georgia’s water resources in and around the metro Atlanta region and to promote intergovernmental coordination of all water issues in the District. By law, the Metro Water District is responsible for preserving and protecting water resources in six basins: the Chattahoochee, Coosa, Flint, Ocmulgee, Oconee and Tallapoosa River Basins. The majority of the water withdrawn for municipal and industrial uses in the fifteen counties of the Metro Water District is withdrawn from two surface water sources in the Georgia portion of the ACF Basin: Lake Lanier and the Chattahoochee River.

14. Since its inception in 2001, the Metro Water District has worked with local governments and water utilities to protect the quality and supply of waters across the District. A Governing Board of the Metro Water District, consisting of elected officials from each of the 15 counties and the City of Atlanta as well as 10 appointed citizen members, establishes the water supply and conservation, wastewater, and watershed management policies of the Metro Water District. The Governing Board also manages the business and affairs of the District and oversees the planning activities of the organization.

15. The Metro Water District has a Technical Coordinating Committee comprised of more than 300 officials from counties, cities, and water authorities within the District who provide technical feedback and guidance to the Metro Water District staff and Governing Board. This committee also makes recommendations regarding the District's plans and specific implementation tasks, and it provides technical analyses of water conservation measures that might eventually be adopted by the board.

16. The Metro Water District also has six Basin Advisory Councils ("BACs"): the Chattahoochee, Coosa/Etowah, Flint, Lake Lanier, Ocmulgee, and Oconee BACs. Membership includes approximately 250 members across all basins. BACs offer guidance in the development and implementation of policy-related and basin-specific issues. They provide input on plan content to the Governing Board, Technical Coordinating Committee, and Metro Water District staff. BACs are comprised of a diverse membership of basin stakeholders including water professionals, business leaders, environmental advocates, and other interested individuals and groups.

1. 2003 and 2009 Water Supply & Conservation Plans

17. Under the guidance of the Governing Board, the Metro Water District has historically developed three comprehensive and integrated plans in cooperation with local government officials, technical experts, and stakeholders in the region: the Water Supply and Water Conservation Management Plan, the Wastewater Management Plan, and the Watershed Management Plan. As Vice Chair of the Metro Water District and the head of the Governing board Working Group, I have been extensively involved in the development of the Metro Water District's Plans since I became Vice Chair of the District.

18. The Metro Water District adopted the first set of plans in 2003. Since then, it has worked in partnership with the state and local governments in the 15-county planning area to implement, update and strengthen the plans roughly every five years. These plans include an array of required and recommended water planning and water conservation actions to be implemented by local jurisdictions. The Georgia Environmental Protection Division ("Georgia EPD") audits each permitted entity in the District to ensure plan requirements have been met.

19. Between 2003 and 2009, the Metro Water District implemented through its plans a menu of comprehensive conservation measures that have resulted in significant and growing savings in water use. GX-52 and JX-37 are true and correct copies of the District's 2003 plan and the 2009 Water Supply and Water Conservation Management Plan. JX-036 is a true and correct copy of the District's 2009 Wastewater Management Plan. In total, 12 distinct water conservation and efficiency requirements contained in those plans have been implemented across the Metro Water District, including: tiered block-rate conservation pricing that increases with the amount of water consumed; water loss audit and leak detection using the American Water Works Association ("AWWA") and International Water Association ("IWA") water audit approach; a toilet rebate program; rain sensor shut-offs on new irrigation systems; sub-unit meters in new multifamily buildings; programs to replace inefficient plumbing fixtures with new, high-efficiency models; and award-winning education and public awareness activities. JX-37 at Section 5 (2009 Water Supply and Water Conservation Management Plan); GX-52 at GA00893191 (2003 Metro District Water Supply and Conservation Plan).

20. In December 2010, the Metro Water District adopted several additional conservation measures for utilities in the Chattahoochee and Lake Lanier basins as amendments to the 2009 plan. JX-121 is a true and correct copy of the District's amendments to the 2009 plan. Through the amendments, the Metro Water District required, among other programs, expedited water loss reduction; multi-family high-efficiency toilet rebates; point-of-use leak detection meters; private fire line meters; and additional water-conservation education measures. In addition, measures were also adopted for the entire District including a requirement to develop a water waste policy or ordinance and requiring high efficiency plumbing consistent with the 2010 Water Stewardship Act. GX-121 (Dec. 2010 Amendments to the Water Supply and Water Conservation Management Plan); GX-350 (2010 Activities & Progress Report).

21. Georgia EPD enforces the Metro Water District plans through its audit process. EPD auditors conduct a thorough review of local programs and procedures to ensure consistency with District plans. Communities must demonstrate compliance with the plan provisions in order to obtain, modify, or renew water withdrawal or wastewater permits, receive loan financing from the Georgia Environmental Finance Association ("GEFA"), or to renew stormwater permits.

22. Every year, the Metro Water District prepares a summary of actions and activities of the District that includes, among other items, data concerning the implementation of certain conservation and efficiency measures implemented by the water systems. These data help the Governing Board track the progress of these measures and informs our efforts to update the District's plans. As these reports show, in a very short time, Georgia made significant gains in water conservation and efficiency in the municipal and industrial use sectors:

- **Conservation Pricing:** Conservation pricing is a progressive water rate structure whereby the price per unit of water increases with the amount of water consumed, creating economic incentives for the customer to use less water. By 2010, 99 percent of the Metro Water District's population was subject to conservation pricing, according to the 2010 Water and Wastewater Rates Survey, and rate structures that allowed for pricing to decrease with consumption had been discontinued in metro Atlanta. GX-350 (2010 Activities & Progress Report). This type of tiered rate system was uncommon in the Metro Water District before being required by the Water Supply and Water Conservation Management Plan. Today, 100 percent of water utility customers in the District are subject to tiered block rate conservation pricing.
- **Low-Flow Retrofits:** By 2010, the District had given out more than 155,000 low-flow retrofit kits that included low-flow showerheads and faucet aerators to help residents save water at home. GX-350 at GA00566282.
- **Leak Abatement:** Between 2009 and 2014, water systems in the Metro District identified and repaired over 42,000 leaks. GX-350 at GA00566279 (2010 Activities & Progress Report); GX-697 at GA00566167 (2014 Activities & Progress Report). Further, from 2012 to 2015 the City of Atlanta allocated more than \$55 million for distribution system rehabilitation and repair projects to decrease water loss and therefore return more water to the ACF Basin. GX-1103 (Did You Know? - Metropolitan North Georgia Water Planning District). Georgia's water loss control program is recognized nationally and among industry leaders as one of the most aggressive in the United States.
- **Toilet Rebates:** Approximately 40 jurisdictions participate in a toilet rebate program, either through individual programs or through the Metro Water District's regional program. Since 2008, more than 110,000 inefficient toilets have been replaced with higher efficiency models in the Metro Water District, resulting in a savings of more than 2.6 million gallons of water each day, or 949 million gallons per year. GX-786 at 5 (2015 Activities & Progress Report).

23. Members of the Metro Water District have also invested billions of dollars into these and other water supply, water reuse, water efficiency, and water conservation programs to reduce municipal and industrial consumption. In my role at the Metro Water District, I have

knowledge of the expenditures that local municipalities have made on water supply, water conservation and efficiency, and water reuse programs. For example, Gwinnett County has spent more than \$1 billion to construct and operate the F. Wayne Hill Water Resources Center, a facility that reclaims and then returns highly treated wastewater to Lake Lanier for indirect potable reuse. GX-286 at GWNT-DWR0012557 (Nov. 12, 2009 Summary of Water Conservation & Efficiency Projects). The facility is projected to return 82.2 million gallons per day (mgd) to Lake Lanier and the Chattahoochee River by 2050. GX-829 (Jan. 29, 2016 Comments of the State of Georgia: ACF Water Control Manual and Draft EIS with Exhibits A-K, at GA02451872).

24. In January 2011, Governor Nathan Deal directed GEFA to develop and launch the Governor's Water Supply Program (GWSP) and committed \$300 million over four years to the program for loans and state direct investment. GX-1260 at GA00661256 (December 2012 Annual Report on State Agency Activities). The purpose of the GWSP was to align and mobilize the resources of the state of Georgia to assist local governments with developing new sources of water supply to meet the needs of local, regional and state significance.

25. Municipalities and water systems that rely on the Chattahoochee River and Lake Lanier for water supply have made other significant investments totaling well in excess of \$1 billion for water conservation and water-supply infrastructure projects throughout the Metro Water District. GX-286 at GWNT-DWR0012553 - GWNT-DWR0012565 (Nov. 12, 2009 Summary of Water Conservation, Mgmt., and Efficiency Projects). These projects include, among others, the development of indirect potable reuse facilities, construction of new reservoirs and treatment plants, infrastructure upgrades to existing water treatment plants, water and sewer system infrastructure improvements, leak detection programs, and reuse projects.

26. The conservation measures implemented pursuant to the District plans and the ones that followed with the adoption of the Georgia Water Stewardship Act and Georgia's Water Use and Efficiency rules, explained below, have worked in concert to increase water efficiency and drive down water consumption in Georgia's municipal water use sector. As a result of these measures, the Metro Water District has already seen a 10% decline in total water demand since 2000, even as the total population increased dramatically over the same period. In addition, the

Metro Water District has seen an over 30% reduction in per capita use over this same period. GX-786 at 5 (2015 Activities & Progress Report); GX-863 at 6 (2016 Metro Water District Population Memo).

27. In fact, a 2015 study by outside engineering firm CDM Smith performed at the Metro Water District's request confirmed that declines in per capita use were mainly the result of these conservation measures, independent of other factors like weather and economics. The Metro Water District commissioned the study for the purpose of analyzing existing water system infrastructure to identify actions water and wastewater utilities might take to become more resilient to climate variability, especially potential future severe flooding and extended drought events. Over the past 15 years, Georgia has experienced three multi-year droughts followed by years of significant and record rainfall, requiring local governments and utilities to shift between drought protection and flood management strategies. Given the recent frequency of these weather swings, we thought it was important to incorporate climate resiliency in the Metro Water District's future water management and planning. GX-785 is a true and correct copy of the December 2015 Utility Climate Resiliency Study. As part of the study, CDM Smith conducted a statistical analysis to determine the root cause of declining per capita use in the Metro Water District. GX-785 at 4-1. That statistical analysis confirmed that the decline in per capita use was primarily due to water conservation from plumbing code efficiencies, policy, water pricing, and utility rebates in the Metro Water District. GX-785 at 4-2.

2. 2017 Water Resources Management Plan

28. The Metro Water District is currently preparing an update to its 2009 plans that will, for the first time, combine water supply, water conservation, and wastewater and watershed management planning into a single integrated Water Resources Management Plan. The new plan relies on the best available technical information and diverse stakeholder perspectives to identify measurable and meaningful actions that will sustain Georgia's water resources through the planning horizon of 2050 and ensure the region remains a national leader in water resources management.

29. I have been directly involved in the development of the integrated plan, currently scheduled to be released in 2017. In addition to being Vice Chair of the Metro Water District, I

am also the head of its Governing Board Working Group. The working group is involved in assessing the Metro Water District's water conservation and efficiency programs, as well as developing ideas for expanding existing conservation programs and developing new ones to implement in the District.

30. In developing the new plan, the Governing Board and Metro Water District staff have worked with stakeholders on several key issues, including commercial water supply, management and conservation programs, and education and outreach requirements to name a few. We have also conducted extensive data gathering and analysis to update population, water, and wastewater forecasts through 2050. As part of that effort, we have worked closely with the water engineering firm CH2M Hill and the Research Analytics Division of the Atlanta Regional Commission to develop updated historical and projected population numbers. GX-863 at 6 (2016 Metro Water District Population Memo). These data are important for assessing the success of our existing conservation programs, developing our demand projections through the planning horizon of 2050, crafting new water supply and conservation programs to further extend the life of our water resources, and for the overall development of the integrated plan.

31. The integrated Water Resources Management Plan will also provide for new measures to minimize future interbasin transfers out of the Georgia ACF. Interbasin transfers are indirect conveyances of water from a public-supply customer in the basin to the nearest wastewater treatment facility in another basin. Wastewater treatment plants are typically located in low-lying areas so they can take advantage of gravity to convey sewer water from residents and businesses downhill to the treatment facility. These interbasin transfers usually occur as part of the normal conveyance of water between utilities and their customers and are a necessary and beneficial characteristic of a combined network of sewers and wastewater facilities that cross basin boundaries and have existed in the District for decades.

32. While interbasin transfers are an important tool for water resource management in the Metro Water District, the District has been working to minimize new growth in these transfers. On March 18, 2015, Georgia EPD issued new guidance governing the Water Resource Management Plan that directed the District to include measures "to minimize net losses from interbasin transfers from each of the six river basins that lie within the District area," which

includes the Chattahoochee and Flint Basins. GX-1089 at 2 (Mar. 18, 2015 EPD Guidance). These measures will bolster existing EPD regulations adopted in 2011 requiring the EPD Director to evaluate a comprehensive list of factors before approving any such transfers. GX-1232 (2011 Interbasin Transfer Rules at Rule 391-3-6-.07). Together, the new measures adopted by the District and the existing regulations will ensure that there will be limited, if any, future growth in interbasin transfers.

33. Development of the integrated Water Resources Management Plan began in 2015. A key finding of the Metro Water District in preparing the Plan is that District residents will use approximately 25 percent less water in 2050 than was previously projected. GX-786 (2015 Activities & Progress Report). This forecast incorporates recent economic and population projections as well as water utility billing data to estimate future residential and non-residential water needs. I believe this forecast reflects the continuing success of conservation efforts that have already helped dramatically reduce water usage across the region and that the District believes will continue to drive down demand and improve efficiency well into the future.

34. These and prior demand forecasts for the Metro Water District were provided to Georgia EPD and were used to develop the State's water supply requests to the U.S. Army Corps of Engineers ("Corps"). JX-126 (Dec. 4, 2015 Georgia Updated Water Supply Request). In addition to these data on forecasted demand, the Metro Water District also submits to Georgia EPD data and information on its wastewater return flows, which are also used to develop the State's water supply requests as well as its formal comments and suggested operational alternatives to the Corps' proposed revisions to its Draft Environmental Impact Statement. GX-829 (Jan. 29, 2016 Comments of the State of Georgia: ACF Water Control Manual and Draft EIS with Exhibits A-K, at GA02451865 - GA02451880).

C. Statewide Water Planning

1. Comprehensive Statewide Water Management Plan

35. The Metro Water District is just one of eleven water planning councils throughout the State of Georgia. In 2004, Georgia enacted the Comprehensive Statewide Water Management Planning Act, which explicitly recognized that "citizens have a stewardship responsibility to conserve and protect the water resources of Georgia" and that "[w]ater resources are to be

managed in a sustainable manner so that current and future generations have access to adequate supplies of quality water that support both human needs and natural systems.” GX-64 (2004 Comprehensive State-wide Water Management Planning Act). The Planning Act required the development of a state water plan that would both protect public health and environmental quality and meet future water supply needs while protecting aquifers and instream uses.

36. The Planning Act gave rise to Georgia’s first ever Comprehensive Statewide Water Management Plan, adopted in January 2008, which calls for regional water planning across the State to provide the necessary local and regional perspectives to ensure that the water resources of each of Georgia’s eleven water planning regions are sustainably managed through at least 2050. GX-210 (Jan. 8, 2008 Georgia State Water Plan).

37. As mentioned above, I served as a Georgia Water Council Designee supporting the development of Georgia’s first Comprehensive Statewide Water Management Plan. In this role, I worked intensively with the Council members, agency staff, stakeholders and other partners to craft the final statewide water plan. I also attended the working meetings with agency staff to ensure that their input was received and incorporated.

38. One of the actions called for by the Comprehensive Statewide Plan was the development of a Water Conservation Implementation Plan (“WCIP”) designed “to create a culture of conservation and guide Georgians toward more efficient use of our state's finite water resources.” The WCIP was completed in March 2010 and provided explicit water conservation goals, benchmarks, best practices, and implementation actions designed to reduce water waste, water loss, and water use on a statewide basis across several major water use sectors, including: (i) electric generation; (ii) golf courses; (iii) industrial and commercial; (iv) landscape irrigation; and (v) domestic and non-industrial public uses. JX-45 (2010 Georgia Water Conservation Implementation Plan).

39. In addition, the Comprehensive Statewide Plan required the preparation of regional water plans for the various river basins across the state, including all of the ACF Basin within Georgia. These plans, which were prepared by each of the regional water councils and adopted by Georgia EPD in 2011, include resource assessments, estimates of current and future water needs, and management practices necessary to meet each region’s needs.

40. A second round of regional water planning is currently underway and the regional water councils are in the process of preparing updated regional water plans for the various river basins in Georgia.

2. Water Stewardship Act (SB 370)

41. In 2010, former Governor Perdue introduced another comprehensive piece of legislation called the Georgia Water Stewardship Act to create a “culture of water conservation” throughout the state of Georgia and that mandated a wide range of new and innovative water conservation measures and best management practices. The bill passed both houses of the legislature by a wide margin and was signed into law on June 1, 2010. GX-294 is a true and correct copy of the Georgia Water Stewardship Act as enacted.

42. I have knowledge of, and in-depth familiarity with, the Stewardship Act by virtue of my work as the management lead of the Governor’s Water Contingency Task Force. I explain more about the Task Force below. The Task Force was instrumental in the creation and passage of the Water Stewardship Act, and many of the provisions of the Stewardship Act were based on recommendations made by the Task Force. The Act directed Georgia’s Department of Natural Resources to coordinate with eight state agencies, including Georgia EPD and GEFA, to formulate programs to improve water conservation and water supply preparedness.

43. The Act outlines a number of actions to help protect the State’s future water supply by increasing water use efficiency and driving down demand in both indoor and outdoor use. It requires efficient water fixtures in all residential and commercial construction statewide and the installation of efficient cooling towers in new industrial construction.

44. Another major important component of the Stewardship Act was the requirement that local governments adopt ordinances uniformly restricting outdoor urban irrigation and imposing permanent outdoor watering restrictions to limit urban irrigation to between the hours of 4 p.m. and 10 a.m. daily, irrespective of whether Georgia is in a drought.

45. Moreover, the Act requires that all utilities serving populations of 3,300 and above submit annual water loss audits to EPD utilizing the AWWA and IWA water audit methodology (M36 methodology). The Act’s auditing requirements were phased based upon the

size of the public water system. Utilities serving 10,000 customers or more were required to begin submitting M36 audits by March 2012, while audits for those utilities serving at least 3,300 customers had a deadline of March 2013. The Act only included utilities that serve populations of 3,300 and above because those utilities service the vast majority of Georgia's population.

46. Water loss auditing and leak detection are an important first step for utilities to increase efficiency, but it is leak repair that drives down consumption. As noted above, between 2009 and 2014, water systems in the Metro District identified and repaired approximately 43,000 leaks. GX-697 at GA00566167 (2014 Activities & Progress Report); GX-350 at GA00566279 (2010 Activities & Progress Report). The success of Georgia's water loss control program under the Stewardship Act provides a blueprint for other states and agencies in how to utilize and implement best practices to manage water system losses.

47. There are several other important features of the Georgia Water Stewardship Act aimed at increasing conservation and efficiency in the State. Among other important features, the Stewardship Act:

- Requires local governments to adopt and enforce updated plumbing codes mandating (i) high-efficiency flow plumbing fixtures, including toilets, urinals and showerheads, (ii) the installation of sub-meters on all new multi-unit buildings, including residential, commercial and light industrial facilities, and (iii) the installation of high-efficiency cooling towers in all new construction;
- Requires state agencies to collaborate to enhance programs and incentives for water conservation, submit annual reports to the General Assembly summarizing programmatic changes implemented to encourage conservation and enhance water supplies; and review and revise state water-related policies, procedures, regulations and programs; and
- Created a legislative committee to study and analyze the state's reservoir system and strategic needs for additional water supply.

48. Together, the provisions of the Water Stewardship Act impose a range of water conservation and efficiency requirements on state agencies, local governments, water providers, and residents and commercial businesses throughout the State. These measures amplify and build upon the water conservation policies and programs outlined in the Metro Water District's plans,

and they have and will continue to result in reductions in municipal and industrial water consumption across Georgia.

49. The Act has been recognized as one of the most significant and comprehensive pieces of water efficiency and conservation legislation enacted anywhere in the country. American Rivers, a national environmental organization, characterized the Water Stewardship Act one of the strongest statewide water conservation laws in the United States, and stated that with the passage of the Act “Georgia now leads most states in the nation when it comes to 21st century water supply solutions.”¹ GX-350 at GA00566278 (2010 Activities & Progress Report). The Alliance for Water Efficiency, a national nonprofit organization dedicated to the efficient and sustainable use of water, called the Stewardship Act “Landmark Water Efficiency Legislation” and noted that with the Act, Georgia became “the first state to require by state law the sub-metering of multi-unit residential, commercial and industrial buildings in addition to billing based on actual water use.”² The Georgia Conservancy called the Act “the most significant, sweeping water conservation in Georgia’s history” and “a major success for all Georgians because it will save hundreds of millions of gallons of water every day.”³

50. Building on its commitment to reduce system water loss and to promote increased efficiency, Georgia has also enacted new regulations pursuant to the Stewardship Act related to utility water loss control. In 2015, Georgia EPD adopted Water Efficiency Rules that require water systems statewide to demonstrate progress in water loss and control based on the annual water audit. If Georgia water providers fail to demonstrate progress in water loss control, their applications for new service connections or to renew or modify an existing withdrawal permit can be denied. GX-1091 (2015 Georgia Water Efficiency Rules). This is another critical step in

¹ New Bill Makes Georgia A National Leader In Water Efficiency: American Rivers Calls For More Water Efficiency Measures To Ensure Reliable, Predictable Clean Water Supplies, *available at*: <http://www.commondreams.org/newswire/2010/03/11/new-bill-makes-georgia-national-leader-water-efficiency>.

² Mar. 19, 2010 “Georgia Passes Landmark Water Efficiency Legislation,” Alliance for Water Efficiency, *available at*: <http://www.allianceforwaterefficiency.org/ga-legislation.aspx>.

³ Georgia Conservancy, Georgia Legislature Passes Nation's Premier Water Conservation Package, <https://www.georgiaconservancy.org/index.php?page=water-stewardship-act>.

reducing water loss across the Metro Water District and will result in lower withdrawals from the ACF system.

III. GEORGIA'S CONSERVATION EDUCATION & OUTREACH PROGRAMS ARE RECOGNIZED NATIONALLY

51. I have knowledge of the Metro Water District's education and outreach programs related to water conservation and efficiency by virtue of my role with Metro Water District and our ongoing work to update these programs through the development of the 2017 plan. Education and outreach are critical components of the Metro Water District conservation plans. Local jurisdictions and water providers throughout the Metro Water District and across Georgia have implemented significant and effective water conservation, education, and customer outreach programs. Several of those programs have received regional and national recognition.

52. Water systems in Metro Water District have received several national awards for these efforts. The Metro Water District's education and outreach program has received several prestigious awards to date. Much of this is due to its successful outreach to all age groups and implementation of programs that cover a wide variety of water resource management topics. The Metro Water District's public awareness and education programs target students, businesses, residents and water professionals across the 15-county planning region. Each year, the Metro Water District's 109 member jurisdictions, utilities and water authorities host more than 2,000 activities and outreach events across the region, providing education on water conservation and water quality awareness. GX-786 (2015 Activities & Progress Report). To assist local governments and to ensure consistent messaging throughout the metro area, the Metro Water District provides brochures, videos, posters, how-to-booklets, training opportunities and guidance in event workshop planning.

53. In October 2015, the Metro Water District won the prestigious 2015 EPA WaterSense Award for Excellence in Outreach and Education in recognition of the great work the Metro Water District has done with its education and outreach program. GX-900 (2016 EPA WaterSense Excellence in Education Awards). Of the more than 1,700 utilities, manufacturers, retailers, builders and organizations nationwide that partner with WaterSense, only a select few programs receive this esteemed award each year.

54. Further, just this month, the Metro District won the 2016 EPA WaterSense Promotional Partner of the Year award. In recognizing the Metro Water District for the second time in as many years, the EPA highlighted the District's "WaterSense at Work" best management practices to target the highest commercial water users in the area with water audits, the replacement of more than 100,000 inefficient toilets in its region, the "Great Plumbing Fixture Giveaway," and the District's annual "Water Drop Dash 5k and Water Festival for Fix a Leak Week" programs. GX-900 (2016 EPA WaterSense Excellence in Education Awards).

55. In addition, in 2016 Cobb County became a five-time winner of the EPA's Promotional Partner of the Year Award. GX-900 (2016 EPA WaterSense Excellence in Education Awards). Other counties within the Metro Water District and the City of Atlanta have received dozens of other awards for their efforts in water use education, outreach, and conservation. GX-286 (Nov. 15, 2009 Summary of Water Conservation & Efficiency Projects).

IV. THE GEORGIA WATER CONTINGENCY TASK FORCE

56. A number of the water conservation and efficiency activities enacted under the Stewardship Act were conceived by a Task Force established by former Governor Perdue in response to a water supply crisis that emerged in 2009 and threatened metro Atlanta's access to its public water supply from Lake Lanier.

57. On July 17, 2009, a federal district court ruled that the Corps lacked the authority to supply water from Lake Lanier to most of the Atlanta region and that Atlanta's then-existing direct withdrawals from storage in Lake Lanier would be prohibited as of July 17, 2012 ("Magnuson decision"), absent further Congressional authorization allowing the Corps to provide for those withdrawals. The district court issued a stay of its decision for three years, the expiration of which would compel Metro Atlanta water supply to revert to mid-1970s levels and create a massive water supply shortfall.

58. Although the Magnuson decision was later reversed on appeal in 2011, it created an extraordinary risk to the water supply of Metro Atlanta. Thus, following the district court's decision, former Governor Perdue immediately convened a Water Contingency Planning Task Force in the fall of 2009 to examine a variety of water supply options that could potentially

address the water supply shortages that would have occurred in the Metro Atlanta area should the Magnuson decision stand.

59. At the Governor's request, I served as the management lead for the Task Force. The Task Force was comprised of a cross-section of business leaders from across the State of Georgia and the Chairs of Regional Water Planning Councils. The Task Force was also assisted by a Technical Committee of leading consulting and water engineering firms that included the Boston Consulting Group and CH2M Hill.

60. The Task Force estimated that the elimination of direct withdrawals from Lake Lanier storage under the Magnuson decision would result in a supply shortfall in July 2012 of 280 mgd, roughly the amount of water used by the City of Atlanta, Cobb County, and Gwinnett County on an average day at the time.

61. A shortfall of that magnitude would have had huge economic consequences for the State of Georgia. Relevant economic studies that examined economic costs of a water supply shortfall estimated that the Magnuson decision could have resulted in \$26 to \$39 **billion** per year in lost business output, or between 10 and 15% of gross domestic product for Metro Atlanta. GX-300 (Feb. 4, 2010 Water Contingency Planning Task Force Findings & Recommendations). Importantly, that figure did not include changes to residents' quality of life or property values, and it did not factor in the economic impacts to Georgia as a whole or the broader region.

62. Faced with these extraordinary circumstances, we considered all possible alternatives that could potentially address Metro Atlanta's water supply needs and the 280 mgd shortfall. All told, the Task Force considered 35 conservation measures that were organized into six categories:

- Residential retrofits;
- Sub-metering and water loss audits;
- Commercial retrofits and process improvements;
- Outdoor water usage reduction;
- Localized water recycling capability; and
- Incentives to encourage conservation.

63. After months of technical analysis, we determined that all of these measures taken together, and assuming they were feasible, still could not reduce demand to meet the potential supply shortfall by 2012. That analysis also “reaffirm[ed] that Lake Lanier is by far the best water supply source for the metro region.”

64. JX-41 is a true and correct copy of the Water Contingency Task Force Report containing its ultimate findings and recommendations (“Task Force Report”). In the Task Force Report, we recommended two categories of options: (1) the “no regrets” options that should be pursued regardless of the outcome of legal proceedings, negotiations or congressional action, and the (2) “contingency” options to be pursued only if the Magnuson decision was not overturned on appeal, addressed through congressional action, or resolved by a negotiated settlement.

65. The no regrets options included measures like: enhanced efficiency programs that applied to residential and commercial customers (including programs for replacing inefficient plumbing fixtures and washing machines, spray rinse valves, and cooling towers); new outdoor water usage restrictions; more multi-family sub-metering; water loss reduction programs; more aggressive conservation pricing; and renewed water education. Notably, Georgia implemented the no regrets options with the passage of the Water Stewardship Act.

66. As for the contingency options, the Task Force concluded that “[i]f the recommended contingency options were required ..., these options would impose significant incremental economic costs and environmental impact the region does not currently face.”

67. I understand that Florida believes that Georgia should have implemented one or more of these contingency options. It is important to note, however, that the contingency options — which included measures like direct potable reuse, elaborate indirect potable reuse options, and new reservoir construction — only made sense in the context of the significant supply shortfall created by the Magnuson decision. The contingency options were identified for the purpose of *replacing access* to water directly from storage in Lanier, not to *increase the supply* of water available in the ACF system. As such, these options would not have resulted in additional water flowing downstream to Florida. Additionally, the options required significant up-front capital investments of several billion dollars and follow-on operating expenses (also in

the billions of dollars), were difficult to implement and would have taken (in some cases) decades to develop, and carried uncertain but potentially significant environmental impacts that had not been studied. Nor had the political and legal challenges been evaluated.

68. For example, based on prior and ongoing projects, we estimated that the reservoir expansion and development options under consideration would have cost several billion dollars in up-front capital and required a lead time of 8-15 years at a minimum for design, approval, construction, and filling. JX-040 at CCMWA0016655- CCMWA0016662 (Appendix III to Water Contingency Planning Task Force Report). For new reservoirs, “conservative” cost estimates ranged from \$8 to \$19 million dollars **per mgd** of water supply yield — a staggering sum relative to our cost-benefit estimates for the no-regrets conservation options (from \$10 to \$1,100 dollars per mgd) that the Metro Water District later adopted. JX-040 at CCMWA0016587 - CCMWA0016588, CCMWA0016656.

69. The remaining contingency options, like the reuse alternative, carried a hefty price tag in the hundreds of millions of dollars and serious feasibility constraints. The indirect potable reuse option would have required Georgia to develop a new network of pipelines and large pumped-storage reservoirs that would recapture treated wastewater from the Chattahoochee River below the City of Atlanta and pump the water upstream so that it could be used to meet local water supply needs in the Atlanta area. Because this option involved recycling water returned by Atlanta to the Chattahoochee River, the indirect reuse project would not reduce consumptive use in Georgia or result in additional water flowing downstream to Florida. In addition, we estimated that the indirect potable reuse option would have required an upfront investment of approximately \$2.8 billion in 2010 dollars and an additional operating cost of \$2.1 billion. JX-040 at CCMWA0016617. The direct reuse option, in turn, would have required a capital investment of \$5.6 billion and an additional \$2.4 billion in operating costs. As the Task Force noted, direct reuse is not practiced anywhere in the United States. JX-040 at CCMWA0016619.

70. As stated in the Task Force report, we ultimately concluded that the metro Atlanta region could not “meet the potential water shortfall in 2012, when Judge Magnuson’s ruling could take effect, even with extremely aggressive mandated conservation.” JX-41 at

GA00020646 (Task Force Report). Rather, we determined that Lake Lanier remained “by far the best water supply source for the metro region.”

V. IMPACT OF CONSUMPTION CAP ON ATLANTA REGION

71. Then, as now, water for municipal and industrial uses from Lake Lanier as well as the Chattahoochee River is critical to maintaining a healthy economy in Georgia and sustaining the lives and businesses in the metro Atlanta region. Lake Lanier and the Chattahoochee River are the primary water supply for metro Atlanta. It is my firm belief based on the work of the Task Force and my decades of experience with the Metro Water District and Metro Atlanta Chamber that the volumetric cap requested by Florida in this case would have a devastating impact on Georgia’s economy and future growth.

72. As mentioned above, municipal and industrial water use in Georgia supports more than 5 million people in and around the Metro Water District and nearly 150,000 businesses in metro Atlanta. Any cap on water consumption in metro Atlanta — whether at the extreme 1992 levels Florida describes in its complaint or at higher amounts — would threaten the existing population and future population growth in metro Atlanta and the region’s ability to grow economically. I firmly believe that a cap on Georgia’s consumption would present grave challenges for future business and economic growth in the metro Atlanta area and could have a ripple effect on the economies of the southeastern United States that are connected by and rely on commerce with Atlanta, not unlike the threats we faced with the Magnuson ruling had it not been reversed on appeal.

ATTACHMENT 1 - DOCUMENTS REFERENCED IN THIS TESTIMONY

- GX-52: This is a true and accurate copy of the September 2003 Metro Water District Metro District Water Supply and Conservation Plan. I am familiar with and reviewed and relied on this document as part of my duties as Vice Chair of the Metro Water District. It was made as part of the Metro Water District's regular practice and was maintained in the course of its regularly conducted business.
- GX-64: This is a true and accurate copy of the 2004 Comprehensive Statewide Water Management Planning Act. I am familiar with and reviewed and relied on this document as part of my duties as a Georgia Water Council Designee supporting the development of Georgia's first Comprehensive Statewide Water Management Plan and as Vice Chair of the Metro Water District.
- GX-210: This is a true and accurate copy of the January 2008 State Water Plan. I am familiar with and reviewed and relied on this document as part of my duties as a Georgia Water Council Designee supporting the development of Georgia's first Comprehensive Statewide Water Management Plan and as Vice Chair of the Metro Water District.
- JX-37: This is a true and accurate copy of the May 2009 Metro Water District's Water Supply and Water Conservation Management Plan. I am familiar with and reviewed and relied on this document as part of my duties as Vice Chair of the Metro Water District. It was made as part of the Metro Water District's regular practice and was maintained in the course of its regularly conducted business.
- JX-36: This is a true and accurate copy of the May 2009 Metro Water District's Wastewater Management Plan. I am familiar with and reviewed and relied on this document as part of my duties as Vice Chair of the Metro Water District. It was made as part of the Metro Water District's regular practice and was maintained in the course of its regularly conducted business.
- GX-286: This is a true and accurate copy of the November 2009 Summary of Water Conservation, Management, and Efficiency Projects With a Special Focus on The Lake Lanier/Chattahoochee River Users. I am familiar with and reviewed and relied on this document as part of my duties as Vice Chair of the Metro Water District.
- JX-41: This is a true and accurate copy of the December 2009 Water Contingency Planning Task Force Report. I am familiar with and reviewed and relied on this document as part of my duties as management lead of the Governor's Water Contingency Planning Task Force. It was made as part of the Task Force's regular practice and was maintained in the course of its regularly conducted business.
- JX-40: This is a true and accurate copy of Appendix III to the December 2009 Water Contingency Planning Task Force Report. I am familiar with and reviewed and relied on this document as part of my duties as management lead of the Governor's Water Contingency Planning Task Force. It was made as part of the Task Force's regular practice and was maintained in the course of its regularly conducted business.

- GX-294: This is a true and accurate copy of Senate Bill 370, the Georgia Water Stewardship Act as enacted. I am familiar with and reviewed and relied on this document as part of my duties as management lead of the Governor’s Water Contingency Planning Task Force and as Vice Chair of the Metro Water District.
- JX-45: This is a true and accurate copy of the 2010 Georgia Water Conservation Implementation Plan. I am familiar with and reviewed and relied on this document as part of my duties as a Georgia Water Council Designee supporting the development of Georgia’s first Comprehensive Statewide Water Management Plan and as Vice Chair of the Metro Water District.
- GX-300: This is a true and accurate copy of a February 2010 Presentation I prepared entitled “Water Contingency Planning Task Force Report Findings & Recommendations Cobb County Management Retreat.” I am familiar with and reviewed and relied on this document as part of my duties as management lead of the Governor’s Water Contingency Planning Task Force. It was made as part of the Task Force’s regular practice and was maintained in the course of its regularly conducted business.
- JX-121: This is a true and accurate copy of the December 2010 Amendments to the May 2009 Metro Water District’s Water Supply and Water Conservation Management Plan. I am familiar with and reviewed and relied on this document as part of my duties as Vice Chair of the Metro Water District. It was made as part of the Metro Water District’s regular practice and was maintained in the course of its regularly conducted business.
- GX-350: This is a true and accurate copy of the December 2010 Metro Water District’s Activities & Progress Report. I am familiar with and reviewed and relied on this document as part of my duties as Vice Chair of the Metro Water District. It was made as part of the Metro Water District’s regular practice and was maintained in the course of its regularly conducted business.
- GX-1260: This is a true and accurate copy of the December 2012 Encouraging Voluntary Water Conservation and Enhancing the State’s Water Supply, Annual Report on State Agency Activities Report. I am familiar with and reviewed and relied on this document as part of my duties as Vice Chair of the Metro Water District.
- GX-697: This is a true and accurate copy of the 2014 Metro Water District’s Activities & Progress Report. I am familiar with and reviewed and relied on this document as part of my duties as Vice Chair of the Metro Water District. It was made as part of the Metro Water District’s regular practice and was maintained in the course of its regularly conducted business.
- GX-1103: This is a true and accurate copy of a Metro Water District fact sheet entitled “Did You Know? - Metropolitan North Georgia Water Planning District.” I am familiar with and reviewed and relied on this document as part of my duties as Vice Chair of the Metro Water District. It was made as part of the Metro Water District’s regular practice and was maintained in the course of its regularly conducted business.

- GX-1089: This is a true and accurate copy of the March 2015 EPD Guidance regarding local and regional management of water supply, water conservation, wastewater, and watershed impacts for the Metro Water District's Plan Updates. I am familiar with and reviewed and relied on this document as part of my duties as Vice Chair of the Metro Water District. This document is part of the official records of Georgia. It was made as part of Georgia EPD's regular practice and was maintained in the course of its regularly conducted business.
- GX-1091: This is a true and accurate copy of the 2015 Georgia Division of Natural Resources Water Use Efficiency Rules. I am familiar with and reviewed and relied on this document as part of my duties as Vice Chair of the Metro Water District.
- GX-785: This is a true and accurate copy of the December 2015 Metro Water District's Utility Climate Resiliency Study. I am familiar with and reviewed and relied on this document as part of my duties as Vice Chair of the Metro Water District. It was made as part of the Metro Water District's regular practice and was maintained in the course of its regularly conducted business.
- GX-786: This is a true and accurate copy of the December 2015 Metro Water District's Activities & Progress Report. I am familiar with and reviewed and relied on this document as part of my duties as Vice Chair of the Metro Water District. It was made as part of the Metro Water District's regular practice and was maintained in the course of its regularly conducted business.
- JX-126: This is a true and accurate copy of the December 2015 State of Georgia's Water Supply Request. The request attaches a December 2, 2015 Metro Water District Memorandum regarding Projected Future Water Supply Demands for the Chattahoochee River and Lake Lanier System. This memorandum was submitted to Georgia EPD to support and be submitted with its modified water supply request. This memorandum was also prepared as part of the Metro Water District's update of the 2009 Water Supply and Water Conservation Management, Wastewater Management, and Watershed Management Plans. The memorandum was made as part of the Metro Water District's regular practice and was maintained in the course of its regularly conducted business. I am familiar with and reviewed and relied on this document as part of my duties as Vice Chair of the Metro Water District.
- GX-829: This is a true and accurate copy of the January 2016 Georgia Comments on the Corps' Draft EIS. Attachment I to the Comments at GA02451865 - GA02451880 is the January 2016 Metro Water District's Memorandum regarding Projected Future Treated Wastewater Returns for the Chattahoochee River and Lake Lanier System to Georgia EPD. This memorandum was prepared as part of the Metro Water District's update of the 2009 Water Supply and Water Conservation Management, Wastewater Management, and Watershed Management Plans. The memorandum was made as part of the Metro Water District's regular practice and was maintained in the course of its regularly conducted business. I am familiar with and reviewed and relied on this document as part of my duties as Vice Chair of the Metro Water District.

- GX-863: This is a true and accurate copy of the April 2016 Metro Water District memorandum and attachments describing the latest population and employment statistics for the Metro Water District. I am familiar with and reviewed and relied on this document as part of my duties as Vice Chair of the Metro Water District. It was made as part of the Metro Water District's regular practice and was maintained in the course of its regularly conducted business.
- GX-900: This is a true and accurate copy of an EPA press release entitled "2016 EPA Award Winners Save Water for Future Generations." I am familiar with and reviewed and relied on this document in my testimony.