

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

THE APPLICATION OF KENTUCKY-AMERICAN)
WATER COMPANY FOR A CERTIFICATE OF)
PUBLIC CONVENIENCE AND NECESSITY) CASE NO. 2007-00134
AUTHORIZING THE CONSTRUCTION OF)
KENTUCKY RIVER STATION II, ASSOCIATED)
FACILITIES AND TRANSMISSION MAIN)

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O R D E R

Kentucky-American Water Company (“Kentucky-American”) has applied for a Certificate of Public Convenience and Necessity (“Certificate”) to construct a water treatment plant adjacent to Pool 3 of the Kentucky River, associated facilities, and a transmission main. Finding that the proposed facilities are necessary to address substantial deficiencies in existing service and will not result in wasteful duplication, we grant the application.

STATEMENT OF THE CASE¹

Historical Background

Kentucky-American, a corporation organized and existing under the laws of Kentucky, owns and operates facilities used to distribute water to approximately 116,978 customers in Bourbon, Clark, Fayette, Gallatin, Grant, Harrison, Jessamine, Owen, Scott, and Woodford counties.² It provides wholesale water service to Midway,

¹ Unless otherwise stated, references to pleadings (including responses to discovery requests) are to pleadings submitted in Case No. 2007-00134. Where we refer to a pleading filed in an earlier proceeding, the earlier proceeding will be identified. Where a document can be clearly identified without reference to the proceeding in which it was filed, we have done so.

² Annual Report of Kentucky-American Water Company to the Kentucky Public Service Commission for the Year ended December 31, 2007 (Water Operations) at 11, 56 & 63.

Nicholasville, North Middletown, Georgetown, Versailles, East Clark County Water District, Jessamine-South Elkhorn Water District, and Harrison County Water Association.³ It directly or indirectly provides potable water service to over 326,000 persons.⁴

Kentucky-American is divided into two divisions – Northern and Central. The Northern Division consists of facilities and operations in Gallatin, Owen, and Grant counties. All other facilities and operations are within the Central Division. The Central Division contains the overwhelming majority of Kentucky-American’s facilities and customers.⁵ Kentucky-American has served this area since 1882.⁶

Kentucky-American currently owns and operates two facilities for the production of treated water for its Central Division. The Kentucky River Station I (“KRS I”) is located adjacent to Pool 9 of the Kentucky River and withdraws raw water from Pool 9. It has a rated production capacity of 40 million gallons per day (“MGD”) and is capable, under optimal conditions, of producing 50 MGD.⁷ The Richmond Road Station (“RRS”) uses raw water either pumped from Pool 9 of the Kentucky River or the Jacobson Reservoir and has a rated production capacity of 25 MGD and is capable, under optimal

³ *Id.* at 63.

⁴ Application at 2. Kentucky-American also operates facilities that provide sewage collection and treatment services to approximately 704 customers. These facilities are located in Clark and Owen counties. See Annual Report of Kentucky-American Water Company to the Kentucky Public Service Commission for the Year ended December 31, 2006 (Sewer Operations) at 9, 28.

⁵ Approximately 113,850 or ninety-seven percent of Kentucky-American’s total customers are located in its Central Division.

⁶ Annual Report of Kentucky-American Water Company to the Kentucky Public Service Commission for the Year ended December 31, 2007 (Water Operations) at 9.

⁷ Gannett Fleming, Inc., *Water Supply Study* (March 2007) at ES-2 (found at Kentucky-American’s Response to Commission Staff’s First Set of Interrogatories, Item 6).

conditions, of producing 30 MGD.⁸ Jacobson Reservoir has a capacity of 500 million gallons (“MG”) of water and limited geographical watershed. Most of the water that refills the reservoir is pumped from Pool 9 of the Kentucky River.⁹

For over 20 years the adequacy of Kentucky-American facilities serving its Central Division has been at issue. In 1986 Kentucky-American published a least cost planning study in which it identified a deficit in the available water in Pool 9 of the Kentucky River based upon its safe yield calculations of the Kentucky River. After reviewing various options, the study recommended the construction of a 5 MGD treatment plant on Pool 6 of the Kentucky River, which was expected to meet Kentucky-American’s system demands until the late 1990s.¹⁰

Kentucky-American undertook to design such a treatment plant and to obtain the necessary easements for its construction, but halted these efforts after central Kentucky experienced a moderate drought in 1988. During this drought, Kentucky-American experienced a maximum day demand of 63.91 MG, which exceeded its existing treatment capacity of 60 MGD, and resorted to voluntary restrictions on customer usage. Shortly after the drought, the Kentucky Division of Water (“DOW”) implemented passing flow restrictions on all new or revised withdrawal permits for the Kentucky River that rendered construction of the proposed plant impractical.

In 1989 Lexington-Fayette Urban County Government (“LFUCG”) Mayor Scotty Baesler formed the Kentucky River Basin Steering Committee (“Committee”) to study

⁸ *Id.*

⁹ *Id.*

¹⁰ Direct Testimony of Linda C. Bridwell at 5.

raw water supply for the Kentucky River Basin. In its first published report, the Committee concluded that “significant deficits would be experienced under current conditions if a prolonged drought were to occur.”¹¹ In its second published report, the Committee developed and evaluated twenty-seven alternative water supply plans to provide for the projected deficit. Elements of these plans included: (1) rehabilitation or reconfiguration of the Kentucky River locks and dams, (2) small upstream reservoirs on Kentucky River tributaries, and (3) pipelines from the Ohio River.¹²

While this study was occurring, Kentucky-American took a series of measures to expand its treatment capacity from 60 MGD to 65 MGD. It enlarged the RRS’s treatment capacity from 20 MGD to 25 MGD. It installed larger, more energy efficient raw water intake pumps at the Kentucky River to transfer water to the RRS and replaced an existing 20-inch cast iron water main from the KRS I to Jacobson Reservoir with a 30-inch iron ductile main.¹³

In 1992 Kentucky-American released an updated least cost planning study in which it projected that Kentucky-American would experience maximum day demand of 67.91 MGD by 1996 and 68.25 MGD by 2005.¹⁴ It stressed the need to develop

¹¹ Harza Engineering Company, *Phase I Interim Report: Water Demands and Water Supply Yield and Deficit* (Dec. 1990) at 2.

¹² Harza Engineering Company, *Phase II Report: Development of a Long Range Water Supply Plan* (May 1991).

¹³ Direct Testimony of Linda C. Bridwell at 6.

¹⁴ American Water Works Service Company, Inc., *Kentucky-American Water Company Least Cost/Comprehensive Planning Study* at i (July 1992).

additional water sources, including the possible purchase of finished water from the Louisville Water Company (“LWC”).¹⁵

In an application for rate adjustment that it filed the following year, Kentucky-American sought recovery in its rates of certain design and development costs associated with a water pipeline from Louisville to Lexington.¹⁶ During the rate proceeding, Kentucky-American advised the Commission of its intent to apply for a Certificate for the proposed pipeline in late 1994. Responding to this action, the Attorney General (“AG”) requested an investigation of Kentucky-American’s plans. Finding that such investigation could provide “valuable information pertaining to the need and time for the pipeline,” the Commission initiated Case No. 1993-00434.¹⁷ It eventually grew in scope to include Kentucky-American’s demand projections, the

¹⁵ A supplement to the existing Kentucky River source of supply is needed to insure source adequacy in the event of a severe drought. Kentucky-American has participated in a regional water supply study and is encouraging the resolution of the regional source of supply deficit through the Kentucky River Authority. The need to resolve the source deficit is a high priority, since a drought in any upcoming year could result in severe water shortages. If source of supply augmentation alternatives using the Kentucky River are infeasible or encounter excessive delays, the use of the Ohio River presents a viable option. The Ohio River represents a virtually unlimited source of supply. Purchase of finished water from the Louisville Water Company appears to represent a feasible and cost-effective alternative to solve the source of supply deficit for Kentucky-American, and potentially for the whole region.

Id. at ii.

¹⁶ Case No. 1992-00452, Notice of the Adjustment of the Rates of Kentucky-American Water Company (Ky. PSC filed Jan. 22, 1993). The Commission ultimately rejected Kentucky-American’s request. *Id.* at 13-14 (Ky. PSC Nov. 19, 1993).

¹⁷ *Id.* at 51-52; see also Case No. 1993-00434, An Investigation of the Sources of Supply and Future Demand of Kentucky-American Water Company (Ky. PSC Nov. 19, 1993).

appropriateness of its planning criteria, the existence of a supply deficit, and possible options to remediate any deficit.¹⁸

In Case No. 1993-00434, the Commission received demand projections from various parties indicating that Kentucky-American would experience a supply deficit of between 5.0 MGD and 13.0 MGD if a drought of record occurred. Regarding the methodologies used to derive these projections, the Commission in March 1995 found:

[T]he range of demand projections presented by Kentucky-American and the intervenors is within the realm of reasonableness. Kentucky-American has used reputable sources for data and nationally accepted methodologies in developing its demand projects. Over the years Kentucky-American has made numerous revisions to its methodology for projecting water demand resulting in a state-of-the-art, dynamic process.¹⁹

At that time, however, the Commission was unable to reach a conclusion regarding the safe-yield of the Kentucky River and the appropriate planning criteria to apply. The record contained three separate reports on these issues. Each report “was based upon different assumptions and, thus, their conclusions are not readily comparable.”²⁰ The Commission deferred a decision until the Kentucky River Authority (“KRA”)²¹ completed a new safe-yield analysis of the Kentucky River.

¹⁸ Case No. 1993-00434, Order dated March 14, 1995 at 2.

¹⁹ *Id.* at 4-5.

²⁰ *Id.* at 5.

²¹ The General Assembly created the KRA in 1988 to “provide for the maintenance of the Kentucky River locks and dams.” 1986 Ky.Acts Ch. 383, Section 1. The KRA is authorized and empowered, *inter alia*, to “[c]onstruct, reconstruct, provide for the major maintenance, or repair the locks and dams on the Kentucky River and all real and personal property pertaining thereto, as well as maintain the channel,” and “[d]evelop comprehensive plans for the management of the Kentucky River within the basin, including a long-range water resource plan and a drought response plan.” KRS 151.720(1) and (9).

In August 1996, the Kentucky Water Resource Research Institute (“KWRRRI”), which the KRA had commissioned to conduct a new safe-yield analysis, published its assessment of the water supply within the Kentucky River Basin. It projected that, in the event of a drought similar to that which occurred in 1930 and using projected water demand for 2020, the Kentucky River Basin would experience a water supply deficit between 7.4 and 9.7 billion gallons.²² It noted:

The main conclusion to be drawn from the deficit predictions . . . is the realization that significant water shortages would be incurred if a severe drought were to occur in the basin. Furthermore, water shortages of varying intensity would occur basin-wide, with the largest deficits concentrating in pool 9. The susceptibility of the basin to a severe drought enforces the need for an effective drought management strategy and long range water supply plan.²³

As to Pool 9, the study projected a supply deficit ranging from 1.688 billion gallons to 6.553 billion gallons based upon the intensity of the drought.²⁴

Following KRA’s submission of the KWRRRI Assessment, the Commission resumed its investigation.²⁵ After further discovery and hearings on the water supply deficit issue, the Commission found that “a water supply deficit would exist during an extreme drought situation” and that “3.489 billion gallons . . . [is] a reasonable

²² Kentucky Water Resource Research Institute, *Kentucky River Basin Water Supply Assessment Study: Task III – Deficit Analysis* (Aug. 1996) at v.

²³ *Id.* at vi.

²⁴ *Id.* at 34. The lower amount in this range is based upon the deficit that would occur using projected demand in 2020 based upon moderate population growth and a drought similar to the drought of 1953. The higher amount is based upon projected demand in 2020 assuming high population growth and the 1930 drought of record.

²⁵ In its Order of March 14, 1995, the Commission had terminated the investigation. When ruling upon an intervenor’s petition for rehearing on April 24, 1995, the Commission reversed course and directed that the docket remain open pending completion of the new safe-yield analysis.

estimate of the magnitude of Kentucky-American's total annual water supply deficit for the planning horizon through the year 2020."²⁶

While noting Kentucky-American's obligation to develop a supply for its customers, the Commission, in the same Order, also stressed the need for a coordinated response among all interested parties:

While testimony was presented that demand management and conservation could reduce the total customer demand and possibly slow the anticipated growth in future customer demand, demand management alone will not be sufficient to meet either a 1930 or 1953 drought situation. The evidence before this Commission indicates that additional steps must be taken and financial resources will have to be committed to develop an adequate and reliable source of water supply, not only for the customers of Kentucky-American, but for all the citizens served by the Kentucky River. The evidence further indicates that the net effect of the Kentucky River Authority's proposed activities, if implemented, will be insufficient. Anything Kentucky-American does which affects its withdrawals from the Kentucky River during such an occurrence also affects the drought's impact on others that depend on the Kentucky River as a source of water. The responsibility to develop an adequate and reliable source of water supply for Kentucky-American's customers is the direct obligation of Kentucky-American itself. The responsibility for developing watershed management and drought response planning for the entire Kentucky River Basin resides by statute with the Kentucky River Authority. The Commission considers these responsibilities to be not only compatible, but complimentary [sic]. For the Commonwealth to successfully survive a catastrophe as serious as the reoccurrence of the 1930 drought of record will require the highest degree of cooperative effort from all agencies, organizations, and individuals.²⁷

²⁶ Case No. 1993-00434, Order of August 21, 1997 at 5 (footnote omitted).

²⁷ *Id.* at 5-6.

We then issued the following directive to Kentucky-American:

Kentucky-American shall take the necessary and appropriate measures to obtain sources of supply so that the quantity and quality of water delivered to its distribution system shall be sufficient to adequately, dependably, and safely supply the total reasonable requirements of its customers under maximum consumption through the year 2020.²⁸

Following the Commission's action in Case No. 1993-00434, Kentucky-American reviewed KRA's efforts to augment the water supply of the Kentucky River. Finding no significant progress had been made in this area²⁹ and determining that a finished water pipeline from LWC was the least cost, most feasible option,³⁰ it renewed discussions with LWC.³¹ In April 1998 Kentucky-American selected a design team for the construction of a pipeline to connect the two water utilities.³²

In June 1998 Kentucky-American began receiving objections from property owners whose property was located along the proposed pipeline route.³³ Opposition was especially vocal in Woodford County, where residents were concerned about

²⁸ *Id.* at 6.

²⁹ Direct Testimony of Linda C. Bridwell at 11.

³⁰ Kentucky-American Water Company, *Report to the Public Service Commission: Efforts to Ensure Adequate Sources of Supply to Meet Customer Demand Through 2020* (Mar. 19, 2001) (hereinafter *Efforts to Ensure Adequate Sources of Supply*) at 13.

³¹ Kentucky-American made initial inquiries to LWC regarding a possible purchase of water as early as December 1988. Discussions between LWC and Kentucky-American continued periodically throughout the ensuing years. Beginning in March 1997, the parties appear to have become very serious in their efforts to obtain an agreement. See Kentucky-American's Response to Commission Staff's First Set of Interrogatories, Item 4.

³² *Efforts to Ensure Adequate Sources of Supply*, *supra* note 30, at 13.

³³ *Id.* at 14.

property damage and the pipeline's effects on local growth.³⁴ In response, Kentucky-American investigated alternate routes for the proposed pipeline that would invoke fewer objections. It eventually selected a route that paralleled Interstate Highway 64, but was unable to obtain the Kentucky Transportation Cabinet's approval for the use of the interstate right-of-way.³⁵

On November 7, 1998, LWC and Kentucky-American executed a 50-year water supply agreement.³⁶ Under the terms of the agreement, LWC reserved 23 MGD of production capacity for Kentucky-American and promised to deliver finished water to Kentucky-American at a specified delivery point in Shelby County. Kentucky-American committed to a minimum average usage of 1.2 MGD for non-irrigation months and 1.8 MGD for irrigation months for the first full calendar year. The minimum usage requirements would eventually rise to 1.8 MGD for non-irrigation months and 2.2 MGD for irrigation months.³⁷

³⁴ *Id.*

³⁵ *Efforts to Ensure Adequate Sources of Supply* at 14.

³⁶ Transcript of 11/27/2007 Hearing, Staff Exhibit No. 1.

³⁷ On December 1, 1998, Kentucky-American submitted the water supply agreement to the Commission for review. Finding that the agreement addressed the rights, responsibilities, and obligations of the contracting parties with respect to the construction and payment of facilities for which a Certificate had not yet been issued and that it was administratively inefficient to review the merits of the agreement without also reviewing the merits of the proposed facilities, the Commission rejected the agreement and directed Kentucky-American to refile the agreement when it applied for a Certificate. See Case No. 1998-00339, Kentucky-American Water Company Special Contract with Louisville Water Company (Ky. PSC Dec. 23, 1998).

In July 1999, as public opposition to the proposed pipeline appeared to be growing, the Fayette County Water Supply Planning Council (“Planning Council”)³⁸ issued a 20-year comprehensive water supply plan for Fayette County. After review of the available information, it concluded that “Fayette County will have a treated water supply deficit should a major drought occur such as the one that occurred in 1930.”³⁹ It estimated that, based upon projected water demands, the projected supply deficit in 2020 under 1930 drought conditions would be approximately 3.5 billion gallons of water in the Kentucky River Basin.⁴⁰

The Planning Council identified four alternatives as the most viable and easiest solutions to implement in a reasonably short time: (1) replacement of a dam above Pool 9, (2) installation of crest gates on some or all of the dams from Dam 9 to Dam 14, (3) construction of a 23 MGD capacity pipeline to Louisville, and (4) construction of water storage reservoirs on a tributary to the Kentucky River.⁴¹ Of these alternatives, the Planning Council found the pipeline option to be the preferred alternative.⁴²

³⁸ The Planning Council was part of a state-wide program of the Natural Resources and Environmental Public Protection Cabinet (“NREPC”) for developing long-range water supply plans for each county in the Commonwealth. These plans were to “include an assessment of the existing public and private water resources, both surface and groundwater, of the study area, an examination of present water use in the area, projections of future water requirements, and a determination of possible alternative approaches that can be taken in order to meet future water supply needs.” KRS 151.114(1). Although the General Assembly enacted the enabling statute for this program in 1990, the NREPC was unable to implement the program until the mid-1990s. The Planning Council was not established until 1997.

³⁹ The Planning Council, *Fayette County 20 Year Comprehensive Water Supply Plan* (July 1999) at 176.

⁴⁰ *Id.*

⁴¹ *Id.* at 179.

⁴² *Id.* at 200-208.

On July 8, 1999, shortly before the Planning Council released its report, the LFUCG Council established an ad hoc committee to “gather input from all principals involved in water supply issues . . . and to gather any other available water supply analyses for the purpose of endorsing water supply options which offer the greatest value to the people of Fayette County and the Kentucky River Basin.”⁴³ In response to this action, Kentucky-American suspended the pipeline project pending completion of the Council review and announced its intention to comply with the Council’s recommendations.⁴⁴

After four months of reviewing studies and hearing evidence from various experts, the LFUCG Council established a water supply plan for Lexington-Fayette County. In the resolution creating this plan,⁴⁵ the LFUCG Council found that the Lexington-Central Kentucky area faced a water supply deficit of 3 billion gallons in the year 2020 should a drought of record occur. It further found that “to maintain unrestricted demand there is a present water treatment capacity deficit of approximately 9.36 million gallons daily (mgd) within the service area of Kentucky-American Water

⁴³ LFUCG Council Resolution No. 390-99 (July 8, 1999). LFUCG Council also formed a technical advisory group which included the DOW, Kentucky Geological Survey, the Attorney General, the Planning Council, KRA, Neighbors Opposed to Pipeline Extravagance (“NOPE”), U.S. Army Corps of Engineers (“Corps”), the Kentucky Department of Local Government, the Water Resources Development Commission, the Bluegrass Area Development District, the Chamber of Commerce, Sierra Club, LFUCG officials, and Kentucky-American. See *Efforts to Ensure Adequate Sources of Supply*, *supra* note 30, at 16-17.

⁴⁴ See Andy Mead, *Ky-American Pipeline Put on Hold*, Lexington Herald-Leader, July 28, 1999, at A1, available at 1999 WLNR 1922961; Andy Mead, *Proposal for Pipeline Defended But Water Company Set to Follow Council’s Lead*, Lexington Herald-Leader, Nov. 9, 1999, at B1, available at 1999 WLNR 1915211.

⁴⁵ LFUCG Council Resolution No. 679-99 (Dec. 9, 1999).

Company, which is projected to rise to approximately 18-20 million gallons daily by 2020.”⁴⁶

The LFUCG Council recommended the Lexington-Fayette County’s future water supply should come from the Kentucky River because this solution is cost effective, supports a regional supply effort, supports potential recreation, and ensures the maintenance of the existing water infrastructure.⁴⁷ It established certain benchmarks for measuring progress on the development of the existing Kentucky River infrastructure and a timeline for achieving those benchmarks.⁴⁸ As a result of the LFUCG Council’s Resolution, Kentucky-American shifted its focus back from purchasing water from LWC⁴⁹ and to the Kentucky River.

On February 19, 2001, the Commission, through its Executive Director, requested that Kentucky-American provide a detailed report on its efforts to ensure “adequate sources of supply to meet customer demand through 2020.”⁵⁰ Thirty days later Kentucky-American submitted such a report in which it described the events that occurred since August 21, 1997 and the reasoning behind its current plans for ensuring adequate sources of supply.

⁴⁶ *Id.* at 2.

⁴⁷ *Id.* at 3.

⁴⁸ In hindsight, this timeline appears overly optimistic. For example, the timeline called for the completion of environmental studies and engineering designs for Lock and Dam No. 10 and KRA’s acquisition of Dam No. 7 from the U.S. Corps of Engineers before 2002. *Id.* at 3-4. KRA did not approve any study or design until December 11, 2002. KRA did not acquire Dam No. 7 until May 2006. *FERC Issues Order to Lock 7*, US Federal News, June 28, 2007, *available at* 2007 WLNR 12265168. The LFUCG Council also recommended completion of the construction work on Dam No. 10 by 2004, but the project may not be completed until 2010. See Transcript of 3/5/2008 Hearing at 98.

⁴⁹ See *Efforts to Ensure Adequate Sources of Supply*, *supra* note 30, at 20.

⁵⁰ Letter from Thomas M. Dorman, Executive Director, Public Service Commission, to Roy M. Mundy, President, Kentucky-American Water Company (Feb. 19, 2001).

In its report, Kentucky-American raised several questions as to the feasibility and adequacy of the Kentucky River solution.⁵¹ It contended that a Kentucky River solution is contingent upon a series of decisions of several different governmental and private entities and their subsequent implementation. Asserting that it could not “unilaterally implement a project to increase the supply of the Kentucky River,” Kentucky-American noted that it bore “the ultimate responsibility to ‘adequately, dependably and safely supply the total reasonable requirements of its customers under maximum consumption through the year 2020.’”⁵²

Kentucky-American’s report led the Commission to initiate an investigation into “the feasibility and advisability of Kentucky-American’s proposed solution to its water supply deficit.”⁵³ The Commission identified the following purposes for this investigation:

- Identify the measures necessary to enable the Kentucky River to adequately supply the total requirements of Kentucky-American’s customers in 2020;
- Ascertain their cost and the likelihood of their implementation in sufficient time to meet 2020 customer demand;
- Compare the cost-effectiveness and feasibility of these measures with other alternatives; and
- Assess Kentucky-American’s ability to meet its short-term deficit.⁵⁴

⁵¹ *Efforts to Ensure Adequate Sources of Supply*, *supra* note 30, at 30 – 31.

⁵² *Id.* at 30.

⁵³ Case No. 2001-00117, *An Investigation Into the Feasibility and Advisability of Kentucky American Water Company’s Proposed Solution to its Water Supply Deficit* (Ky. PSC May 15, 2001). The parties to this proceeding included Kentucky-American, the AG, LFUCG, Kentucky Industrial Utility Customers, Inc. (“KIUC”), NOPE, and the Consortium.

⁵⁴ *Id.* at 2-3.

While the Commission's investigation was proceeding, a group of central Kentucky public and municipal utilities⁵⁵ under the auspices of the Bluegrass Area Development District formed the Bluegrass Water Supply Consortium ("Consortium") to study central Kentucky's water supply needs and possible solutions. After obtaining \$545,000 in federal and state grants,⁵⁶ the Consortium retained a team of independent consultants to prepare a comprehensive regional study. In March 1, 2002, the Consortium advised the Commission of the commencement of the study. While not expressly suspending the investigation to permit the Consortium to proceed with its study, the Commission limited the activities of the investigation to permit the Consortium adequate time to proceed with its efforts.

On February 27, 2004, the consultants published "Final Report for the Water Regionalization Feasibility Study" (the "Regional Report"). They found that, based upon projected 2020 demands and existing water supplies, the Consortium members would require an additional 36 MGD of treatment capacity to meet their maximum day demands under non-drought conditions and an additional 102 MGD to meet unrestricted demand under drought of record conditions.⁵⁷ The consultants further found that, assuming mandatory restrictions on water use, 67 MGD of additional capacity was

⁵⁵ These included Berea College Utilities; city of Cynthiana; city of Danville; Frankfort Water and Electric Board; Georgetown Municipal Water and Sewer Service; city of Harrodsburg; Kentucky-American; city of Lancaster; city of Lawrenceburg; Mt. Sterling Water and Sewer Commission; Nicholasville Combined Utilities; city of Paris; Richmond Water, Gas & Sewerage; Shelbyville Municipal Water and Sewer Commission; city of Versailles; city of Wilmore; and Winchester Municipal Utilities Commission.

⁵⁶ Case No. 2001-00117, Bluegrass Water Supply Consortium's Progress Report (filed Mar. 1, 2002) at 1.

⁵⁷ O'Brien & Gere, Engineers, Inc. *Regional Report* at 14 (Feb. 27, 2004).

needed to meet customer demands in a drought of record.⁵⁸ After taking into account the effect of water credits on a water utility's ability to withdraw water⁵⁹ and anticipated improvements at Dam No. 10, the Regional Study concluded that Consortium members required an additional supply of 45 MGD to meet water demands in 2020.⁶⁰

To meet this demand, the consultants identified more than 40 water supply alternatives. These alternatives included various Ohio River and Kentucky River sources, groundwater sources, renovation or expansion of existing reservoirs, and construction of new reservoirs.⁶¹ They included the purchase of finished water from LWC, Cincinnati Water Works, Northern Kentucky Water District, Carrollton Utilities, and the Greater Fleming County Regional Water Commission.⁶² The alternatives were evaluated on the following criteria: water supply capacity, raw water quality, cost, implementability/risk of delay, and flexibility.⁶³ After considerable review of the various alternatives, including interviews with the potential suppliers, the consultants identified the construction of a 45 MGD water treatment facility on Pool 3 of the Kentucky River with supplemental capability to treat water from the Ohio River as the preferred alternative.⁶⁴

⁵⁸ *Id.*

⁵⁹ *Id.* at 15.

⁶⁰ *Id.* at 16.

⁶¹ *Id.* at 19.

⁶² *Id.* at 20.

⁶³ *Id.* at 17.

⁶⁴ *Id.* at 21-22.

The consultants also recommended the creation of a grid network of treated water pipelines within central Kentucky. They found that such a network would reduce the need for individual water utilities to construct facilities to meet their own peak demand, optimize the use of existing sources, enhance the possibility for Consortium members to receive public financing, and enhance the reliability of water service by allowing members to receive water from multiple sources.

On August 24, 2004, several Consortium members created a water commission to be known as the Bluegrass Water Supply Commission (“BWSC”).⁶⁵ Following its creation, the BWSC sought funding to implement the recommendations contained in the Regional Report.⁶⁶ It advised the Commission in early 2005 that its initial focus was to build an interconnection between Kentucky-American and the Frankfort Electric and Water Plant Board (“FEWPB”) to allow Kentucky-American to use some of FEWPB’s excess capacity. It further advised of its intent to construct a regional water treatment plant as recommended in the Regional Report and its expectation that Kentucky-American would become a contractual partner.⁶⁷

In a report to the Commission in November 2004, Kentucky-American provided the following assessment of BWSC’s efforts and its role in those efforts:

⁶⁵ The original BWSC members are the cities of Cynthiana, Frankfort, Georgetown, Lancaster, Mt. Sterling, Nicholasville, Paris, and Winchester. LFUCG is also a member. See Case No. 2001-00117, BWSC’s Response to the Commission’s Order of February 14, 2005 (Ky. PSC filed Apr. 1, 2005). Since its creation, the city of Berea has joined the Commission. BWSC’s Response to Citizens For Alternative Water Solutions’ (“CAWS”) Data Request, Item 2. These members established BWSC as a joint water supply commission since KRS 74.430 limits the composition of a joint water supply commission to cities, water districts, water associations, and federal agencies. Kentucky-American was not eligible for membership.

⁶⁶ For a discussion of the BWSC’s initial funding efforts, see Case No. 2001-00117, BWSC’s Response to the Commission’s Order of February 14, 2005 at 3-4.

⁶⁷ Case No. 2001-00117, BWSC’s Response to the Commission’s Order of February 14, 2005 at 5, 8.

Since the March 2001 report, it has become clear that the course of action that will most likely produce a solution to the water supply problem is through the regional activities. Although the schedule may not be as aggressive as KAW [Kentucky-American] would like, progress is being made and the concept appears to have widespread stakeholder support. The proposed solution by the BWSC minimizes the dependence on the KRA which has not been able to achieve its proposed schedule. The proposed solution maximizes the use of the Kentucky River, thus providing a stable revenue stream for the KRA and achieving the proposed intentions of the LFUCG. KAW continues to support and partner with the BWSC, but is prepared to pursue its own solution if the regional effort flounders. The next few months will be critical for the BWSC, in development of by-laws, water sales agreements and a funding plan. The BWSC is prudently seeking professional assistance in developing those critical pieces.⁶⁸

Kentucky-American also cautioned that the situation required results and alluded to the possibility of acting unilaterally to remedy the supply deficit if BWSC failed to produce timely results:

The BWSC has made progress, and is now established as [a] formal organization with a plan and a determination to implement a solution with widespread support. If at some future time, however, it is apparent that the BWSC efforts flounder, KAW will come to the PSC with an independent solution. It cannot be said at this time whether KAW would simply implement an independent version of the BWSC solution, resume the BWP [Bluegrass Water Pipeline], or take up some other alternative. Although KAW has made short-term improvements that allow it to meet its customer's [sic] unrestricted maximum demands, KAW realizes that those short-term improvements will only last through the 3-5 year time frame. If the BWSC does not have a funding plan in place in the next year, with proposed construction of a first phase to be completed within three years, KAW will have to re-evaluate our partnership with the BWSC as KAW recognizes that the responsibility to develop an adequate

⁶⁸ Case No. 2001-00117, Kentucky-American Water Company, *Source of Supply Report* (filed Nov. 8, 2004) at 33-34.

source of water supply for KAW's customers is the direct obligation of KAW itself.⁶⁹

On March 14, 2006, the Commission held a conference in Case No. 2001-00117 to discuss and assess the current status of plans and efforts to resolve the water supply deficit and the positions of the parties. At this conference, BWSC advised that it had yet to develop the funding sources sufficient to support the recommendations of the Regional Report. Kentucky-American then stated its intention to proceed to construct a water treatment facility in the area of Pool 3 of the Kentucky River and a transmission main to transport water from this treatment facility to its Central Division distribution system.⁷⁰ It further stated that an application for a Certificate of Public Convenience and Necessity for these facilities would be filed within the following twelve months.

After its announcement, Kentucky-American sought to engage the BWSC's participation in the project.⁷¹ On February 27, 2007, after extended negotiations, Kentucky-American and the BWSC entered into an agreement in which BWSC agreed to pay for the cost of incremental engineering design work necessary to increase the capacity of the proposed water treatment plant from 20 MGD to 25 MGD.⁷² On November 20, 2007, after Kentucky-American filed its application, it granted an option to the BWSC to own an undivided twenty percent interest in the proposed facilities, to

⁶⁹ *Id.* at 35.

⁷⁰ Case No. 2001-00117, Memorandum from Gerald Wuetcher, Assistant General Counsel, to Case File (April 24, 2006) at 3-4. The conference represented the last significant action in Case No. 2001-00117. After Kentucky-American filed its application for a Certificate, the Commission found that Case No. 2007-00134 provided a more appropriate forum for resolving the many overlapping issues present in both proceedings, ended its investigation, and removed Case No. 2001-00117 from its docket.

⁷¹ Direct Testimony of Linda C. Bridwell at 26.

⁷² Application, Exhibit E.

include the water treatment plant and transmission main connecting the plant to Kentucky-American's distribution system.⁷³ If BWSC exercised its rights under the option, Kentucky-American would build the proposed water treatment plant with an initial capacity of 25 MGD. Under its terms, the option terminated on April 1, 2008.⁷⁴

Kentucky-American's Proposed Facilities

To resolve its water supply deficit, Kentucky-American proposes the construction of a 20 MGD water treatment plant, 30.59 miles of transmission main, and associated facilities (collectively, the "Facilities").⁷⁵ A map showing the location of the Facilities is attached as Appendix A.

The proposed water treatment plant, which will be known as Kentucky River Station II ("KRS II"), will be located on the Kentucky River near Pool 3 approximately two miles north of Swallowfield along the Franklin and Owen county line. It has an initial design capacity of 20 MGD, but is capable of expansion in 5 MGD increments to 30 MGD.⁷⁶ It is a conventional treatment plant that uses rapid mix, flocculation, sedimentation, filtration, and disinfection as treatment.⁷⁷ Although a chemical disinfection process primarily will be used, KRS II is designed to accommodate the

⁷³ Transcript of 11/26/2007 Hearing, LWC Exhibit 6.

⁷⁴ The record does not indicate whether Kentucky-American has extended the time in which the option remains effective.

⁷⁵ Kentucky-American's application states that it will construct approximately 160,000 feet of transmission main. The specifications filed by Kentucky-American indicate that the transmission main is approximately 161,000 feet in length. Based upon the Commission's GIS analysis of the proposed route, the actual length of Kentucky-American's proposed transmission main is 30.59 miles.

⁷⁶ Gannett Fleming, *Kentucky River Pool 3 Water Treatment Plant: Basis of Design Report* (revised ed. March 2007) (hereinafter *Basis of Design Report*) at 1.

⁷⁷ For a more detailed description of the proposed treatment plant's processes, see Direct Testimony of Richard C. Svindland at 7-8.

addition of an ultraviolet light disinfection system.⁷⁸ Its main building will contain wet chemistry and microbiology laboratories. It will be equipped with a finished water high service pump station that consists of four pumps with an initial reliable design capacity of 24 MGD and a 30 MGD ultimate design capacity and with a standby electric generator to permit plant operation even during power outages.⁷⁹ Also located on the KRS II site will be a wastewater treatment system, consisting of two circular bath washwater clarifiers, a residual thickener, a residual dewater facility, and a sanitary disposal system.⁸⁰

KRS II will draw its water from Pool 3 of the Kentucky River. A raw water intake structure, consisting of intake screens and 150 feet of raw water intake main, will be located on the Kentucky River at Pool 3 in northern Franklin County near the Franklin and Owen county line. A raw water pumping station, consisting of four pumps with an initial reliable design capacity of 24 MGD and an ultimate design capacity of 30 MGD, will pump raw water into the proposed water treatment plant.

Kentucky-American initially plans to operate KRS II primarily as a supplemental supply. Throughout the non-summer months, Kentucky-American anticipates KRS II's average daily production will be 6 MGD—the plant's most efficient minimum production rate.⁸¹ It has obtained a permit from DOW to withdraw water from Pool 3 of the

⁷⁸ *Basis of Design Report*, *supra* note 76, at 38, 41.

⁷⁹ *Id.* at 44-46, 74-76.

⁸⁰ *Id.* at 2.

⁸¹ Direct Testimony of Linda C. Bridwell at 32.

Kentucky River at a rate of 20 MGD from June 1 through August 31 and at a rate of 6 MGD for all other periods.⁸²

To connect KRS II to its Central Division's distribution system, Kentucky-American proposes the construction of approximately 160,000 linear feet of 42-inch ductile iron transmission main.⁸³ This main will generally follow established transportation corridors of US Highway 127, Kentucky Route 2919, Kentucky Route 1707, Kentucky Route 1202, US Highway 460, and Kentucky Route 1973.⁸⁴ The length of the main requires that a booster pumping station and water storage tank be located along the proposed route. Kentucky-American proposes the construction of a 20 MGD booster pumping station that is expandable to 30 MGD and a 3 MG water storage tank.⁸⁵

Kentucky-American has obtained all required permits from DOW for construction of the facilities.⁸⁶ The Corps has authorized the construction of the proposed raw water intake structure and the proposed transmission main's fifty-eight streams and wetlands crossings.⁸⁷ The Kentucky Transportation Cabinet has issued two of the three utility encroachment permits that the proposed transmission main requires.⁸⁸ Kentucky-

⁸² Application, Exhibit G.

⁸³ Direct Testimony of Nick C. Rowe at 3; *see supra n. 75*.

⁸⁴ Application, Exhibit D.

⁸⁵ Direct Testimony of Nick C. Rowe at 3; Strand Associates, Inc., *Contract 1-2007: Franklin County 20 MGD Booster Pump Station and 3 MG Storage Tank* (February 2007).

⁸⁶ Rebuttal Testimony of Richard C. Svindland at 2.

⁸⁷ Letter from Greg McKay, U.S. Army Corps of Engineers – Louisville District, to Linda C. Bridwell, Kentucky-American Water Company (Nov. 15, 2007).

⁸⁸ Rebuttal Testimony of Richard C. Svindland at 2.

American has secured all land for the raw water intake, water treatment plant, booster pump stations and water storage tanks.⁸⁹ It has obtained 10 of the 104 easements from private landowners that will be required for construction of the proposed transmission main.⁹⁰

Kentucky-American has solicited and received bids for construction of the proposed facilities. Based upon these bids, Kentucky-American currently estimates the total cost of these facilities at \$155,857,000.⁹¹ It estimates the total annual cost of operating the proposed facilities at \$6,024,957.⁹²

LWC's Water Supply Proposal

LWC is a for-profit corporation that owns and operates facilities for the treatment and distribution of water to more than 850,000 persons in Jefferson, Bullitt, Oldham, Taylor and Nelson counties.⁹³ It provides wholesale water service to West Shelby Water District, North Shelby Water Company, North Nelson Water District, and the cities of Taylorsville, Mount Washington, and Lebanon Junction.⁹⁴ It has a current treatment capacity of 240 MGD and has average daily water sales of 130 MG. By virtue of Louisville Metro's ownership of all of LWC's outstanding stock, LWC's operations are for

⁸⁹ *Id.*

⁹⁰ Kentucky-American's Response to November Hearing Data Requests, Item 1. Kentucky-American has advised the Commission that 16 landowners have refused to grant an easement or will not consider such grant until a Certificate is issued for the proposed transmission main.

⁹¹ Kentucky-American's Response to Post-March Hearing Requests (filed Mar. 12, 2007), Item 2.

⁹² Direct Testimony of Linda C. Bridwell at 31.

⁹³ LWC Motion for Full Intervention at 1.

⁹⁴ *Id.*

the most part exempted from Commission jurisdiction.⁹⁵ Its wholesale contracts with public utilities for utility service, however, are subject to Commission jurisdiction.⁹⁶

Since 2003, LWC has offered several proposals for providing water service to the central Kentucky area. On October 1, 2007, LWC filed with the Commission its latest proposal for providing water service to Kentucky-American.⁹⁷ This proposal involves the construction of approximately 42 miles of 36-inch transmission main along Interstate Highway 64 from the intersection of Interstate Highway 64 and Kentucky Highway 53 in Shelby County to the intersection of Interstate Highway 64 and Newtown Pike in Fayette County, two booster pumping stations, and a 3 MG water storage tank.⁹⁸ The design capacity of this transmission main would be 25 MGD with the ability to provide a maximum capacity of 30 MGD. The total estimated cost of the facilities is \$88.1 million.⁹⁹ LWC would not own the proposed facilities. Its proposal assumes that Kentucky-American or one or more third parties would own and operate the proposed facilities.

Generally speaking, LWC's current proposal involves it selling water at a rate of \$1.71 per 1,000 gallons at the delivery point to be constructed in Shelby County. This rate would remain in effect until December 31, 2015. On January 1, 2016, the water rate

⁹⁵ See *McClellan v. Louisville Water Co.*, 351 S.W.2d 197, 199 (Ky. 1961).

⁹⁶ *Simpson County Water Dist. v. City of Franklin*, 872 S.W.2d 460, 463 (Ky. 1994).

⁹⁷ Prefiled Rebuttal Testimony of Gregory C. Heitzman at 4-7.

⁹⁸ *Id.* at 5. During the course of this proceeding, the proposed route of the transmission main has been revised several times. Based upon the most recent description of the route, which Mr. Heitzman provided in his Supplemental Testimony and using the Commonwealth's Geographic Information System, the Commission has calculated the length of the transmission main route to be 44.85 miles. This is the distance used by the Commission to calculate the net present value of the LWC Pipeline proposal.

⁹⁹ *Id.*

would be adjusted by the cumulative change in the Consumer Price Index – All Urban Consumers (“CPI-U”) from December 31, 2007 to December 31, 2015. After December 31, 2016, LWC could adjust the rate annually, but the adjustment would not exceed the annual CPI-U plus 2 percent.¹⁰⁰

LWC’s proposal would allow any water supplier to reserve capacity at the Shelby County delivery point. To reserve this capacity, however, the water supplier must make a minimum purchase of one-half of its reserve capacity. For example, a reservation of 20 MGD requires the minimum purchase of 10 MGD. If capacity is available, a water supplier may purchase a quantity greater than its reserved capacity, but will be subject to additional charges.¹⁰¹ A minimum purchase of 5 MGD at the Shelby County delivery point is necessary before LWC will construct the required delivery facilities. The water supplier must commit to purchase for a 50-year term.¹⁰²

The proposal does not provide for a reservation of LWC’s production capacity. Water suppliers would be subject to the same availability of water as LWC’s retail customers. LWC offers to “maintain an available production capacity that is 15 percent above the maximum daily system demand to meet the DOW standards and future growth needs.”¹⁰³

In February 2008, following the November hearing in this matter and our subsequent Order regarding presentation of additional evidence, LWC announced that it had joined in a partnership with FEWPB, North Shelby County Water District, West

¹⁰⁰ *Id.* at 6.

¹⁰¹ *Id.*

¹⁰² *Id.*

¹⁰³ *Id.*

Shelby County Water District, U.S. 60 Water District, and Shelbyville Water and Sewer Commission “to construct a pipeline that will provide additional water to Shelby County and Franklin County water providers.”¹⁰⁴ This partnership, which refers to itself as the Shelby-Franklin Water Management Group (“SFWMG”), has requested proposals for a feasibility study for the construction of a pipeline along Interstate Highway 64.¹⁰⁵

PROCEDURE

On March 30, 2007, Kentucky-American submitted to the Commission its application for a Certificate of Public Convenience and Necessity. The Commission established this docket to consider that application and subsequently permitted the following persons to intervene: the AG, BWSC, CAWS,¹⁰⁶ KRA, KIUC,¹⁰⁷ LFUCG, and LWC.

On August 1, 2007, after notice to all parties and receiving no comments or objections, the Commission incorporated by reference the records of Cases No. 1993-00434 and No. 2001-00117 into the record of this proceeding.

In September 2007, the Commission held public hearings in Frankfort, Owenton, and Lexington, Kentucky to receive public comment on Kentucky-American’s

¹⁰⁴ Prefiled Supplemental Testimony of Gregory C. Heitzman at 7.

¹⁰⁵ *Id.* at 7 and Exhibit 7.

¹⁰⁶ CAWS is a non-profit corporation that is organized under the laws of Kentucky and “dedicated to the development of environmentally sound, fiscally responsible, socially just solutions to Central Kentucky’s water needs.” CAWS’s Motion for Full Intervention at 2.

¹⁰⁷ KIUC is an association of the largest industrial customers on Kentucky-American’s system and includes Toyota Motor Manufacturing Company, Square D. Company, and Lexmark International.

application.¹⁰⁸ We further encouraged the public to submit written comment through paper or electronic medium and accepted such comments until March 20, 2008.¹⁰⁹

After affording all parties an adequate opportunity to conduct discovery and submit written testimony, the Commission held an evidentiary hearing in this matter on November 26-28, 2007.¹¹⁰ At this hearing the following persons testified: Nick O. Rowe, President, Kentucky-American; Linda C. Bridwell, Manager of Engineering of Kentucky and Tennessee, Southeast Region, American Water Company; Louis M. Walters, Assistant Treasurer, American Water Works Company; Richard C. Svindland, Senior Consultant, Integrated Science and Engineering, Inc.; Cy R. Whitson, Senior Environmental Scientist, Gannett Fleming, Inc.; Harold Walker III, Manager, Financial Studies of the Valuation and Rate Division, Gannett Fleming, Inc.; Michael A. Miller, Assistant Treasurer, Kentucky-American; Gregory C. Heitzman, President, LWC;

¹⁰⁸ Pursuant to the Commission's Order of August 2, 2007, Kentucky-American published notice of these hearings in newspapers of general circulation in its service area and those areas that the proposed facilities would affect. See Kentucky-American's Notice of Filing of Publication Request.

¹⁰⁹ The Commission has received approximately 300 written comments from the public regarding the proposed facilities. In addition, we have received comments from several state representatives and senators; the members of the LFUCG Council; the mayors of Midway, Owenton, and Versailles; the Simpsonville City Council; the fiscal courts of Franklin, Jessamine, Owen, and Scott counties; the Spencer County Judge/Executive; the Owen County Industrial Authority; the Franklin County Planning Commission; FEWPB; the U.S. 60 Water District; and civic and community organizations such as Commerce Lexington, Envision Franklin County, and the Jessamine and Owen County Chambers of Commerce. The Commission has also received several petitions regarding the application.

¹¹⁰ Pursuant to the Commission's Order of April 20, 2007, Kentucky-American published notice of this hearing in a newspaper of general circulation in all areas in which it provided water service. See Transcript of 11/26/07 Hearing, Kentucky-American Exhibit 1. By our Order of September 26, 2007, the Commission gave written notice of this hearing to the planning commissions of Fayette, Franklin, Owen and Scott counties in accordance with KRS 100.324(1).

Edward D. Wetsel, Executive Vice President, R.W. Beck, Inc.; and Scott J. Rubin, Consultant to the AG.¹¹¹

Following this hearing, the Commission directed certain parties to submit additional information.¹¹² Upon the filing of LFUCG's "emergency" motion, we allowed the record of this proceeding to remain open until February 11, 2008 to receive any additional evidence regarding alternative means to expand Kentucky-American's water supply. Although LFUCG provided no additional evidence, LWC and CAWS did.

Upon receiving this additional evidence, the Commission held a supplemental evidentiary hearing on March 5-6, 2008. At this hearing, the following persons testified: Martin B. Solomon, a former Professor of Business and Economics, University of Kentucky; Mr. Heitzman; Dr. Wetsel; Ms. Bridwell; Mr. Miller; and Mr. Walker. Following the completion of this hearing, all parties except KIUC submitted written briefs.

DISCUSSION

Legal Standard

The Commission is a creature of statute and possesses only those powers which are expressed in statute or which may be reasonably inferred from those same

¹¹¹ Elizabeth Felgendreher filed written testimony on CAWS's behalf. All parties to the proceeding stipulated to the submission of her testimony without her personal appearance for cross-examination. Transcript of 11/28/2007 Hearing at 127-128.

¹¹² Order of December 21, 2007. The Commission required Kentucky-American, BWSC, LFUCG, and LWC, *inter alia*, to advise the Commission of all reasonable alternatives that were considered by them within the past five years to address the central Kentucky water supply issue; and to provide a summary of all the contacts made by and between any of the parties with each other that explored the feasibility of a public-private partnership to provide an adequate supply of water to central Kentucky customers.

statutes.¹¹³ The Commission's purview is narrowly confined to the "rates" and "services" of utilities, but within that context, the Commission's authority is exclusive.¹¹⁴

No utility may construct any facility to be used in providing utility service to the public until it has obtained a Certificate from this Commission.¹¹⁵ To obtain such Certificate, the utility must demonstrate a need for such facilities and an absence of wasteful duplication.¹¹⁶

"Need" requires:

a showing of a substantial inadequacy of existing service, involving a consumer market sufficiently large to make it economically feasible for the new system or facility to be constructed and operated.

. . . [T]he inadequacy must be due either to a substantial deficiency of service facilities, beyond what could be supplied by normal improvements in the ordinary course of business; or to indifference, poor management or disregard of the rights of consumers, persisting over such a period of time as to establish an inability or unwillingness to render adequate service.¹¹⁷

"Wasteful duplication" is defined as "an excess of capacity over need" and "an excessive investment in relation to productivity or efficiency, and an unnecessary multiplicity of physical properties."¹¹⁸ To demonstrate that a proposed facility does not

¹¹³ *Boone County Water v. Public Service Comm'n*, 949 S.W. 2d 588, 591 (Ky. 1997); *Public Service Comm'n v. Cities of Southgate, Highland Heights*, 268 S.W.2d 19, 20 (Ky. 1954) (Commission's authority includes authority "implied necessarily from the statutory powers of the commission.")

¹¹⁴ KRS 278.040(2); *Smith v. S. Bell Tel. & Tel. Co.*, 104 S.W.2d 961, 963 (Ky. 1937) (It is the "intention of the legislature to clothe the [Commission] with complete control over rates and services of utilities.")

¹¹⁵ KRS 278.020(1).

¹¹⁶ *Kentucky Utilities Co. v. Pub. Serv. Comm'n*, 252 S.W.2d. 885 (Ky. 1952).

¹¹⁷ *Id.* at 890.

¹¹⁸ *Id.*

result in wasteful duplication, we have held that the applicant must demonstrate that a thorough review of all alternatives has been performed.¹¹⁹ Selection of a proposal that ultimately costs more than an alternative does not necessarily result in wasteful duplication.¹²⁰ All relevant factors must be balanced.¹²¹

NEED FOR THE PROPOSED FACILITIES

Adequacy of Existing Facilities

To determine the adequacy of existing service, the Commission is guided by KRS 278.010(14), which defines “adequate service” as

having sufficient capacity to meet the maximum estimated requirements of the customer to be served during the year following the commencement of permanent service and to meet the maximum estimated requirements of other actual customers to be supplied from the same lines or facilities during such year and to assure such customers of reasonable continuity of service.

To further define a water utility’s obligation to procure an adequate source of supply, the Commission has promulgated 807 KAR 5:066, Section 10(4), which provides that “[t]he quantity of water delivered to the utility’s distribution system from all source facilities shall be sufficient to supply adequately, dependably and safely the total reasonable requirements of its customers under maximum consumption.”

¹¹⁹ Case No. 2005-00142, The Joint Application of Louisville Gas and Electric Company and Kentucky Utilities Company for the Construction of Transmission Facilities in Jefferson, Bullitt, Meade, and Hardin Counties, Kentucky (Ky. PSC Sept. 8, 2005).

¹²⁰ See *Kentucky Utilities Co. v. Pub. Serv. Comm’n*, 390 S.W.2d 168, 175 (Ky. 1965). See also Case No. 2005-00089, The Application of East Kentucky Power Cooperative, Inc. for a Certificate of Public Convenience and Necessity to Construct 138 kV Transmission Line in Rowan County, Kentucky (Ky. PSC Aug. 19, 2005).

¹²¹ Case No. 2005-00089, Order dated August 19, 2005, at 6.

Kentucky-American argues that it presently lacks sufficient capacity to meet present and projected maximum consumption requirements under normal and drought of record conditions for its Central Division. This lack of capacity has two components: insufficient treatment capacity to meet projected maximum day demands under normal weather conditions and insufficient water supply to meet projected maximum demands under drought of record conditions.

KRS I and RRS, the treatment facilities that serve Kentucky-American's Central Division, have a combined rated production capacity of 65 MGD.¹²² Based upon its present demand projections, Kentucky-American's maximum day demand for its Central Division in 2010 will be 75.33 MGD. Based upon the 20-year planning horizon that Kentucky-American uses,¹²³ this demand is projected to increase to 86.6 MGD by 2030.¹²⁴ Accordingly, Kentucky-American argues, a supply deficit of 10.33 MGD will exist in 2010 and will increase to 21.6 MGD by 2030.

During drought conditions, the combined rated capacity of these treatment plants is reduced because of limitations on their raw water supply. Both plants draw water from Pool 9 of the Kentucky River. During drought conditions, the maximum amount of

¹²² Kentucky-American has shown that, under the most favorable conditions, the plants can produce water at a combined rate of 80 MGD and maintain good water quality. This production rate is not considered reliable. DOW has indicated that, if necessary to meet demand, Kentucky-American has temporary approval to operate these treatment plants at higher rates as long as all health standards are met and adequate disinfection is maintained. See *Water Supply Study*, *supra* note 7, at 11. DOW has granted Kentucky-American a temporary re-rating of KRS I to 45 MGD during summer months. According to Kentucky-American, expected regulatory revisions are likely to eliminate this re-rating as early as 2010. See Direct Testimony of Linda C. Bridwell at 30.

¹²³ We continue to find that Ms. Bridwell's use of a 20-year forecast is reasonable. See Case No. 1993-00434, August 21, 1997 Order at 5 directing Kentucky-American to utilize a 20-year planning horizon; Bridwell Rebuttal Testimony, at 3-4 (Nov. 13, 2007). Mr. Heitzman, on behalf of LWC, agrees that the use of a twenty-year planning period is reasonable. Transcript of 11/28/07 Hearing, Volume III, at 181.

¹²⁴ Direct Testimony of Linda C. Bridwell at 27-28.

water that Pool 9 will safely yield is approximately 35 MGD.¹²⁵ Kentucky-American projects drought average day demand in 2010 to be 55 MGD and to grow to 63.07 MGD in 2030.¹²⁶ Under drought of record conditions, Kentucky-American asserts a supply deficit of 20 MGD will exist in 2010 and will grow to 28 MGD by 2030.¹²⁷

Except for CAWS, no party to this proceeding has disputed the reasonableness or reliability of Kentucky-American's demand projections or the existence of a supply deficit. While stating that "there may be room for further refinement" in Kentucky-American's model, the AG acknowledges that it "produces sufficiently reliable results" for estimating demand and concedes that a "substantial capacity deficit" exists.¹²⁸ LFUCG,¹²⁹ BWSC¹³⁰ and LWC¹³¹ also acknowledge the existence of a serious capacity deficit.

CAWS argues that Kentucky-American's estimate of its supply deficit is erroneous because its projections fail to consider restrictions upon demand in the event

¹²⁵ Kentucky-American's current water withdrawal permit limits water withdrawals to 60 MGD in the months of November through April and 63.0 MGD in the months of May through October. Ms. Bridwell stated in her testimony attached to the Application that the estimated safe yield of Pool 9 of the Kentucky River during maximum day demand is 61 MGD, which is less than could be drawn under the permit. See Direct Testimony of Linda C. Bridwell, Table 2. During periods of low river flow and drought conditions, Kentucky-American's allowable withdrawals are incrementally reduced to as low as 30 MGD. Kentucky-American has generally been successful in obtaining temporary modifications to its permit to increase the minimum allowable withdrawal to 35 MGD. See *Water Supply Study*, *supra* note 7, at 9.

¹²⁶ Direct Testimony of Linda C. Bridwell at Table 2.

¹²⁷ *Id.*

¹²⁸ AG Brief at 8; see also Direct Testimony of Scott J. Rubin at 5 ("The demand for water by Kentucky-American's customers already exceeds the safe yield of Kentucky-American's supplies during non-drought conditions, and is nearly twice as high as the safe yield during drought conditions.")

¹²⁹ LFUCG Brief at 4.

¹³⁰ BWSC Brief at 4-7.

¹³¹ LWC Brief at 8; Transcript of 11/28/2007 Hearing at 323.

of a drought. It asserts that demand projections based upon the assumption of unrestricted demand “results in the inflation of demand numbers.”¹³² It argues that a more realistic assumption should include conservation measures, including requests for voluntary curtailment of water usage and escalating restrictions on outdoor water usage.

The Commission agrees that the concept of “adequate service” does not require planning for unrestricted demand in a drought of record. To suggest that the definition of “adequate service” in KRS 278.010(14) requires a water utility to provide sufficient capacity to allow every customer to use every available faucet, spigot, shower, and toilet in its service area simultaneously and continuously in the midst of a drought of record is outlandish on its face. We find that the inclusion of the phrase “to assure such customers of reasonable continuity of service” limits the otherwise broad obligation to “meet the maximum estimated requirements of the customer” and permits the consideration of reasonable restrictions upon water use in establishing demand projections.¹³³

¹³² CAWS Brief at 12.

¹³³ In Case No. 1993-00434, we stated:

In addition, the AG requests the Commission to clarify whether a water utility is obligated to obtain a source of supply to meet unrestricted demand during a drought of record. As the Commission stated in response to the AG’s first issue for rehearing, 807 KAR 5:066, Section 10(4), requires a utility to have a water supply sufficient to meet the reasonable requirements of its customers under maximum consumption. The regulation includes no exception for drought conditions. While a utility may not at all times be in compliance with this regulation due to the utility’s particular circumstances, for planning purposes a utility is obligated to make every effort and take all steps necessary to be in compliance.

Order of Sept. 29, 1997 at 5-6 (emphasis added).

Our examination of Kentucky-American's projections indicates that reasonable demand restrictions have been taken into consideration. Ms. Bridwell testified that Kentucky-American's projections have incorporated ongoing conservation efforts as well as moderate restrictions during severe drought.¹³⁴ These restrictions include mandatory restrictions upon outdoor water use.¹³⁵ We therefore decline to accept CAWS's position that the projections plan for unrestricted water use under drought conditions.

CAWS also argues that Kentucky-American's projections are inconsistent with its historical usage patterns and overstate future consumption. CAWS witness Martin Solomon compared Kentucky-American's maximum daily demand for the period from 2000 to 2006 with Kentucky-American's projected maximum daily demand for the period from 2006 to 2030. Determining that average annual increase in maximum daily demand for "normal years" of the 2000-2006 period was 0.14 MGD while the average annual increase for the 2006-2030 period was 0.58 MGD, he termed the projected increase in maximum daily demand "hard to fathom."¹³⁶ Based upon his methodology, Dr. Solomon projected Kentucky-American's maximum daily demand in 2030 at 68 MGD.¹³⁷

The Commission finds that no weight should be afforded to Dr. Solomon's methodology. It is overly simplistic and fails to consider many of the factors that affect

¹³⁴ Direct Testimony of Linda C. Bridwell at 26-27; Transcript of 11/26/2007 Hearing at 142. Ms. Bridwell noted problems with estimating the use of mandatory odd/even day restrictions on outdoor water usage. Direct Testimony of Linda C. Bridwell at 29.

¹³⁵ Transcript of 11/26/2007 Hearing at 142.

¹³⁶ Direct Testimony of Martin Solomon at 3. For a description of Dr. Solomon's methodology, see Transcript of 3/6/2008 Hearing at 259-262.

¹³⁷ Transcript of 3/6/2008 Hearing at 261.

customer usage. In contrast to the other studies in this record that have considered numerous variables such as population growth, historical demand, weather, leakage, non-revenue usage, and conservation measures, Dr. Solomon's methodology involves a very simple regression analysis with a mere 3 data points.¹³⁸

The record further raises questions regarding Dr. Solomon's qualifications as an expert on water issues. While Dr. Solomon is highly educated, possesses an extremely impressive resume, and his calculations are thoughtfully presented, his career has mostly been devoted to the management of large and complex computing and communications systems. He has no special training or work experience in the area of water demand forecasting.¹³⁹ Prior to this proceeding, he had not previously prepared a water demand forecast.¹⁴⁰ He has not reviewed and is unfamiliar with virtually all of the water demand studies concerning Kentucky-American's water supply that have been performed in the last 20 years.¹⁴¹

Based upon our review of the record, the Commission finds that Kentucky-American's demand projections are reasonable. They are based upon and consistent with a methodology that we have extensively reviewed and found reasonable.¹⁴² They

¹³⁸ Dr. Solomon's testimony that no additional facilities were required to meet maximum daily demand under drought conditions until 2020 also appears to contradict CAWS's witness Elizabeth Felgendreher's testimony that "using the drought of record as the benchmark for determining need for water supply for KAWC's [Kentucky-American's] customer base, that demand would exceed available supply during a prolonged drought absent some action." Direct Testimony of Elizabeth Felgendreher at 3 (Jul. 30, 2007).

¹³⁹ Direct Testimony of Martin Solomon at 10-13.

¹⁴⁰ Transcript of 3/6/2008 Hearing at 248.

¹⁴¹ *Id.* at 248, 276.

¹⁴² See Case No. 1993-00434, Order of March 14, 1995, at 2-5.

are population driven.¹⁴³ They have been updated to reflect the results of the 2000 census, changes in bulk water sales projections, actual inflation rates, reasonable demand restrictions, and recent rate adjustments.

We further find that, due to its inadequate treatment capacity for its Central Division, Kentucky-American is unable to meet its projected maximum daily customer demands under normal conditions or in the event of a drought of record, that its existing service is substantially inadequate, and that the proposed facilities are needed to provide adequate service.

Apart from the inadequacy of treatment capacity, we also find that Pool 9 is an inadequate source of supply. In Case No. 1993-00434, after a review of several studies regarding the safe-yield of Pool 9, including the KWRRRI Kentucky River Basin Water Supply Assessment Study,¹⁴⁴ we found “3.489 billion gallons to be a reasonable estimate of the magnitude of Kentucky-American’s total annual water supply deficit for the planning horizon through the year 2020.”¹⁴⁵ Nothing in this record convinces us that these facts have changed.

Economic Feasibility of Proposed Facilities

The AG argues that Kentucky-American has failed to demonstrate that its consumer market is sufficiently large to make the construction and operation of the proposed facilities economically feasible. Economic feasibility, he argues, necessarily entails whether the economic burden on the consumers in the market will be

¹⁴³ Direct Testimony of Linda C. Bridwell at 26.

¹⁴⁴ Case No. 1993-00434, March 15, 1995 Order at 2, 4. See *supra* text accompanying notes 22-24.

¹⁴⁵ Case No. 1993-00434, August 21, 1997 Order at 2-5.

excessive.¹⁴⁶ Based upon his calculations, the AG estimates the proposed facilities would raise the current average residential bill by approximately \$8.62 per month,¹⁴⁷ which he terms significant.¹⁴⁸ He is unable to identify any evidence in the record that will address the effect of this increase on ratepayers or the economic feasibility of the proposed facilities. “In the absence of a cost cap,” he contends, “the record of economic feasibility does not provide a sufficient basis for approval of this project.”¹⁴⁹

Before addressing the AG’s principal argument, the Commission first questions the relevance of the imposition of a cost cap to the issue of economic feasibility. Ratepayers receive no additional protection by limiting a utility’s cost recovery to the expected construction cost if the record is devoid of any evidence on a proposed facility’s economic feasibility. If a Certificate is issued for the proposed facility and the facility is not economically feasible, ratepayers will still bear the cost of unfeasible facilities. Notwithstanding our other concerns regarding a cost cap, we find no legal basis or practical reason for substituting a cost cap for adequate evidence of a proposed facility’s economic feasibility.

We also note that the AG’s position conflicts with the recommendations of AG witness Scott J. Rubin. Mr. Rubin testified that a cost cap was necessary “[t]o ensure that the Pool 3 Project is the reasonable least-cost option for KAWC [Kentucky-

¹⁴⁶ AG Brief at 10.

¹⁴⁷ *Id.*

¹⁴⁸ *Id.* at 11.

¹⁴⁹ *Id.*

American].”¹⁵⁰ His stated purpose for proposing the cost cap was to avoid wasteful investment, not to ensure the economic feasibility of the proposed facilities.¹⁵¹

With regard to the issue of economic feasibility, we are of the opinion that the record must contain evidence supporting the economic feasibility of the proposed facilities. The evidence must address the effect on the demand for utility service from the rates necessary to recover the cost of the proposed facilities and provide a reasonable rate of return on them. If the resulting rates would significantly reduce demand for utility services so as to negate or significantly reduce the need for the

¹⁵⁰ Direct Testimony of Scott J. Rubin at 4.

¹⁵¹ [I]t is not clear that the Pool 3 Project is actually lower in cost than a pipeline to LWC. I already explained the uncertainties with the LWC pipeline (both its cost and feasibility). The cost of the Pool 3 Project appears that it could be more expensive than the LWC pipeline, at least in the early years when the full capacity of the projects would not be needed. In order to ensure that the Pool 3 Project remains a reasonable least-cost option for Kentucky-American, the Company should agree to limit the amount that it can include in its retail rate base for the capital costs of the project (which would include a limitation on the amount it can recover in depreciation expense). I recommend setting this cost cap equal to KAWC’s current projection for the capital cost of the project, which is approximately \$158 million. A cost cap places the burden on KAWC to use contracting, construction, and procurement practices that minimize the cost of the project. Absent a cost cap, neither the Commission nor KAWC’s customers have any ability to control those costs, and it would be extremely difficult to audit the Company’s construction and procurement practices after the fact to see if it, in fact, acted prudently to minimize the costs of the project. Rather than engage in such “Monday morning quarterbacking,” I think it is reasonable for the Commission to impose a cost cap prior to construction. The Company then would know what is expected of it and it would be up to the Company to take whatever actions it can to keep the cost of the project within its estimate. If KAWC cannot do so, then the Company—not its customers—should be responsible for any additional amounts. This condition also ensures that the Pool 3 Project becomes a reasonable least-cost option in fact, and not just on paper.

Id. at 17-18.

proposed facilities, then the facilities are not economically feasible and a Certificate should not be granted.

We find that the record is sufficient to demonstrate the economic feasibility of the proposed facilities. AG witness Rubin testified that the proposed facilities were Kentucky-American's only feasible option available.¹⁵² Moreover, the record shows the following elasticity¹⁵³ measures for Kentucky-American's customer classes:¹⁵⁴

Class	Elasticity
Single Family Residential (Indoor)	-0.1
Single Family Residential (Outdoor Usage) ¹⁵⁵	-0.5
Apartment Usage	-0.1
Commercial	-0.1
Industrial	0.0

Applying these elasticity measures to the expected increases, we find that the rates necessary to ensure recovery of the proposed Facilities' cost will not significantly alter the projected customer demand or otherwise render the proposed Facilities economically unfeasible. The evidence of record clearly indicates that sufficient demand exists to make the proposed Facilities economically feasible.

¹⁵² *Id.* at 14.

¹⁵³ "Price elasticity defines the percent increase or decrease in water consumption, given a percent increase or decrease in the price of water. In other words, price elasticity indicates how customer usage will change, given changes in water rates." George A. Raftelis, *Comprehensive Guide to Water and Wastewater Finance and Pricing* 210 (2d. ed. 1993).

¹⁵⁴ Case No. 1993-00434, Kentucky-American's Response to the AG's Second Information Request, Items 63-66 (filed April 15, 1994); see also *Kentucky-American Water Company Least Cost/Comprehensive Planning Study*, *supra* note 14, at Exhibit 2-1.

¹⁵⁵ Only 15 percent of single family residential usage involves outdoor usage. *Kentucky-American Water Company Least Cost/Comprehensive Planning Study*, *supra* note 14, at Exhibit 2-1.

DUPLICATION OF FACILITIES

Having determined that the proposed facilities are needed, the Commission now addresses whether the proposed facilities will result in the wasteful duplication of facilities. We first address the intervening parties' general arguments in support of their contention that the proposed facilities are wasteful investment. We next compare the cost of the proposed facilities with the LWC proposal. Finally, we examine whether construction of the proposed facilities is a reasonable approach to addressing the existing water supply and treatment inadequacy in light of all relevant factors.

Intervenor Arguments of Wasteful Duplication

Existing LWC Treatment Capacity. LWC argues that Kentucky-American's proposed facilities are wasteful investment because of LWC's existing water treatment capacity and its ability to expand that capacity at a lower relative cost.¹⁵⁶ LWC presently has a current water treatment capacity of 240 MGD and is planning to expand that capacity to 270 MGD by 2012 and to 300 MGD by 2017.¹⁵⁷ LWC estimates the cost of the initial expansion at \$5 million. It contends that it is generally more cost effective to expand or upgrade existing facilities than to construct new ones.

¹⁵⁶ LWC Brief at 10-11.

¹⁵⁷ Prefiled Supplemental Testimony of Gregory Heitzman at 13-14; Transcript of 11/28/2007 Hearing at 174.

While the duplication of existing municipal facilities must be considered when reviewing an application for a Certificate,¹⁵⁸ the presence of excess municipal utility capacity does not necessarily render the public utility's proposed facilities as wasteful investment. We find no requirement that a public utility must exhaust the excess capacity of non-jurisdictional utilities before adding to its own facilities. Such a requirement, moreover, would penalize a jurisdictional utility that prudently and incrementally invests in its supply capacity while rewarding non-jurisdictional utilities that over-invest.

Finally, the existence of excess capacity cannot be considered in isolation but must be carefully weighed with other relevant factors. While LWC currently has excess capacity, it presently has no means to transport that capacity to Kentucky-American. The cost and circumstances of transporting that capacity and the general availability of such capacity must be considered.

Multiplicity of Physical Properties. LWC next alleges that the Pool 3 proposal will create "multiple sets of rights of way" and an "unnecessary multiplicity of physical properties."¹⁵⁹ By contrast, LWC's concept would "use *existing* water treatment plants, *existing* water supply, and *existing* water treatment capacity to install a pipeline along a thoroughly developed and already-encumbered interstate corridor."¹⁶⁰

¹⁵⁸ See Case No. 1989-00014, City of Newport v. Campbell County Kentucky Water District and Kenton County Water District No. 1 (Ky. PSC Jan. 31, 1990) at 24 ("Public policy further requires that the Commission consider municipal utility facilities when ruling upon applications for Certificates of Convenience and Necessity. To ignore the existence of such facilities when determining whether new utility facilities should be constructed, would encourage wasteful and uneconomic competition between regulated and nonregulated utilities and would likely lead to the proliferation of unnecessary utility facilities across the Commonwealth.").

¹⁵⁹ LWC Brief at 14.

¹⁶⁰ *Id.*

The record does not support this contention. Pool 3 of the Kentucky River appears to be the closest location with sufficient additional water supply. Where Kentucky-American must construct 30.59 miles of 42-inch transmission main to connect KRS II to its distribution system, LWC's proposal would require the total construction of approximately 58 miles of transmission main.¹⁶¹ From the KRS II site to the proposed interconnection with Kentucky-American's distribution system, there are no comparable transmission or distribution facilities that Kentucky-American's proposed transmission main appears to duplicate. The record, furthermore, indicates that the proposed transmission route seeks to maximize the use of public rights-of-way through its use of established transportation corridors. As of the date of this Order, it appears that Kentucky-American has acquired all but one of the required encroachment permits.

LWC's contention that the route of a Louisville pipeline would be less disruptive and produce less dislocation is further undermined by the speculative nature of such route. No feasibility or siting studies have been performed. In fact, as of the close of the record, SFWMG had yet to retain a consultant to perform such studies. No applications for encroachment permits for the route have been prepared or submitted to the Kentucky Department of Highways. LWC and SFWMG's discussions with that agency have been of a preliminary nature. The Commission agrees with the AG's conclusion that "[t]he actual plausibility of locating facilities in existing rights-of-way, which necessarily has a significant impact on costs and the ability to implement the

¹⁶¹ See Prefiled Supplemental Testimony of Gregory C. Heitzman at 4. This amount includes the portion of the transmission main that LWC must construct from its English Station facility to the proposed delivery point in Shelby County. Under its proposal, LWC alone will bear the cost of constructing this portion of the transmission main.

project in a timely manner, does not share the same certainty as the attractiveness of the idea.”¹⁶²

Adequacy and Reliability of Pool 3 Supply. LWC questions the adequacy of the water supply of Pool 3 and suggests that construction of water treatment facilities that depend upon Pool 3 is unreasonable and wasteful investment. It asserts that Kentucky-American has not conducted a safe-yield analysis of Pool 3 to determine the amount of water that may be safely withdrawn, that Kentucky-American’s withdrawal permit for KRS II is insufficient to support potential maximum demands, and that Kentucky-American has failed to adequately assess the condition of Dam 3.¹⁶³

While a formal safe-yield analysis of Pool 3 had not been conducted,¹⁶⁴ the record contains substantial evidence of Pool 3’s ability to support the proposed KRS II. The U.S. Geological Survey (“USGS”) has established gauging stations at several locks on the Kentucky River and has continuously estimated average daily flows at these locks beginning as early as 1907. As the USGS did not install a gauge on Lock 3, Kentucky-American calculated the flow in Pool 3 by examining the gauge recordings for Pools 2 and 4 and Elkhorn Creek as it enters Pool 3. Kentucky-American witness Svindland found that the lowest 7-day average for Pool 4 was 67.4 MGD and for Pool 2 was 81 MGD.¹⁶⁵ Based upon DOW’s methodology for calculating water yield, Mr. Svindland estimated that the expected 7-day average low flow at Pool 3 during a major

¹⁶² AG Brief at 18.

¹⁶³ Prefiled Supplemental Testimony of Gregory C. Heitzman at 9.

¹⁶⁴ Kentucky-American’s Response to Commission Staff’s First Set of Interrogatories and Requests for Production of Documents, Item 2.

¹⁶⁵ Transcript of 11/27/2007 Hearing at 337-338.

drought will be 78 MGD, exclusive of pool mining or improvements to Dam No. 3 and was adequate to support KRS II.¹⁶⁶

Based upon its review of the USGS record for Pool 2, Gannett Fleming reached a similar conclusion. It found that the lowest recorded daily average flow at Lock 2 of 13 MGD occurred in 1930. It further found that, since the construction of Buckhorn Reservoir and Carr's Fork Lake to regulate river flows, in 1960, the lowest daily average flows recorded at Lock 2 was 72 MGD which occurred in 1999.¹⁶⁷ Based upon this information, Gannett Fleming concluded that Pool 3 had a safe yield in excess of 30 MGD.¹⁶⁸ We find this analysis of decades of USGS data to be persuasive.

We also find that DOW's issuance of a withdrawal permit to Kentucky-American should be considered dispositive of the issue. DOW has the statutory duty "to maintain the normal flow of all streams so that the proper quantity and quality of water will be available at all times to the people of the Commonwealth" and "to ensure adequate supply of water for domestic, agricultural, recreational, and economic development uses."¹⁶⁹ It "continuously monitors the flows of the Kentucky River and how those flows impact the environment to ensure that all users have an adequate supply."¹⁷⁰ As DOW was acting within its area of expertise and statutory authority, its decision that there is

¹⁶⁶ Kentucky-American's Response to November Hearing Requests, Item 5.

¹⁶⁷ *Water Supply Study*, *supra* note 7, at A-9.

¹⁶⁸ *Id.*

¹⁶⁹ KRS 151.110(1)(a).

¹⁷⁰ Case No. 2001-00117, Order of Jan. 11, 2002 at 5.

sufficient water within Pool 3 for Kentucky-American to make required withdrawals should be accorded controlling weight.¹⁷¹

We find no merit in LWC's contention that the water withdrawal permit will not allow for adequate water withdrawals in non-summer months. Noting that Kentucky-American is limited to withdrawing 6 MGD from September through May, it contends that "one hot September day" could still leave Kentucky-American with a supply deficit.¹⁷² This argument fails to consider that DOW has historically granted temporary modifications to withdrawal permits to permit increased withdrawals and that the permit was issued to reflect Kentucky-American's expected operations.¹⁷³ Moreover, we conclude that a Commission proceeding should not be used to collaterally attack the legitimacy of a permit issued by a distinctly separate governmental agency over a subject matter in which the Commission has no jurisdiction.

As to the existing condition of Dam 3, the record demonstrates that the KRA has committed significant resources to replace the dam and has endorsed the use of Pool 3 as a regional water source.¹⁷⁴ KRA is nearing completion of the planning and design phase for replacing Dam 3. The replacement dam will be constructed upstream of the existing dam, which will remain in place. The pool elevation with the new dam will be substantially unchanged and is expected to remain functional for 50 years without

¹⁷¹ The record also shows that DOW's Director advised consultants for the Consortium in 2003 that a withdrawal permit for Pool 3 had a "floor value" of between 35 and 45 MGD and that, based upon standard permitting criteria, a permit could be issued with a face value of up to 113 MGD. See Letter from Jeffrey W. Pratt, Director, Kentucky Division of Water, to George Rest, O'Brien and Gere Engineers (July 22, 2003) at 2.

¹⁷² LWC Brief at 27.

¹⁷³ Transcript of 3/5/2008 Hearing at 206.

¹⁷⁴ KRA Resolution, adopted May 25, 2007.

substantial maintenance. Adequate funding for the replacement dam has been obtained and the replacement is expected to be completed by 2010.¹⁷⁵ Since a replacement to Dam 3 will be built by 2010, we find no reason to conclude that there is a threat to the reliability of the proposed KRS II or that its construction is a wasteful investment.

Failure to Investigate All Reasonable Options. CAWS and LWC argue that Kentucky-American has failed to consider all reasonable alternatives in its search for a solution to its water supply deficit. Both argue that Kentucky-American has failed to review or evaluate LWC's recent proposal for the construction of a 36-inch transmission main. CAWS further contends that Kentucky-American has failed to consider other viable options such as demand management and conservation initiatives and improvements to Pool 9.

Based upon our review of the existing record, the Commission finds little evidence to support the contention that all alternatives were not reasonably reviewed. To the contrary, since 2000 several exhaustive reviews of supply options have been undertaken. Beginning in 2002 and proceeding until early 2006, the Consortium and then its successor, the BWSC, examined over 40 unique water supply opportunities. They eventually reduced these opportunities to a listing of 8 preferred options. One of these options was the purchase of water from LWC and the construction of a transmission main to connect the LWC system to central Kentucky. The record indicates that the Consortium thoroughly examined this option and found in 2004 that, while the LWC connection was the least cost alternative, the construction of a water

¹⁷⁵ KRA Brief at 3-4.

treatment plant at Pool 3 was the alternative with the highest score in all critical areas.¹⁷⁶

The BWSC again reviewed the LWC transmission main option in 2005. LWC made a presentation to the BWSC in December 2005. BWSC's consulting engineers reviewed the LWC proposal and found that it did not favorably compare to the Pool 3 Option.¹⁷⁷ BWSC rejected yet a third LWC offer in October 2006 for the same reasons.¹⁷⁸

Attempting to minimize the importance of these negotiations, LWC argues that the Kentucky-American was not a member of the BWSC.¹⁷⁹ We find no merit in this argument. Until early 2006 Kentucky-American remained an active participant in Consortium and BWSC discussions. BWSC members viewed Kentucky-American as having a significant, if not critical role, in their efforts. For its part, Kentucky-American was investing significant efforts to be part of a regional solution.

In 2005 Kentucky-American retained Gannett Fleming to conduct a review of its water supply and to provide recommendations. Gannett Fleming reviewed, among other options, the purchase of water from LWC. In its report, Gannett Fleming found

¹⁷⁶ *Regional Report, supra* note 57, at 24. One year later, O'Brien & Gere, the Consortium's engineering consulting firm, modified its earlier statement regarding the LWC proposal. Its representative noted that, because the LWC proposal was for a lesser amount of reserved capacity than the other alternatives, it was not the least cost option. See Letter from George B Rest, Sr. Vice President, O'Brien & Gere, to Don Hassell, General Manager, BWSC (Oct. 12, 2005).

¹⁷⁷ BWSC's Response to CAWS's Data Request, Item 1.

¹⁷⁸ See Letter from Bryan K. Lovan, Project Manager, O'Brien & Gere, to Don Hassell, General Manager, BWSC (June 4, 2007).

¹⁷⁹ LWC Brief at 15 n.7.

that the construction of a water treatment plant along Pool 3 was the least cost option.¹⁸⁰

Placing much emphasis on Kentucky-American's efforts in the 1990s to trumpet the virtues of a pipeline to Louisville, LWC alleges that Kentucky-American has no compelling reason to refuse "to thoroughly evaluate LWC's improved proposal for a Louisville Pipeline."¹⁸¹ This argument fails to consider that the original Ohio River pipeline proposal that Kentucky-American advanced was quite different from the concept that LWC currently advocates and was pursued in a different context. Several circumstances have changed in the intervening decade.

First, Kentucky-American correctly points out that when water supply solutions were being considered in the late 1990s, only Pool 9 of the Kentucky River was principally considered.¹⁸² It was not until the release of the Regional Study that Pool 3 was identified as a potential water supply source. Kentucky-American also points out that KRA has evolved and matured as an agency since the 1990s.¹⁸³ It has grown into the monumental task given it by the General Assembly and is making progress in fulfilling its statutory mandate. Next, Kentucky-American has shown that when it first considered an Ohio River pipeline, it was acting alone and without the benefit of a regional partner.¹⁸⁴ The creation and participation of the BWSC has provided a broader base of understanding of the regional nature of the water supply deficit and enables a

¹⁸⁰ *Water Supply Study*, *supra* note 7, at 46.

¹⁸¹ LWC Brief at 10.

¹⁸² Transcript of 11/26/2007 Hearing at 186-187.

¹⁸³ Kentucky-American Brief at 22.

¹⁸⁴ *Id.* at 23.

regional solution. Likewise, the passage of LFUCG Council Resolution 679-99 presented an unequivocal expression of the LFUCG's preference for a Kentucky River solution.¹⁸⁵ Opinions of individual Council members notwithstanding, the resolution remains the only official expression of LFUCG policy. As the government agency representing the vast majority of Kentucky-American's customers, LFUCG Council's preferences may properly be taken into account by Kentucky-American. Finally, the present proposal includes transmission main that is mostly contained within state rights-of-way, as opposed to the earlier project which involved placing as much as 96 percent of the Ohio River pipeline on private property.¹⁸⁶ We find that each of these changes in circumstance is fundamental to any water supply proposal and that it is reasonable for Kentucky-American to have pursued other options as a result.

CAWS argues that Kentucky-American failed to adequately explore demand management and conservation issues as a potential solution.¹⁸⁷ It asserts that the water utility has made minimal effort in the area of conservation and has focused almost exclusively on customer education.¹⁸⁸ It further asserts that a more aggressive program of leak detection and system maintenance could significantly reduce the need for supply augmentation.¹⁸⁹

¹⁸⁵ *Id.* LFUCG has been afforded every opportunity in this case to advise the Commission if this preference has changed. It has not done so. To the contrary, LFUCG states in its brief, "Lexington does not favor one proposal over another in this case" LFUCG Brief at 17. While this could be seen as a retraction of the 1999 Resolution, we are mindful that the Council, by law, speaks only through its resolutions.

¹⁸⁶ *Id.* at 24.

¹⁸⁷ CAWS Brief at 17-18.

¹⁸⁸ *Id.* at 18.

¹⁸⁹ *Id.* at 17.

While the Commission agrees that Kentucky-American should aggressively pursue demand management and conservation, we find little support for the proposition that conservation alone poses a viable alternative to solve Kentucky-American's long-term water supply deficit. AG witness Scott Rubin testified that demand management could not eliminate Kentucky-American's supply deficit:

From the data I have seen, most water utilities have experienced a decline in per household water consumption during the past 10 or 15 years. This is generally attributed to the combination of smaller household size and the use of more efficient plumbing fixtures that were mandated by federal law in the mid-1990s. Certainly, further demand reductions for KAWC are possible, particularly by reducing outdoor water use. But KAWC faces a deficit of more than 20 MGD under drought conditions. To put that in perspective, in the Company's current rate case, it shows average consumption of about 36 MGD. Recall that KAWC's safe yield during drought conditions is between 30 and 35 MGD. This means that in order for KAWC to avoid a supply project, a conservation program would need to not only completely eliminate peak demand (in excess of 30 MGD) but also reduce average demand. I am not aware of any conservation program that can accomplish that type of result cost effectively.¹⁹⁰

CAWS acknowledges that an aggressive leak reduction program that achieves a 50 percent reduction in Kentucky-American's unaccounted-for water will only produce a savings of 3.2 MGD. These savings, while significant, are insufficient to solve Kentucky-American's water supply deficit.

CAWS also argues that Kentucky-American failed to adequately evaluate the effect of the installation of crest gates on Dam 9 or explore a partnership with KRA to expedite the deployment of crest gates. We find little merit in these arguments. KRA has yet to develop a feasible plan for the financing and installation of crest gates at

¹⁹⁰ Direct Testimony of Scott J. Rubin at 9-10.

Dam 9.¹⁹¹ One of its priorities has been Pool 3, where the proposed facilities will be located. No funding mechanism currently exists for the proposed improvement. Installation of crest gates, moreover, presents a number of technical and operational questions that also have yet to be addressed or resolved.¹⁹²

LWC and CAWS also contend that Kentucky-American failed to consider the alternative of purchasing water from Versailles as a temporary expedient to its supply deficit. The record indicates, however, that Kentucky-American, in conjunction with the BWSC, explored this option. This review indicated that Versailles could sell only a limited quantity of water to Kentucky-American because of its own capacity needs. Moreover, Versailles's ability to provide water during times of drought is limited due to restrictions upon its ability to withdraw from the Kentucky River in such times.

In summary, our review of the record indicates that Kentucky-American considered all reasonable alternatives and carefully evaluated each of them prior to making its decision to proceed with the Pool 3 option.

Net Present Value Comparison of Alternatives

Kentucky-American and LWC presented to the Commission net present value ("NPV") analyses for the KRS II proposal and the LWC proposal. Gannett Fleming prepared Kentucky-American's analysis; R.W. Beck prepared the LWC analysis (collectively, the "Studies"). Not surprisingly, each found their own proposal to have a lower NPV than the other. Finding that each analysis contains assumptions and methodologies most favorable to the proposal being advanced by its client, the

¹⁹¹ LFUCG Brief at 4.

¹⁹² Transcript of 3/06/2008 Hearing at 33.

Commission has performed our own analysis. Based upon this analysis and the Commission's own assumptions (detailed below), we find that even when viewed in the light most favorable to LWC, Kentucky-American's proposal has a NPV of \$250,936,837 and LWC's proposal has a NPV of \$248,305,512, a difference of just one percent.

Assumptions. In performing our analysis, we have assumed that each project would be placed into service in 2010 and remain operational until at least 2030. We thus use the same planning horizon that the other analyses used. As with the other analyses, we have discounted the future annual operating costs of each project for the 20-year planning horizon using the current municipal bond market rate of 4.7 percent. The Commission has assumed an annual inflation rate of 3 percent, which is consistent with the CPI-U.¹⁹³

The Commission assumed that KRS II has a 20 MGD capacity and is connected to Kentucky-American's distribution system by 30.59 miles of 42-inch transmission main. We have not assumed that BWSC will participate in the ownership of the KRS II facility or the proposed transmission main.

With regard to the LWC proposal, we assume the construction of a 36-inch water transmission main. While Kentucky-American has argued that a comparison can only be conducted using the same size main as that of the KRS II transmission main, for the limited purposes of conducting our analysis, we will accept LWC's assertion that a 36-inch transmission main can likely supply the desired 25 MGD capacity.

We have assumed that the LWC project, which consists of 44.85 miles of transmission main, would be constructed in two phases. Phase A runs from Kentucky

¹⁹³ Based upon the CPI-U, the average annual inflation rate for the last 20 years has been 3.06 percent.

Highway 53 along Interstate Highway 64 into Franklin County and then follows Kentucky Highway 676 until connecting to FEWPB's water treatment facilities. It represents 20.89 miles or 46.58 percent of the total transmission main. Phase B represents the transmission main's route from FEWPB's facilities along Kentucky Highway 676 to US Highway 60 and then south along US Highway 60 to the intersection of US Highway 60 and Interstate Highway 64. Phase B will then follow Interstate Highway 64 east to Newtown Pike in Fayette County where it will connect with Kentucky-American's existing distribution system.¹⁹⁴ Phase B is 23.96 miles or 53.42 percent of the total transmission main.

The Commission assumes that Kentucky-American would construct, finance, own, and operate Phase B in its entirety. We further assume Kentucky-American would partner with a third party, presumably SFWMG, to construct, finance, own, and operate Phase A. We based this assumption on the allocated capacity of the proposed transmission main, Kentucky-American's prior pipeline transaction with LWC in the 1990s, and the benefits that ownership would likely confer to Kentucky-American. Based upon the allocated capacity of the pipeline, the Commission has further assumed that Kentucky-American would hold an 80 percent interest in Phase A and SFWMG would hold the remainder.

Project Costs – Pool 3. The Studies used estimated construction costs for Pool 3. Kentucky-American has since received construction bids for Pool 3.¹⁹⁵ The

¹⁹⁴ Prefiled Supplemental Testimony of Gregory C. Heitzman at 13.

¹⁹⁵ See Intermediate Bid Evaluations dated December 19, 2007.

original bids have expired but have been updated with negotiable revised bids.¹⁹⁶ The Commission calculated Pool 3's NPV using the revised bid results as shown below.

	Original Bid	Negotiable Revised Bid Add On	Total
Treatment Plant	\$ 64,000,000	\$ 2,323,158	\$ 66,323,158
Transmission Main	49,165,544	3,049,356	52,214,900
Pumping and Storage	8,364,243	80,880	8,445,123
	<u>\$ 121,529,787</u>	<u>\$ 5,453,394</u>	<u>\$ 126,983,181</u>

In addition to the construction costs included in the bid prices, Kentucky-American will incur costs for construction overhead, land, and Allowance for Funds Used During Construction ("AFUDC"). The Beck Study estimates these costs as \$58,127,000,¹⁹⁷ while the Gannett Fleming Study uses an estimate of \$35,120,902.¹⁹⁸ We have estimated these costs at the same level as Kentucky-American. Overhead were set equal to 17.1 percent (Overhead \$21,659,655¹⁹⁹ / Original Bid Costs \$126,640,001) of construction costs. We calculated AFUDC using a 2-year construction

¹⁹⁶ Transcript of 3/6/2008 Hearing at 82.

¹⁹⁷ See R.W. Beck, *Comparison of the Louisville Pipeline and Pool 3 Options to Serve Central Kentucky Water Customers* (filed Nov. 21, 2008) at Table 3-2 (hereinafter *Beck Comparison*).

¹⁹⁸ Kentucky-American reports the expected cost of Pool 3 Facilities, including AFUDC, is \$161,760,903. See Kentucky-American's Responses to Commission's Post-Hearing Data Requests at Item 8. Based upon this amount, the Commission calculates:

Total costs of Pool 3, including AFUDC, at 25 MGD including BWSC.	\$161,760,903
Less: Original bid price for Pool 3. This amount includes the bid price for 25 MGD including BWSC.	(126,640,001)
Land, AFUDC, and Overhead	<u>\$35,120,902</u>
¹⁹⁹ Land, AFUDC, and Overhead	\$35,120,902
Less: AFUDC	(11,493,223)
Land	(1,968,024)
Overhead	<u>\$21,659,655</u>

period accrued at 7.75 percent—the weighted cost of capital that we approved in Kentucky-American’s last contested rate proceeding.²⁰⁰ Land is estimated to be \$1,968,024.

The total cost for Pool 3 included in the Commission’s NPV calculation is \$162,407,210 as shown below.

Construction Costs	\$126,983,181
Overheads	21,718,350
AFUDC	11,537,655
Land	<u>1,968,024</u>
Total	<u>\$162,207,210</u>

Total cost does not include the cost of an ultraviolet light disinfection facility. It is not currently known whether DOW will require such disinfection treatment. While Kentucky-American has provided space in KRS II for such facility, it currently has no plans to install such facility.²⁰¹

Project Costs – LWC Pipeline. Both studies calculated the LWC Pipeline’s NPV using estimated construction costs. Neither study describes the methodology used to derive these estimates. The Commission estimated the LWC Pipeline’s construction costs based upon the revised bid costs for Pool 3’s 42-inch transmission main, pumping facilities, and storage.

We first determined the price differential between the Beck Study’s estimates of the cost of a 36-inch transmission main and a 42-inch transmission main.²⁰² The Beck

²⁰⁰ Case No. 2004-00103, Adjustment of Rates of Kentucky-American Water Company (Ky. PSC Feb. 28, 2005) at 75.

²⁰¹ Transcript of 11/27/2007 Hearing at 306-307.

²⁰² The Beck Report estimated the cost of a 36-inch LWC transmission main and a 42-inch LWC transmission.

Study estimated the cost of a 36-inch transmission main to be \$57,140,000,²⁰³ which is \$11,140,000, or 19.5 percent, less than the \$68,280,000²⁰⁴ estimated cost of a 42-inch main. Applying this differential to the revised bid price of \$52,214,900 for Pool 3's 30.59 miles of 42-inch transmission main, we then determined that 30.59 miles of 36-inch main would cost \$43,695,951. This cost was then increased to \$64,065,491 to account for the LWC Pipeline's total length of 44.85 miles.

The total revised bid price for the pumping station and storage facilities at Pool 3 is \$8,445,123. This amount excludes the original bid price of \$385,214 for the pumping equipment necessary to accommodate 5 MGD of capacity for BWSC. The bid amount for the storage facilities is \$2,738,535.²⁰⁵ The Commission includes this amount for the cost of LWC Pipeline storage. The remaining bid price of \$6,091,802 (\$8,445,123 + \$385,214 - \$2,738,535) is for the facilities necessary to pump 25 MGD through Pool 3's 42-inch main. To determine the capital costs for pumping through the 36-inch transmission main, the Commission doubled this amount to reflect that two pumping stations are planned for a 36-inch LWC Pipeline.²⁰⁶ To recognize the additional energy loss resulting from the smaller diameter main,²⁰⁷ the Beck Study doubles its estimated

²⁰³ See Beck *Comparison*, *supra* note 197, at Table 5-1.

²⁰⁴ *Id.*

²⁰⁵ Kentucky-American's Response to Commission's Post-Hearing Data Requests at Item 8.

Cost of Transmission	\$3,132,704
Divided by: 1 + Overhead rate for storage facilities	<u>1.1439344%</u>
Bid Price for Storage excluding Overhead	<u>\$2,738,535</u>

²⁰⁶ Prefiled Rebuttal Testimony of Gregory C. Heitzman, October 1, 2007, at 5.

²⁰⁷ See Beck *Comparison*, *supra* note 197 at Table 5-1.

capital costs for pumping through a 42-inch transmission main to determine the capital costs for the 36-inch transmission main.²⁰⁸

To determine construction overhead and land costs for the LWC Pipeline, we applied the same overhead rate (17.1 percent of construction costs) and cost of land as used for Pool 3. We determined the cost of land by applying the total length of the LWC Pipeline to the cost per mile of land used for Pool 3's transmission main.

This approach results in the application of consistent assumptions for each project. The Commission calculated total construction, construction overhead, and land to be \$94,185,759 as shown below.

	36" = 42" / 119.5 % in Beck Study	Miles in Bid	Cost Per Mile	Miles in LWC Pipeline	Estimated Cost of LWC Pipeline
Finished Water Main	43,695,951	30.59	1,428,439	44.85	64,065,491
2 Pumping Station					
Structure	8,601,648				8,601,648
Electric Pump 20 mgd	2,811,530				2,811,530
Electric Pump 5 mgd	770,428				770,428
Storage	2,738,535				2,738,535
Total Construction Costs of Depreciable Plant					78,987,632
Construction Overhead at 17.1 Percent as added by KAWC to Bid Prices for Pool 3					13,506,885
Total Depreciable Costs					92,494,518
Land					
Finished Main	1,087,195	30.59	35,541	44.85	1,594,008
Storage & Pumping	97,234				97,234
Total Cost	59,802,521				94,185,759

Similar to our treatment with Pool 3, the Commission calculated AFUDC for the LWC Pipeline assuming a 2-year construction period at a rate of 7.75 percent for Kentucky-American's portion of the LWC Pipeline. The Commission used a rate of

²⁰⁸ *Id.*

4.7 percent for SFWMG's portion as used in the Beck Study.²⁰⁹ Total AFUDC was calculated to be \$6,912,896 bringing the total cost of the LWC Pipeline to \$101,098,655.

The cost of the LWC Pipeline was allocated to Kentucky-American and SFWMG based on their percentage of ownership as shown below.

			Percent of Total Miles	Percent of Ownership	Allocated Cost
Determination of Percentage of Ownership					
Phase A, SFWMG 20 percent of 20.89 Miles	4.18	9.32%	9.32%	\$	9,422,350
KAWC 80 Percent of 20.89 Miles	16.71	37.26%	37.26%		37,666,857
Phase B, KAWC 100 Percent	23.96	53.42%	53.42%		54,009,449
Total	44.85	100.00%	100.00%	\$	101,098,655

We find that our methodology produces a conservative estimate of the LWC Pipeline's NPV. It is based upon Pool 3's favorable transmission main bid costs. Kentucky-American's original estimate to construct Pool 3's transmission main was \$60,926,273.²¹⁰ Based upon the revised bids, the present estimate is \$52,214,900. If the LWC Pipeline were actually bid, it might not experience such favorable results. While Kentucky-American is prepared to commence construction of the Pool 3 Project immediately, construction of the LWC Pipeline is not likely to begin until 2010. Our estimate therefore ignores likely increases in costs that may occur before construction of the LWC Pipeline begins.²¹¹

To make the projects comparable, the Commission calculated LWC Pipeline overhead costs using the same 17.1 percent rate as was used for Pool 3. In contrast,

²⁰⁹ *Id.* at Table 5-1.

²¹⁰ See Intermediate Bid Evaluations dated December 19, 2007.

²¹¹ Heitzman testified that the Pipeline would be operational by July 2012. See Prefiled Supplemental Testimony of Gregory C. Heitzman at 6.

the Beck Study used an overhead cost of 50 percent for a 42-inch LWC Pipeline and 32 percent for a 36-inch main.²¹² Despite Kentucky-American's experiences in the late 1990s, our calculations, moreover, do not assume any significant public opposition to construction of Phase A or Phase B. We have also not included the additional costs that would be incurred to cross the Kentucky River.

In calculating the LWC Pipeline cost, we have excluded certain costs found in the other studies. For example, we have excluded \$2,407,600 related to the cost of 12,000 feet of 24-inch finished water line that Kentucky-American contends is necessary to complete the LWC Pipeline's connection to Kentucky-American's existing transmission and distribution system at the intersection of I-64 and Newtown Pike.²¹³ This 24-inch main appears to be a portion of the same main necessary to make the connection to Pool 3,²¹⁴ but does not appear to be included in the Gannett Fleming NPV calculation of Pool 3.²¹⁵ Since the cost of this main is not included in the NPV analysis of Pool 3, it should be excluded in the analysis of the LWC Pipeline.

The Gannett Fleming Study includes inflation in the estimated construction costs for the 42-inch transmission main. It assumes that LWC Pipeline construction costs will not be known until 2010 when bids are received. Since the estimated costs are stated in 2008 dollar values, it makes an adjustment to account for 2 years of inflation. While

²¹² To determine these percentages the Commission divided total contingencies, permitting, easements, engineering, legal, and administrative costs as shown in the Beck Study by total construction and land costs as shown in those tables. See *Beck Comparison*, *supra* note 197, at Tables 3-1, 5-1.

²¹³ Rebuttal Testimony of Harold Walker, III, at 4.

²¹⁴ Kentucky-American's Responses to Commission Staff's First Set of Interrogatories, Item 10(c).

²¹⁵ Kentucky-American's Responses to Commission Staff's Second Set of Interrogatories, Item 7.

inflation will likely be a factor in the actual construction of the LWC Pipeline, both Studies and the Commission have assumed the LWC Pipeline has the same construction schedule as Pool 3 and is operational by 2010. Since no inflation adjustment is included in the NPV analysis of Pool 3, we have not made such an adjustment for the analysis of the LWC Pipeline.

The Beck Study includes one percent debt issuance costs in the estimated LWC Pipeline costs. Like the Gannett Fleming Study, we have included debt issuance costs of one percent in the cost of capital and do not account for this cost as a cost of construction.

Recognizing that the LWC Pipeline's anticipated completion date would be July 12, 2012, LWC provided possible interim solutions to Kentucky-American's immediate water supply deficit,²¹⁶ but did not identify all the capital requirements for those solutions.²¹⁷ Like inflation, these costs would be a factor if considering the LWC Pipeline's actual construction schedule if they were feasible interim solutions. Our assumption that the LWC Pipeline would be operational by 2010 renders the inclusion of these costs inappropriate. We therefore have excluded them from our analysis.

Cost of Capital. The NPVs for each project include the cost of capital. Kentucky-American's capital costs were determined by applying Kentucky-American's weighted cost of capital to rate base. SFWMC's financing costs were determined by calculating annual principal and interest payments for its portion of the LWC Pipeline.

To determine the financing costs for Pool 3 and Kentucky-American's portion of

²¹⁶ Prefiled Supplemental Testimony of Gregory C. Heitzman at 3-6.

²¹⁷ Transcript of 3/5/2008 Hearing at 49.

the LWC Pipeline, the Commission follows the 60 percent debt and 40 percent equity ratio that Kentucky-American proposes to use to finance Pool 3.²¹⁸ This ratio is consistent with Kentucky-American's historic capitalization ratio and has previously been found to be appropriate.

To determine each project's effect on Kentucky-American's weighted cost of capital, the Commission added Kentucky-American's share of the projects' cost to Kentucky-American's estimated total capital at December 31, 2007 of \$199,859,510. The 2007 capital was allocated to the capital structure and assigned costs using Kentucky-American's capitalization ratios and cost rates that the Commission approved in Case No. 2004-00103.²¹⁹ We then added the additional capital required for each project to the capital structure and assigned a 10 percent cost of equity, Kentucky-American's last approved rate, and a 6.5657 percent cost of debt, Kentucky-American's anticipated long-term debt rate including one percent issuance costs. Our approach follows the methodology used by the Gannett Fleming Study.²²⁰ By applying this method, we determined Kentucky-American's weighted cost of capital for each project to be as shown below.

²¹⁸ Direct Testimony of Louis M. Walters at 4.

²¹⁹ See Case No. 2004-00103, Adjustment of the Rates of Kentucky-American (Ky. PSC Feb. 28, 2005).

²²⁰ See Rebuttal Testimony of Harold Walker, III, Schedule 6 at 1.

Project	Pool 3	Pipeline
Weighted Cost of Debt	3.615%	3.537%
Weighted Cost of Equity	<u>4.224</u>	<u>4.279</u>
Total	<u>7.839%</u>	<u>7.816%</u>

The Gannett Fleming Study assumes Kentucky-American will fund each project with \$35 million of tax exempt debt.²²¹ The Commission did not include tax exempt financing for Kentucky-American's investment in the projects. Kentucky-American witness Louis Walters testified that Kentucky-American will apply for tax exempt financing for Pool 3 if it is likely to receive approval of at least \$5 million.²²² Kentucky-American witness Michael A. Miller testified that all 2008 private activity allocations for Kentucky have already been allotted.²²³ The record is devoid of any evidence regarding private activity allocations for 2009.

To determine Kentucky-American's annual rate base to which the weighted cost of capital for each project is applied, the Commission reduced the projects' total construction costs by the projected annual accumulated depreciation and deferred tax balances. The accumulated depreciation is the balance of annual charges to depreciation expense. The deferred tax is the annual accumulation of the deferred income taxes resulting from the difference in book depreciation expense and tax depreciation expense. We calculated tax depreciation by applying the straight-line method using Kentucky-American's 4 percent²²⁴ composite tax depreciation rate.

²²¹ *Id.*

²²² Direct Testimony of Louis M. Walters at 4.

²²³ Transcript of 3/6/2008 Hearing at 101.

²²⁴ Kentucky-American's Responses to Hearing Data Requests, Item 15.

As a result of the additional return on Kentucky-American's investment, Kentucky-American will incur additional expenses for federal income taxes (35 percent), state income taxes (6 percent), bad debts (0.50683 percent), and the Commission's annual assessment (0.1669 percent). To calculate the level of these expenses to be included in the projects' NPVs, the Commission applied a gross-up factor of 164.78 percent to the equity portion of Kentucky-American's weighted cost of capital. Since Kentucky-American deducts synchronized interest to determine taxes, no gross-up for the debt portion of the weighted cost of capital is required. Through application of this gross-up factor, the Commission has provided a provision for these additional expenses in the projects' NPVs.

The LWC Pipeline's NPV as calculated by the Commission includes the cost of public financing for SFWMG's allocated share. Both studies assume a long-term debt rate equal to the current market rate for tax exempt municipal bonds of 4.7 percent to determine the projects' public financing costs. The Beck Study amortizes the public financing over 20 years. The Gannet Fleming Study retires 50 percent of the principal over 25 years with the remaining balance refinanced at the end of the 25-year term. Kentucky-American witness Harold Walker testified that the longer term more appropriately matches the life of the loan with the estimated life of the plant funded by the loan²²⁵ and that this method of financing is customary in the private sector.²²⁶

²²⁵ Rebuttal Testimony of Harold Walker, III at 8.

²²⁶ Transcript of 11/28/2007 Hearing at 46.

Two recent LWC bond issuances support the Beck Study's assumptions.²²⁷ LWC witness Gregory Heitzman testified, however, that these assumptions may overstate the cost of debt. He asserted that, if a public agency owned the LWC Pipeline, the project would be eligible for low interest loans and grants from such agencies as the Kentucky Infrastructure Authority, Kentucky League of Cities, Kentucky Association of Counties, and the Kentucky Rural Water Association at interest rates ranging from 0.6 percent to 3 percent.²²⁸

The lending agencies to which Mr. Heitzman referred as potential lenders commonly finance construction projects that this Commission reviews. Recent filings with the Commission include annual interest rates ranging from 1 percent to 4.5 percent depending on the source of the loan funds. The inclusion of low interest loans as suggested by LWC would reduce the 4.7 percent rate used in the studies.

Recognizing that below-market loans might be available to finance the LWC Pipeline, the Commission has used a blended annual interest rate of 4 percent to calculate the cost of debt. This blended rate assumes that half of SFWMG's financing is at the market rate of 4.7 percent with the other half funded at an average, below market rate of 3.3 percent.

Like the interest rate, the term of any public financing is unknown. While we agree that a term longer than 20 years better matches the lives of debt-funded assets, it is unlikely that any public funding would extend beyond 30 years. While longer terms are available for private funding, public funding is generally executed under different

²²⁷ LWC's Post-Hearing Response to Requests of Information, Item 9; Water System Bond Resolution Adopted July 14, 1992 at 53.

²²⁸ Prefiled Supplemental Testimony of Gregory C. Heitzman at 10-11.

terms. LWC's bonds have less than 25-year terms with the majority of the principal retired systematically over the full term. The terms of the public loans that are brought before this Commission generally have terms of 5 to 25 years. Occasionally, these loans will have terms that extend beyond this period or include a "balloon" payment that must be refinanced. We note that Rural Development has financed projects with 40-year bonds.

To recognize the possibility of financing terms longer than 20 years, the Commission assumes that half of any construction costs would be financed with 20-year bonds and half with 40-year bonds and has amortized SFWMG's financing for the LWC Pipeline over a 30-year term. We have assumed issuance costs to be one percent of the amount financed. We calculate the annual principal and interest payment for SFWMG's financing to be \$550,344.

In addition to the annual principal and interest payments for the publicly financed portion of the LWC Pipeline, the Commission made provision for a debt service coverage ("DSC") requirement. Most lenders are likely to require SFWMG to maintain a minimum level of revenues based upon its annual principal and interest payments. LWC, for example, currently has a market interest rate bond issuance that requires a 130 percent DSC.²²⁹ Below market loans generally require a DSC of between 110 percent and 130 percent with 120 percent most common. Assuming that half of the financing will be through below market interest loans requiring a 120 percent DSC and half coming from market interest rate, tax exempt loans requiring 130 percent DSC

²²⁹ LWC's Post-Hearing Response to Requests of Information, filed December 10, 2007, Item 9. Water System Bond Resolution Adopted July 14, 1992 at 53.

similar to LWC’s current bonds, our NPV analysis uses a DSC of 125 percent and is applied to the annual principal and interest payments.

Depreciation. Both studies provide for recovery of depreciation for the two projects. Gannett Fleming uses the depreciation rates that the Commission approved in Kentucky-American’s most recent rate proceeding.²³⁰ The Beck Study assumes depreciable lives of 75 years for mains and 40 years for treatment plant and equipment.²³¹ The depreciation rates used in the Gannett Fleming Study are more specific to plant accounts than the depreciation rates used in the Beck Study and are within or exceed the range of depreciable lives the Commission considers acceptable for non-profit water entities.

The Commission calculated depreciation expense to be included in each projects’ NPV using the depreciation rates reflected in the Gannett Fleming Study. The annual depreciation expense for each project is shown below.

Project	Annual Expense
Pool 3	\$2,998,108
Pipeline	1,736,731

Payroll Costs. Operation of Pool 3 will require the employment of seven new Kentucky-American employees to staff the facility at Kentucky DOW required levels.²³² Kentucky-American estimates payroll costs for these employees to be \$523,182.²³³ In

²³⁰ Case No. 2007-00143, Adjustment of Rates of Kentucky-American Water Company (Ky. PSC Nov. 29, 2007) at Exh. B .

²³¹ Beck *Comparison*, *supra* note 197, at 2.

²³² Direct Testimony of Linda C. Bridwell at 31, Table 3.

²³³ *Id* at Table 3.

addition to the new employees, existing Kentucky-American employees for water quality supervision, maintenance supervision, and administrative support will provide services for the Pool 3 facilities.²³⁴ Kentucky-American estimates the payroll costs for this time to be \$97,200 and allocates \$19,440 of the cost to BWSC.²³⁵

The Gannett Fleming Study includes payroll costs of \$542,622 for the seven new employees and the allocation of existing employees to BWSC. The Beck Study includes all payroll costs for new and existing employees dedicating time to Pool 3. Kentucky-American argues that the existing employee's payroll costs are already incurred by Kentucky-American, will not result in an increase to Kentucky-American customers,²³⁶ and therefore, should only be included to the extent that their payroll is allocated to BWSC.

We disagree with Kentucky-American's position and have included all payroll costs dedicated to Pool 3 in the NPV for Pool 3 with annual adjustments for inflation. Kentucky-American's position treats payroll costs differently than other expenses. The Gannett Fleming Study assumes that Pool 3 is a peaking facility that will operate at its optimum minimum production level of 6 MGD. Pool 3 will be producing this water in lieu of Kentucky-American's other treatment facilities to the extent that those facilities are not operating at capacity. This shift in production will be followed by a shift in expenses for chemicals and purchased power much like the shift in payroll expenses of existing Kentucky-American employees. Neither shift in expenses will represent an increase to

²³⁴ Transcript of 11/28/2007 Hearing at 346.

²³⁵ Direct Testimony of Linda C. Bridwell at Table 4.

²³⁶ Transcript of 11/28/2007 Hearing at 346.

Kentucky-American's customers, yet the Gannett Fleming Study includes power and chemical costs but excludes payroll costs.

Security. Kentucky-American estimates that additional annual security costs in the amount of \$300,000 will be incurred for the operation of Pool 3. This amount, adjusted annually for inflation, is included in the Studies and the Commission's NPVs for Pool 3. Neither study nor the Commission includes security costs to determine the NPV of the LWC Pipeline.

Purchased Water/Flow Rate. A significant disagreement exists between the two studies on the amount of water that would be purchased under the LWC proposal. LWC has argued that 5 MGD is the minimum amount that Kentucky-American, in conjunction with any other water purchasers, must purchase under the terms of the latest LWC offer. This amount represents the minimum purchases required to make the proposed transmission main financially feasible. It states that the pricing provisions of the proposed contract "will allow Kentucky-American to access a supply of 25 to 30 mgd of water while only obligating it to pay for this capacity when it is needed for growth or for days approaching its maximum demand."²³⁷ Given that KRS II is expected to generally operate at a level of 6 MGD, the Beck Study assumes a minimum flow of 6 MGD to calculate the LWC Pipeline's NPV.

Kentucky-American argues that a minimum purchase of 10 MGD is necessary to provide the same level of drought protection to its service territory as provided by Pool 3's rated capacity of 20 MGD.²³⁸ Kentucky-American's KRS II proposal is sized,

²³⁷ Prefiled Supplemental Testimony of Gregory C. Heitzman at 14.

²³⁸ Kentucky-American's Brief at 34.

Kentucky-American contends, “so that it will ‘drought-proof’ . . . [Kentucky-American’s] service territory in accordance with Kentucky regulations that require . . . [Kentucky-American] to have a source of supply that is ‘sufficient to supply adequately, dependably, and safely the total reasonable requirements of its customers under maximum consumption.’”²³⁹ To ensure the same level of supply under the LWC proposal, it must reserve 20 MGD and “take or pay” for at least 10 MGD.

We are of the opinion that Kentucky-American’s obligation to provide adequate service would require a reservation of its full requirements. Without such reservation, the water utility would be imposing significant risks upon its customers in the event of high demand periods. Kentucky-American would also be placing its significant investment in the LWC Pipeline at risk since it would not have adequate assurances that the full capacity of its investment would be available. LWC has acknowledged its intent to actively pursue opportunities to provide water in Shelby and Franklin counties.²⁴⁰ Moreover, significant growth or catastrophic events may lead SFWMG members or other water purveyors to assume larger portions of the pipeline’s capacity if Kentucky-American fails to act. Finally, without the reservation of 20 MGD, Kentucky-American lacks sufficient capacity to meet projected demands during a drought of record and cannot be considered as meeting the “adequate service” standard set forth in KRS 278.010(14).

We applied the terms of LWC’s offer to determine the annual cost of 10 MGD. There are four monthly meter charges of \$706.25 based upon the reserved capacity of

²³⁹ *Id.* at 32.

²⁴⁰ Transcript of 11/28/2007 Hearing at 171.

the assumed flow rate with annual adjustments for inflation. The volumetric charge from 2010 through 2015 is \$1.71 per thousand gallons.²⁴¹ On January 1, 2016, the water rate is adjusted for the cumulative effect of the anticipated three percent annual CPI-U from December 31, 2007 to December 31, 2015. The wholesale rate effective on January 1, 2016 is \$2.17 per thousand gallons. After December 31, 2016, our calculated water rates are increased by 5 percent, the maximum 2 percent allowed by the contract above the anticipated three percent CPI-U. The Commission's use of the maximum wholesale increase follows the trend for rate increases established by LWC in its 2007-2021 Strategic Plan, where it states that rates are expected to increase by at least 2 percent above the annual rate of inflation for the years 2007 through 2011.²⁴²

To calculate Pool 3's NPV, the Commission also assumed a flow rate of 10 MGD. Even though Pool 3's minimum flow is anticipated to be 6 MGD, its most efficient minimum production level, it is only appropriate to compare NPVs for the projects assuming the same flow rates. Each project will be used as a peaking facility and will generally produce minimum flows that would otherwise be produced at Kentucky-American's existing facilities. Following this shift in production will be a shift in operational expenses that results in savings at the existing facilities. Although the method used in each study and by the Commission to calculate the projects' NPVs recognize the production costs shifted to each respective project, the savings at Kentucky-American's existing facilities are not recognized. The level of savings follows

²⁴¹ We note that LWC is required to pay a budgeted dividend to Louisville Metro Government regardless of its financial performance. See Transcript of 11/28/07 Hearing at 214. It is unclear whether this will have an impact upon any future wholesale rate increases.

²⁴² LWC's Response to Kentucky-American's Data Request, Item 99.

the level of production from the projects. The savings increase as the flow rate of the project increases. Therefore, the results of this analysis will be distorted if different flow rates are used.

The projects' NPVs calculated at 10 MGD flow are shown below.

Project	NPV
Pool 3	\$250,936,837
Pipeline	<u>248,305,512</u>
Difference	<u>\$2,631,325</u>
Percent of Difference to:	
Pool 3	1.05%
Pipeline	1.06%

Purchased Power: Pool 3. Purchased power will be required to pump water through the system no matter which project is constructed. Each Study forecasted power costs for Pool 3 based upon the cost estimates prepared by Kentucky-American as shown below.²⁴³ These estimates are stated at the power provider's 2007 rates for electric service.

Flow Rate	6 MGD	20 MGD
Treatment Plant/Raw Water Pump Station (Owen Electric Cooperative)	\$478,772	\$829,656 ²⁴⁴
Booster Station (Kentucky Utilities)	<u>109,388</u>	<u>383,376</u> ²⁴⁵
Total	<u>\$588,160</u>	<u>\$1,213,032</u>

The Commission's NPV for Pool 3 includes power costs to pump 10 MGD as determined from Kentucky-American's estimates. The calculation is shown below. Purchased power costs were adjusted annually for inflation.

²⁴³ Kentucky-American's Response to Commission Staff's First Set of Interrogatories, Item 27(a).

²⁴⁴ Monthly estimate, \$69,138 x 12 months = \$829,656.

²⁴⁵ Monthly estimate, \$31,948 x 12 months = \$383,376.

Power cost 20 mgd		\$ 1,213,032
Power cost 6 mgd		(588,160)
Difference		624,872
Divide by: (20 mgd - 6 mgd)		14
Power cost per mgd over first 6 mgd		44,634
Times: (10 mgd - 6 mgd)		4
Power cost over first 6 mgd		178,535
Add: Power cost of first 6 mgd		588,160
Total power cost to pump 10 mgd		\$ 766,695

Purchased Power: LWC Pipeline. For the 42-inch LWC Pipeline the Gannett Fleming Study includes annual purchase power estimates based upon 2007 power costs of \$26,300²⁴⁶ per MGD while the Beck Study states these costs at \$26,700²⁴⁷ per MDG. To determine power costs for the 36-inch LWC Pipeline, the Beck Study simply doubled that of the 42-inch main “[g]iven that the head loss doubles in the 36-inch” main.²⁴⁸

The Commission determined the LWC Pipeline’s electric costs to be \$53,000 per MGD by doubling the average cost of pumping through a 42-inch main as determined in the Studies, \$26,500 per MGD. The Commission’s method follows that used in the Beck Study. Power costs were adjusted annually for inflation.

Chemicals. Kentucky-American estimated chemical costs for Pool 3 to be \$153,300 at 6 MGD flow. This estimate was used in the Studies and by the Commission. The Commission used the average chemical cost per MGD of \$25,550 (\$153,300 / 6 MGD) to estimate chemical costs for 10 MGD flow to be \$255,500

²⁴⁶ Rebuttal Testimony of Harold Walker, III, Schedule 5, at 1. (Power Cost, \$328,548 / 12.5 MGD = \$26,284).

²⁴⁷ Beck *Comparison*, *supra* note 197, at Appendix B-2 (2010 Power Cost of \$172,266 discounted back to 2007 at inflation rate used by Beck of 2.4 percent = \$160,435 / 6 MGD = \$26,739).

²⁴⁸ *Id.*, Section 5, at 2.

(\$25,550 cost per MGD x 10 MGD). The Commission adjusted chemical costs for annual inflation.

General Maintenance. Kentucky-American estimates annual maintenance costs for Pool 3 to be \$360,000. The Studies and the Commission include this amount in Pool 3's NPV with annual adjustments for inflation.

The Studies estimated annual maintenance for the LWC Pipeline to be \$85,000 (\$60,000 / 30 miles x 42 miles) based on Kentucky-American's estimated maintenance for Pool 3's 30 mile, 42-inch finished water main of \$60,000²⁴⁹ annually. The Commission also includes \$85,000 for LWC Pipeline maintenance with annual adjustments for inflation.

Property Insurance. Property insurance is included in the Gannett Fleming Study by applying an assumed rate of 0.15 percent for the year 2010 to net plant in service. The Beck Study does not include a provision for property insurance. The Commission agrees that property insurance should be included in the projects' NPVs. Based on information from Case No. 2007-00143,²⁵⁰ the Commission finds that the rate applied in

²⁴⁹ Direct Testimony of Linda C. Bridwell at Table 3.

²⁵⁰ Case No. 2007-00143, Notice of Adjustment of the Rates of Kentucky-American Water Company Effective on and After May 30, 2007 (filed Apr. 30, 2007).

the Gannett Fleming Study provides a reasonable estimate for property insurance.²⁵¹ The Commission included property insurance in the NPV of each project at the rate used in the Gannett Fleming Study with annual adjustments for inflation.

Property Taxes: Pool 3. The Studies include a provision for property taxes to be paid on Pool 3. Kentucky-American estimated property taxes for the Pool 3 to be \$1,156,649 based upon applicable tax rates at March 2007.²⁵² Kentucky-American's portion is 80 percent or \$925,319.²⁵³ BWSC, a governmental entity, will not be required to pay its 20 percent share.

The Beck Study includes the entire estimated tax for Pool 3 with annual adjustments for inflation. The method employed by Beck ignores partial ownership by BWSC and that Kentucky-American pays property taxes on the depreciated value of its plant, not gross plant.²⁵⁴

The Gannett Fleming Study adjusts Kentucky-American's portion of the 2007 property tax estimate for inflation up to the year 2010 when Pool 3 is assumed to be operational. The resulting overall property tax rate is 0.0071 percent. From 2010 forward, the Gannett Fleming Study applies this rate, as adjusted annually for inflation, to the depreciated value of Kentucky-American's portion of Pool 3.

²⁵¹ Forecasted Property Insurance, November 30, 2008 (WP-3, Page 83 of 118)	\$379,221
Divided by: Forecasted Net Plant, 13-month Average, Exhibit 37, Schedule B-1, Page 2 of 2	<u>271,599,959</u>
Rate at November 30, 2008	<u>.1396%</u>
Gross-up for 2 years of 3 percent annual inflation	<u>.1481%</u>

²⁵² Kentucky-American's Response to Commission Staff's First Set of Interrogatories, Item 27(a).

²⁵³ Direct Testimony of Linda C. Bridwell at Table 4.

²⁵⁴ Transcript of 11/28/2007 Hearing at 345.

We find the Gannett Fleming method to be appropriate and have used it to include property taxes in Pool 3's NPV with the necessary adjustments to account for Kentucky-American's 100 percent ownership.

Property Taxes: LWC Pipeline. The Beck Study assumed 100 percent public ownership of the LWC Pipeline and did not include a provision for property taxes, whereas, the Gannett Fleming Study assumed Kentucky-American and BWSC ownership of the LWC Pipeline with property taxes being assessed against Kentucky-American's portion. The Gannett Fleming Study applied the same method to determine taxes for the LWC Pipeline as used for Pool 3 but incorporated a slightly higher tax rate for 2010 of 0.0084 percent. No support was given for the higher tax rate.

We find the Gannett Fleming methodology to be appropriate and have used it to determine the LWC Pipeline's NPV. We have, however, applied the same tax rate used for Pool 3, 0.0071 percent.

Kentucky River Authority Withdrawal Fee. The KRA assesses a fee for all water withdrawn from the Kentucky River. The Gannett Fleming Study includes the KRA fee in its analysis of Pool 3 but not the LWC Pipeline. The Beck Study includes the KRA fee in both projects. Recognizing that no legal authority currently exists for the assessment of any KRA withdrawal fee for water supplied through the LWC Pipeline, the Commission has included the KRA fee in the calculation of Pool 3's NPV but not in the LWC Pipeline's NPV.

NPV Summary

Our NPV analysis indicates the cost of the Kentucky-American proposal is slightly higher than that of the LWC proposal. The Kentucky-American proposal has a

NPV of approximately \$250,936,837 as compared to a NPV of \$248,305,512 for the LWC proposal. The difference in NPV between these proposals is \$2.63 million or 1.05 percent. A summary of our analysis is set forth in Appendix B of this Order.

Recognizing that the LWC proposal is a work in progress and lacks concrete and definitive supporting information, we have used conservative assumptions to perform our analysis and to guard against overstatement of that proposal's cost. These assumptions include:

- Sizing the LWC proposed transmission main at 36-inch diameter. Kentucky-American contended that only 42-inch transmission main could adequately deliver 25 MGD of water from Shelby County to Fayette County.²⁵⁵
- Basing the LWC proposed transmission main upon the actual revised bid results for the Kentucky-American proposed transmission main in lieu of estimated costs. The revised bids were 14 percent below Kentucky-American's original estimated cost for the Kentucky-American transmission main.
- Making no adjustments for inflation to the LWC transmission main construction costs. We assumed that construction under both proposals will begin in 2008. LWC, however, is not likely to commence construction until 2009 and to complete construction until 2012.
- Calculating LWC Pipeline overhead costs using the same 17.1 percent rate as was used for the Kentucky-American project. In contrast, the Beck Study used an overhead cost of 50 percent for a 42-inch LWC Pipeline and 32 percent for a 36-inch main. Despite Kentucky-American's experiences in the late 1990s, no significant public opposition to construction of Phase A or Phase B is assumed.
- Omitting any provision to reflect any additional costs for a Kentucky River crossing or the more challenging topography of the Shelby County-Fayette County route.

²⁵⁵ Transcript of 11/28/2007 Hearing at 98.

- Excluding the cost of LWC's interim solutions from the LWC Pipeline proposal.
- Excluding any tax exempt financing for Kentucky-American's investment in either project.

The conservative nature of our assumptions effectively renders meaningless the small difference in the NPV of each proposal. If just one of the foregoing assumptions regarding LWC's Pipeline proposal proved to be too conservative, the impact upon the relative NPV would be such that Kentucky-American's proposal would clearly be the least-cost option.

Reasonableness of Proposed Facilities

Any determination into whether the proposed Facilities will result in wasteful investment requires an examination of the reasonableness of the proposed Facilities. Such an examination must balance all factors, including cost and the Facilities' effectiveness in addressing service inadequacies. Based upon our evaluation of all factors, we find that the proposed Facilities are reasonable.

As set forth above, the proposed Facilities may not be the least cost solution to Kentucky-American's supply deficit. Our NPV comparison indicates that LWC's Pipeline proposal could be slightly less costly than the specific Facilities proposed by Kentucky-American. Yet, the difference in cost between the two proposals is, at most, approximately \$2.63 million or 1.05 percent. Given the size of the projects and the 20-year planning horizon under which these proposals must be considered, this difference is not significant. Furthermore, our cost analysis is based upon very conservative assumptions that are likely to understate the potential cost and inflationary risks of the LWC proposal as it becomes less conceptual and more specific.

That Kentucky-American's proposed facilities may not be the least cost option does not render them per se unreasonable or require their rejection. "The Commission is not restricted to making a close comparison of whose rates will be lowest and whose service will be most efficient."²⁵⁶ Certainly, the Regional Study's conclusion was that the Pool 3 alternative was the most favorable. We think the record as discussed above amply illustrates the principle set forth by the Court of Appeals on the "wasteful duplication" element:

We think that 'duplication' also embraces the meaning of an excessive investment in relation to productivity or efficiency, and an unnecessary multiplicity of physical properties, such as right of ways; poles and wires. An inadequacy of service might be such as to require construction of an additional service facility to supplement an inadequate existing facility, yet the public interest would be better served by substituting one large facility, adequate to serve all the consumers, in place of the inadequate existing facility, rather than constructing a new small facility to supplement the existing small facility. A supplementary small facility might be constructed that would not create duplication from the standpoint of an excess of capacity, but would result in duplication from the standpoint of an excessive investment in relation to efficiency and a multiplicity of physical properties.²⁵⁷

The proposed Facilities clearly have fewer financial and regulatory risks. Kentucky-American and the BWSC have studied and evaluated the proposed Facilities for almost 5 years. We have been presented with no reliable evidence to suggest that the proposed Facilities are deficient or inadequate to resolve Kentucky-American's present supply problems. Kentucky-American has completed the design and routing of the proposed facilities. It has received bids on all facets of the project and has obtained

²⁵⁶ *Kentucky Utilities Co. v. Pub. Serv. Comm'n*, 390 S.W.2d 168,175 (Ky. 1965).

²⁵⁷ *Kentucky Utilities Co. v. Pub. Serv. Comm'n*, 252 S.W. 2d 885, 890 (Ky. 1952).

virtually all regulatory approvals necessary to commence construction. With the exception of obtaining private easements, the project is ready to proceed almost immediately.

In contrast, the LWC Pipeline proposal remains a concept that requires considerable work and is rife with uncertainty and risk. No feasibility or siting study for the proposed transmission main has been conducted. No hydraulic analysis has been prepared. No clear route for the proposed transmission main exists. No permits for such route have been obtained and the likelihood of obtaining such permits has not been adequately assessed. The level of public opposition to the transmission main's route is unknown. The effect of such opposition on the proposed route, the timetable for constructing the proposed transmission main, and on the transmission main's ultimate cost is also unknown. The entity that will own and operate the transmission main has yet to be identified and may not yet be in existence. The effect of such entity's organization upon the Commission's jurisdiction over the price of water that the transmission main will transport is also unknown.

Kentucky-American's proposed Facilities are consistent with regional planning goals. It represents a significant effort to resolve not just a single water utility's supply problem, but to address central Kentucky's water supply problem. Kentucky-American's and BWSC's efforts toward joint ownership of the proposed facilities are a major advance in the regional planning that will ensure better coordination among the region's water providers and a more orderly and effective development and use of the region's water resources. We recognize that LWC's proposal is also a significant step toward

regional planning, but it has yet to evolve beyond a series of concepts that require significant additional work.

In light of all the considerations discussed above, we find that Kentucky-American's proposed Facilities are reasonable, needed, economically feasible and will not result in wasteful investment or wasteful duplication of facilities. They represent a cost-effective approach to resolving Kentucky-American's supply deficit that can be immediately implemented with few regulatory or financial risks and are consistent with regional planning and use of the Kentucky River.

Conditions on a Certificate

The AG proposes that the Commission should issue a Certificate for the proposed construction only upon the following conditions: (1) Kentucky-American hire a qualified conservation consultant to develop a conservation program consistent with the best practices in the water industry; (2) Kentucky-American file with the Commission a new water supply and demand management plan within 6 months of KRS II reaching 80 percent capacity for one day; and (3) Kentucky-American's recovery of KRS II costs in rates are limited to the estimated cost of the proposed Facilities at the time that a Certificate is issued.

The AG contends that these conditions are necessary to address the utility's lackluster performance toward conservation, to prevent recurrence of a decades-long supply deficit, and ensure that Kentucky-American uses contracting, construction, and procurement practices that minimize the cost of the project. He asserts that KRS 278.020 permits the Commission to impose conditions upon the grant of a

Certificate to protect the public interest. LFUCG supports this position and contends that the Commission's inherent authority allows the imposition of conditions.

With the exception of KIUC, which remains silent, the remaining parties argue that the Commission lacks the authority to impose a cost cap. Kentucky-American, BWSC, LWC, and KRA assert that the Commission lacks any authority to impose conditions on the issuance of Certificates since we are not expressly granted such authority by statute. CAWS and KRA suggest that the imposition of a cost cap to limit rate recovery would impermissibly mingle rate proceeding issues in a non-rate case proceeding.

As Kentucky-American has agreed to develop a conservation program and the preparation of a water supply and demand management plan, we need not decide whether we may unilaterally impose such conditions in a certificate proceeding. As these efforts are commendable and the proposed conditions are reasonable, we will direct Kentucky-American to take to actions consistent with the AG's request.

As for the imposition of a cost cap, the Commission finds such action to be unnecessary. Statutory law permits Kentucky-American to recover through its rates only those construction expenditures that are prudently and reasonably incurred. We have the statutory duty to enforce that mandate and do so through extensive examination of these expenditures in rate case proceedings. The construction bids for KRS II provide an excellent benchmark to evaluate Kentucky-American's capital expenditures. In Kentucky-American's upcoming rate case proceedings, we intend to closely scrutinize such expenditures to ensure that only reasonable costs are placed into the utility's ratebase.

To ensure adequate review of the KRS II expenditures and prompt action in the event of the incurrence of unreasonable expenditures, we find that Kentucky-American should file quarterly reports with the Commission on the status of the KRS II construction. These reports should include a comparison of actual project costs with budgeted project costs and a statement of the percentage of project completion. We will closely examine these reports and, in the event of any significant deviation from budgeted costs, will consider the initiation of a formal proceeding to review the construction project and the reasonableness and prudence of Kentucky-American's administration of the project.

CONCLUSION

Though it does not enter into our consideration of "need" and "wasteful duplication," two other points should be mentioned.

First, we find broader policy support for authorizing construction of the facilities. Specifically, the General Assembly has declared:

[I]t shall be the public policy of the Commonwealth to protect the health and welfare of the citizens dependent upon this system of locks and dams for their source of clean water, and to that end, the Commonwealth shall provide for the proper maintenance of the Kentucky River locks and dams through the Kentucky River Authority.²⁵⁸

Likewise, KRA's authority to collect fees, based upon water withdrawals from the Kentucky River basin, is one of the principal sources of funding to carry out its statutory mission.²⁵⁹ Using the Ohio River as a supplemental source of supply to Central Kentucky's supply deficit would necessarily deprive KRA of additional funding and make

²⁵⁸ KRS 151.700(2).

²⁵⁹ See also 420 KAR 1:040 and 420 KAR 1:050.

its task of preserving, maintaining, and improving the Kentucky River basin more difficult to accomplish. As KRA points out, “The only means of recovering that [lost] revenue . . . is to increase the fee on all other users”²⁶⁰ KRA characterizes this impact as a “central Kentucky subsidy of any Louisville Water Company pipeline.”²⁶¹ While LWC has indicated they would consider making a payment to KRA to recover at least some of the lost revenue,²⁶² there is no commitment to do so and Mr. Heitzman confirmed that the proposed wholesale rate did not include the KRA fees.²⁶³ KRA also questions whether any such commitment could be legally enforced.²⁶⁴ Authorizing construction of the Facilities will promote the General Assembly’s stated public policy of providing for “the proper maintenance of the Kentucky River locks and dams through the Kentucky River Authority.”

Second, the question of how to best provide an adequate and reliable supply of water to the citizens of Lexington and central Kentucky is daunting in its complexity and fraught with controversy. It is not surprising that a resolution has been over two decades in the making. Today’s decision is possible because the Commission has been presented, for the first time, with a fully developed and concrete solution to the problem for its formal consideration.

²⁶⁰ KRA Brief at 8-9.

²⁶¹ *Id.* at 10.

²⁶² Transcript of 11/28/07 Hearing at 213.

²⁶³ *Id.*

²⁶⁴ KRA Brief at 8-9.

The Commission recognizes the gravity and import of this decision, which will affect hundreds of thousands of consumers for decades to come. The Commission conducted an exhaustive examination of the issues in this case, going so far as to delay proceedings for the gathering of additional evidence in order to more fully explore all options. In laboring to arrive at this juncture, this Commission has recognized at every step the necessity of reaching the correct decision. We also have recognized that, whatever our decision, it would be deeply disappointing to some of the many people who have a stake in the outcome.

We take this opportunity to thank all of the parties for their diligence and attention to presenting their cases to the Commission. We especially thank all of the many Kentuckians who took the time and made the effort to share their opinions, concerns and questions with the Commission. The Commission believes that a safe, reliable and adequate supply of water, provided at reasonable rates, is essential to the health and economic well-being of every community. We are convinced that our decision today provides central Kentucky with the most timely, cost-effective and reliable solution to its water supply needs in the coming decades. We are likewise convinced that the evidence placed before us compels the result we reach today.

It is our fervent hope that this decision will bring a measure of closure to the controversy of the last twenty years and will allow this region to move forward in addressing its pressing need for an additional source of water. It is long overdue.

FINDINGS OF FACT AND CONCLUSIONS OF LAW

Having considered the evidence of record and being otherwise sufficiently advised, the Commission makes the following findings of fact:

1. The methodology that Kentucky-American uses to project its future water demand and supply deficit is reasonable.
2. Kentucky-American's projected water demand and supply deficit is within a zone of reasonableness.
3. KRS I and RRS, the treatment facilities that serve Kentucky-American's Central Division, have a combined rated production capacity of 65 MGD.
4. Based upon present demand projections, Kentucky-American's maximum day demand for its Central Division in 2010 will be 75.33 MGD and is projected to increase to 86.6 MGD by 2030.
5. Even taking into account reasonable conservation efforts and usage restrictions, Kentucky-American's projected usage under severe drought conditions is 55 MGD in 2010 and is 63.07 MGD in 2030.
6. Based upon present demand projections, Kentucky-American will have a projected treatment capacity deficit of 10.33 MGD for its Total Maximum Day Demand in 2010 and 21.6 MGD by 2030.
7. KRS I and RRS lack adequate capacity to satisfy Kentucky-American's projected maximum day demand in 2010 and thereafter.
8. Pool 9 of the Kentucky River is the principal source of raw water for KRS I and RRS.
9. Based upon the limitations set forth in Kentucky-American's water withdrawal permits and its present condition, Pool 9 presently has an estimated safe-yield of 35 MGD during a drought of record and an estimated safe-yield of 63 MGD during periods of maximum usage in normal weather conditions.

10. Even taking into account reasonable conservation efforts and usage restrictions, Pool 9 of the Kentucky River is presently unable to meet Kentucky-American's projected maximum water demand in severe drought periods and during normal weather conditions.

11. Kentucky-American proposes to construct KRS II, a water treatment plant with a maximum capacity of 20 MGD, on Pool 3 of the Kentucky River.

12. Pool 3 of the Kentucky River will safely yield a minimum of 20 MGD during a severe drought period.

13. Kentucky DOW has issued to Kentucky-American a water withdrawal permit that permits a withdrawal of 20 MGD from Pool 3 during the period from June 1 through August 31.

14. Pool 3 has adequate flows to meet KRS II's currently planned capacity.

15. The transmission main and attendant storage and booster pump facilities proposed by Kentucky-American are appropriately sized and, by taking advantage of existing state rights-of-way, the route selected by Kentucky-American is reasonable.

16. KRA has budgeted and planned for the replacement of Dam 3 on the Kentucky River. The replacement is scheduled to commence in 2008 and to conclude in 2010. Completion of the replacement will leave the pool elevation substantially unchanged and is expected to remain functional for 50 years without substantial maintenance.

17. Kentucky-American, either individually or in concert with other central Kentucky water suppliers, reviewed more than 40 alternatives to resolving its water supply issues. These reviews consistently found that construction of a water treatment

plant on Pool 3 of the Kentucky River to be the most effective and timely solution to Kentucky-American's water supply deficit.

18. Construction of the Facilities will provide Kentucky-American with adequate supply and treatment capacity to meet its projected demands until 2030.

19. Construction of the Facilities is a reasonable solution to Kentucky-American's water supply and treatment capacity problems.

20. The proposed construction will not conflict with the service of other utilities that are operating in the general area in which Kentucky-American renders service or is contiguous thereto.

21. Kentucky-American has demonstrated that the Facilities are needed and will not result in wasteful duplication.

22. Kentucky-American has agreed to develop a conservation program and to prepare a water supply and demand management plan.

Based upon the above, the Commission makes the following conclusions of law:

1. Kentucky-American is a utility as defined in KRS 278.010(3)(d) and is subject to Commission jurisdiction.

2. The proposed facilities are not extensions in the ordinary course of business.

3. KRS 278.020(1) requires Kentucky-American to obtain a Certificate from the Commission prior to commencing construction of the proposed facilities.

4. KRS 278.030 requires Kentucky-American to provide "adequate, efficient and reasonable service."

5. To provide adequate service, a water utility must have adequate supply capacity to meet reasonable maximum projected customer demands under normal weather conditions and under drought of record conditions.

6. As a result of its lack of treatment capacity and source of supply sufficient to meet reasonable maximum projected customer demands under normal conditions or in a drought of record, Kentucky-American's existing service is not adequate.

7. Construction of the proposed facilities is economically feasible and necessary to enable Kentucky-American to provide adequate service.

8. Construction of the proposed facilities will not result in wasteful duplication, whether in the form of an excessive investment in relation to efficiency or from the standpoint of inconvenience to the public generally in relation to economic loss suffered through interference with normal uses of land.

9. The public convenience and necessity require construction of the proposed facilities.

IT IS THEREFORE ORDERED that:

1. Kentucky-American is granted a Certificate of Public Convenience and Necessity to construct the proposed facilities set forth in its application.

2. Kentucky-American shall obtain the approval of the Commission prior to performing any additional construction not expressly authorized by this Order.

3. Any material deviation from the construction approved shall be undertaken only with the prior approval of the Commission.

4. Kentucky-American shall furnish documentation of the total costs of this project including the cost of construction and all other capitalized costs, including,

but not limited to, engineering, legal, and administrative expenses, within 60 days of the date construction is substantially completed. Construction costs shall be classified into appropriate plant accounts in accordance with the Uniform System of Accounts for water utilities prescribed by the Commission.

5. Kentucky-American shall file with the Commission a copy of the “as-built” drawings and a certified statement the construction has been satisfactorily completed in accordance with the contract plans and specifications within 60 days of the substantial completion of the construction certificated herein.

6. Kentucky-American shall require construction to be inspected under the general supervision of a licensed professional engineer with a Kentucky registration in civil or mechanical engineering, to ensure that the construction work is completed in accordance with the contract drawings and specifications, and in conformance with the best practices of the construction trades involved in the project.

7. Kentucky-American shall notify the Commission 7 days prior to the actual start of construction and at the 50 percent completion point.

8. No later than October 1, 2008, Kentucky-American shall retain a qualified consultant(s) to assist in developing a water conservation, leak-mitigation and demand management plan consistent with the best practices of the water industry. This plan shall include a program or programs to cost-effectively reduce non-revenue water.

9. On November 1, 2008 and the first day of each month thereafter, Kentucky-American shall submit a written report to the Commission on the status of the development and implementation of its water conservation, leak-mitigation and demand-

side management plan and the effects that the implementation of such plan has had on water usage.

10. Within 10 days of the date upon which 80 percent of the KRS II's total capacity is used for a one-day period, Kentucky-American shall advise the Commission in writing of this occurrence.

11. No later than one hundred eighty days following the date upon which 80 percent of the KRS II's total capacity is used for a one-day period, Kentucky-American shall file with the Commission a new supply and demand management plan that, *inter alia*, addresses the utility's expected demand for the next 20-year period and approaches for meeting such demand. This requirement is not applicable when an emergency circumstance, such as a serious fire event or the temporary outage of one of Kentucky-American's other treatment facilities, is responsible for high usage of KRS II's capacity.

12. Beginning on July 1, 2008 and on the first day of each calendar quarter thereafter, Kentucky-American shall file a report providing an update on the project, including its construction progress, a comparison of actual project costs versus budgeted costs, and a statement of the percentage of project completion. Copies of said reports shall be served on all parties of record to this proceeding.

Done at Frankfort, Kentucky, this 25th day of April, 2008.

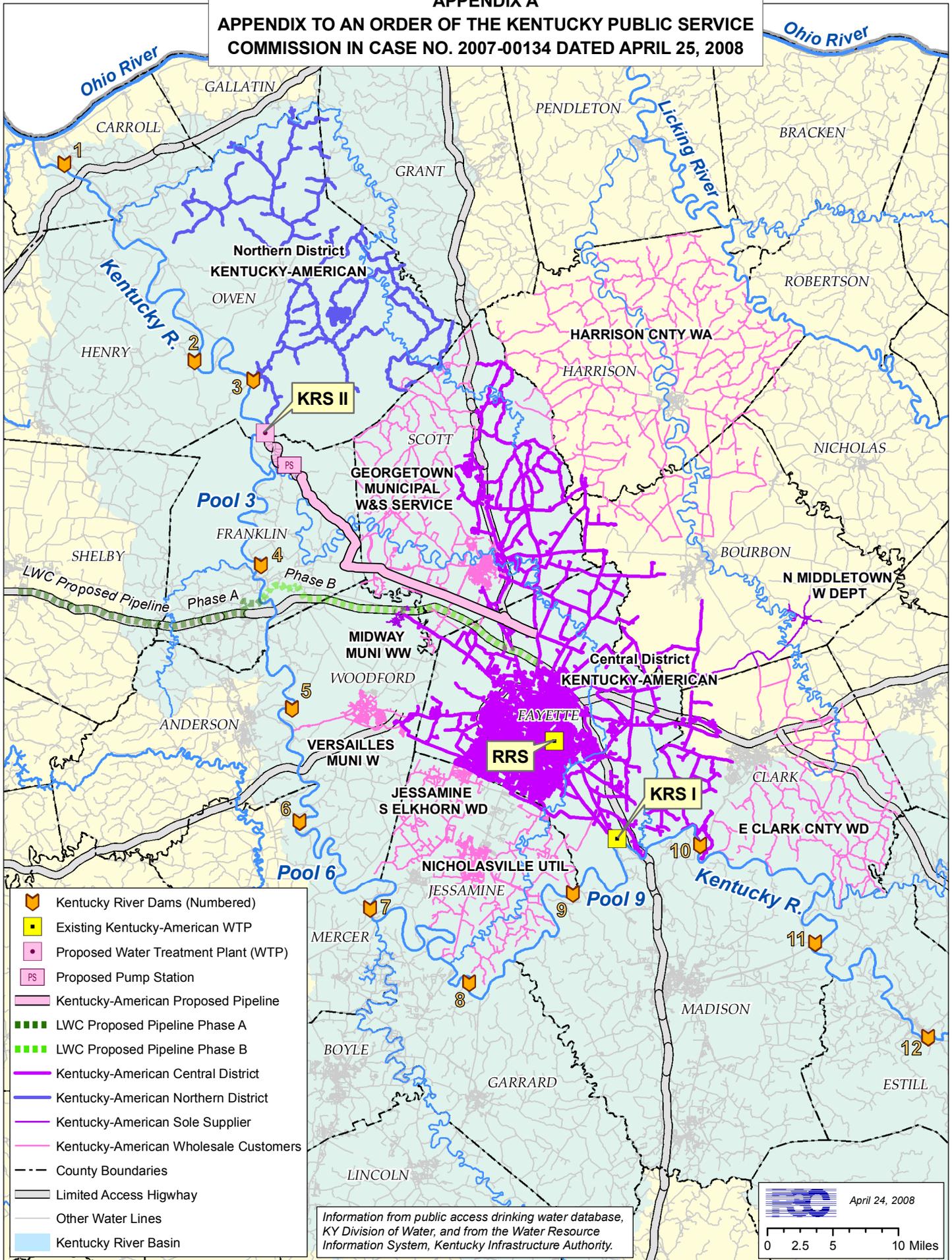
By the Commission

Commissioner Clark Abstains.

ATTEST:


Executive Director *for Stephanie Stumbo*
by permission

APPENDIX A
APPENDIX TO AN ORDER OF THE KENTUCKY PUBLIC SERVICE
COMMISSION IN CASE NO. 2007-00134 DATED APRIL 25, 2008



APPENDIX B

APPENDIX TO AN ORDER OF THE KENTUCKY PUBLIC SERVICE
COMMISSION IN CASE NO. 2007-00134 DATED APRIL 25, 2008

Net Present Value Calculation for Pool 3

Cost of Project	
Revised Bid Price	\$ 126,983,181
Construction Overheads	21,718,350
AFUDC	11,537,655
Land	1,968,024

Total Cost of Project \$ 162,207,210

Capital Expenditures	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030		
Kentucky American's Share																										
Plant in Service				162,207,210	162,207,210	162,207,210	162,207,210	162,207,210	162,207,210	162,207,210	162,207,210	162,207,210	162,207,210	162,207,210	162,207,210	162,207,210	162,207,210	162,207,210	162,207,210	162,207,210	162,207,210	162,207,210	162,207,210	162,207,210		
Accumulated Depreciation				(2,998,109)	(5,996,217)	(8,994,325)	(11,992,434)	(14,990,542)	(17,988,650)	(20,986,758)	(23,984,866)	(26,982,974)	(29,981,082)	(32,979,191)	(35,977,299)	(38,975,407)	(41,973,515)	(44,971,623)	(47,969,731)	(50,967,839)	(53,965,948)	(56,964,056)	(59,962,164)	(62,960,272)		
Deferred Taxes				(1,327,058)	(2,654,115)	(3,981,173)	(5,308,231)	(6,635,288)	(7,962,346)	(9,289,404)	(10,616,461)	(11,943,519)	(13,270,577)	(14,597,634)	(15,924,692)	(17,251,750)	(18,578,807)	(19,905,865)	(21,232,923)	(22,559,980)	(23,887,038)	(25,214,096)	(26,541,153)	(27,868,211)		
Total Rate Base				<u>157,882,044</u>	<u>153,556,878</u>	<u>149,231,712</u>	<u>144,906,546</u>	<u>140,581,380</u>	<u>136,256,214</u>	<u>131,931,049</u>	<u>127,605,883</u>	<u>123,280,717</u>	<u>118,955,551</u>	<u>114,630,385</u>	<u>110,305,220</u>	<u>105,980,054</u>	<u>101,654,888</u>	<u>97,329,722</u>	<u>93,004,556</u>	<u>88,679,390</u>	<u>84,354,225</u>	<u>80,029,059</u>	<u>75,703,893</u>	<u>71,378,727</u>		
Bluegrass Water Supply Commission's Share																										
Plant in Service				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Accumulated Depreciation				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Net Plant				<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>															
Operating Costs																										
Cost of Kentucky American Investment				7.840%	7.840%	7.840%	7.840%	7.840%	7.840%	7.840%	7.840%	7.840%	7.840%	7.840%	7.840%	7.840%	7.840%	7.840%	7.840%	7.840%	7.840%	7.840%	7.840%	7.840%		
Return Required on Investment				12,377,625	12,038,541	11,699,457	11,360,373	11,021,289	10,682,205	10,343,121	10,004,037	9,664,953	9,325,869	8,986,785	8,647,701	8,308,617	7,969,533	7,630,449	7,291,365	6,952,281	6,613,197	6,274,113	5,935,028	5,595,944		
Gross-up on Return (State Tax 6%, Federal Tax 35%, Bad Debts, PSC Fee)				4,343,831	4,224,832	4,105,833	3,986,834	3,867,835	3,748,836	3,629,837	3,510,839	3,391,840	3,272,841	3,153,842	3,034,843	2,915,844	2,796,845	2,677,846	2,558,847	2,439,848	2,320,850	2,201,851	2,082,852	1,963,853		
Debt Requirement on BWSC Share																										
Principal and Interest at 4% over 30 years				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Coverage at 25% of Principal and Interest				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Depreciation Expense				2,998,108	2,998,108	2,998,108	2,998,108	2,998,108	2,998,108	2,998,108	2,998,108	2,998,108	2,998,108	2,998,108	2,998,108	2,998,108	2,998,108	2,998,108	2,998,108	2,998,108	2,998,108	2,998,108	2,998,108	2,998,108		
Labor Salaries and Overhead	0.03	620,382	638,993	658,163	677,908	698,245	719,193	740,769	762,992	785,881	809,458	833,742	858,754	884,516	911,052	938,383	966,535	995,531	1,025,397	1,056,159	1,087,844	1,120,479	1,154,093	1,188,716	1,224,378	
Security	0.03	300,000	309,000	318,270	327,818	337,653	347,782	358,216	368,962	380,031	391,432	403,175	415,270	427,728	440,560	453,777	467,390	481,412	495,854	510,730	526,052	541,833	558,088	574,831	592,076	
Purchased Water																										
Chemicals	10.0 mgd	0.03	766,696	789,697	813,388	837,789	862,923	888,811	915,475	942,939	971,228	1,000,364	1,030,375	1,061,287	1,093,125	1,125,919	1,159,696	1,194,487	1,230,322	1,267,232	1,305,249	1,344,406	1,384,738	1,426,280	1,469,069	1,513,141
General Maintenance	10.0 25,550	0.03	255,500	263,165	271,060	279,192	287,568	296,195	305,080	314,233	323,660	333,370	343,371	353,672	364,282	375,210	386,467	398,061	410,002	422,303	434,972	448,021	461,461	475,305	489,564	504,251
Property Insurance	0.03	360,000	370,800	381,924	393,382	405,183	417,339	429,859	442,755	456,037	469,718	483,810	498,324	513,274	528,672	544,532	560,868	577,694	595,025	612,876	631,262	650,200	668,706	687,797	710,491	
Property Taxes	0.03			238,814	241,346	243,815	246,216	248,540	250,783	252,937	254,994	256,947	258,788	260,527	262,159	263,689	265,114	266,534	267,950	269,362	270,770	272,174	273,574	274,969	276,359	
KRA Fee	10.0 0.05	0.03	182,500	187,975	193,614	1,130,385	1,142,371	1,154,059	1,165,421	1,176,425	1,187,041	1,197,235	1,206,972	1,216,216	1,224,928	1,233,069	1,240,595	1,247,464	1,253,627	1,259,038	1,263,646	1,267,396	1,270,235	1,272,103	1,272,940	1,272,682
Total				<u>23,804,274</u>	<u>23,442,175</u>	<u>23,082,159</u>	<u>22,724,265</u>	<u>22,368,530</u>	<u>22,014,996</u>	<u>21,663,701</u>	<u>21,314,687</u>	<u>20,967,993</u>	<u>20,623,661</u>	<u>20,281,732</u>	<u>19,942,248</u>	<u>19,605,252</u>	<u>19,270,785</u>	<u>18,938,891</u>	<u>18,609,612</u>	<u>18,282,993</u>	<u>17,959,076</u>	<u>17,637,906</u>	<u>17,319,526</u>	<u>17,003,981</u>		
Discount Rate		4.70%																								
Total Discounted Value				<u>20,740,294</u>	<u>19,507,930</u>	<u>18,346,069</u>	<u>17,250,820</u>	<u>16,218,500</u>	<u>15,245,622</u>	<u>14,328,889</u>	<u>13,465,179</u>	<u>12,651,539</u>	<u>11,885,175</u>	<u>11,163,443</u>	<u>10,483,845</u>	<u>9,844,013</u>	<u>9,241,713</u>	<u>8,674,830</u>	<u>8,141,362</u>	<u>7,639,419</u>	<u>7,167,214</u>	<u>6,723,056</u>	<u>6,305,347</u>	<u>5,912,579</u>		

250,936,837

