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PETITION OF TRAVIS COUNTY
MUNICIPAL UTILITY DISTRICT
NO. 12 APPEALING CHANGE OF
WHOLESALE WATER RATES
IMPLEMENTED BY WEST
TRAVIS COUNTY PUBLIC
UTILITY AGENCY, CITY OF BEE
CAVE, TEXAS, HAYS COUNTY,
TEXAS, AND WEST TRAVIS
COUNTY MUNICIPAL UTILITY
DISTRICT NO. 5

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BEFORE THE STATE OFFICE

OF

ADMINISTRATIVE HEARINGS

DIRECT TESTIMONY

OF

DR. JAY ZARNIKAU

ON BEHALF OF
TRAVIS COUNTY MUNICIPAL UTILITY
DISTRICT 12

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DIRECT TESTIMONY OF DR. JAY ZARNIKAU

TABLE OF CONTENTS

I. INTRODUCTION AND QUALIFICATIONS.....	3
II. FINDINGS AND CONCLUSIONS.....	5
III. THE SUPPLIERS JOINTLY OPERATE AS A MONOPOLY.....	6
IV. THE SUPPLIERS HAVE ABUSED THEIR MONOPOLY POWER.....	13

Exhibits:

JZ Exhibit 1	Zarnikau Resume, Previous Testimony Before Regulatory Commissions and Publications
JZ Exhibit 2	Acquisition, Water Supply, Wastewater Water Treatment and Conditional Purchase Agreement (3-19-12)
JZ Exhibit 3	Resolution of West Travis County Public Utility Agency Authorizing the Negotiation and Execution of Four Amendments to Wholesale Customer Agreements
JZ Exhibit 4	LCRA Board Agenda, 1-16-13, Item No. 9 Adopt Wholesale Portable Water Rates for Deer Creek Water Co., Inc. and Lazy Nine MUD No. 1A and Exhibit A
JZ Exhibit 5	FYE 2014 Wholesale Customer Minimum Bill Analysis to the "proposed new methodology" "proposed approach" or the "Proposed methodology"

1 **I. INTRODUCTION AND QUALIFICATIONS**

2 **Q. Please state your name and business address.**

3 A. My name is Jay Zarnikau. My business address is 1515 Capital of Texas Hwy,
4 South, Suite 110, Austin, Texas.

5 **Q. By whom are you employed and in what capacity?**

6 A. I am the president of Frontier Associates LLC. My firm provides consulting
7 assistance and engineering services to energy consumers, electric and gas
8 utilities, water utilities, and government agencies on topics related to economics
9 and pricing, utility cost allocation and rate design, forecasting, resource planning,
10 energy efficiency program design and evaluation, water conservation, and
11 regulatory policy. We also provide software used by utilities to better manage
12 their energy efficiency and renewable energy programs.

13 **Q. Please summarize your educational background and professional**
14 **qualifications.**

15 A. I have a Ph.D. in Economics from the University of Texas, Austin. I completed
16 undergraduate studies in Business Administration and Economics at the State
17 University of New York and McGill University in Canada. My resume and my
18 Previous Testimony Before Regulatory Commissions and Publications is
19 attached as JZ Exhibit 1.

20 From 1983 through 1991, I was employed by the Public Utility
21 Commission of Texas ("PUCT" or "Commission"). At the PUCT, I served as the
22 Manager of Economic Analysis from 1985 through 1988; as the Assistant
23 Director of the Electric Division from 1987 to 1988; and as the Director of the
24 Electric Division from September 1988 to 1991.

25 I held a faculty-level research position at The University of Texas Center
26 for Energy Studies from 1991 through 1993.

1 I served as a vice president at Planergy, Inc., a firm providing consulting
2 services, load curtailment programs, and energy efficiency programs, from 1992
3 to 1999.

4 Since 1999, I have been president of Frontier Associates LLC, a
5 consulting firm with a staff of about 25 professionals.

6 I have written numerous reports and articles on the topics of electric utility
7 resource planning, water pricing, energy policy, electricity rate design, demand
8 response, demand-side management, and electric utility restructuring. Over 35
9 of the articles that I have written or coauthored on these topics appear in
10 academic journals.

11 I teach graduate-level classes at the University of Texas as a part-time
12 Visiting Professor in the Department of Statistics and the LBJ School of Public
13 Affairs.

14 **Q. Have you previously testified before regulatory commissions?**

15 A. Yes. I have testified before the PUCT in over twenty-five dockets on behalf of
16 the Commission staff, electric utilities, and various consumers. My testimony
17 has addressed a variety of topics including the design of industrial tariffs,
18 interruptible rates, billing determinants, energy demand forecasting, computer
19 modeling, fuel costs, energy and utility regulatory policy issues, energy efficiency
20 programs, and resource planning. I have also testified before the Railroad
21 Commission of Texas on natural gas-related issues, in federal and state civil
22 courts in Texas on utility matters, and testified or submitted testimony to
23 regulatory authorities in Arizona, Arkansas, West Virginia, Virginia, South
24 Carolina, California, and Pennsylvania.

25 **Q. On whose behalf are you appearing in this proceeding?**

26 A. I am appearing on behalf of Travis County Municipal Utility District No. 12
27 ("TCMUD 12"), which obtains wholesale water service on its own behalf and on
28 behalf of TCMUD 13 and the portion of TCMUD 11 that is not the Rough Hollow
29 development. The three Districts that obtain wholesale water service from the

1 West Travis County Public Utility Agency are collectively referred to as The
2 Highlands, as Mr. DiQuinzio explains in his testimony.

3 **Q. What is your assignment in this proceeding?**

4 A. My direct testimony explores whether West Travis County Public Utility Agency
5 and its three participants, City of Bee Cave, Texas; Hays County, Texas; and
6 West Travis County Municipal Utility District No. 5 (which I shall collectively refer
7 to as "Suppliers") abused its monopoly power in its relationships with TCMUD 12.
8 In this examination, I shall employ some of the definitions developed in the
9 economics literature and in case law to determine whether the Suppliers operate
10 as a monopoly and whether they have abused their monopoly power.

11 **II. FINDINGS AND CONCLUSIONS**

12 **Q. Please state your findings and conclusions.**

13 A. My testimony supports the following findings and conclusions:

- 14 • The Suppliers operate as a monopolist in the provision of wholesale water
15 services to TCMUD 12. That is, the Suppliers hold a dominant position in this
16 market and have the ability to control prices and quantities associated with the
17 provision of wholesale water services to TCMUD 12, thus meeting the definition
18 of a monopolist typically applied in antitrust law. Furthermore, the Suppliers
19 exercise exclusive control over the provision of wholesale water services to the
20 TCMUD 12 service area, and there are formidable barriers to entry to any
21 alternative supplier, thus meeting the much stricter definition of a monopolist
22 used in modern economic theory. While the definition of a monopoly developed
23 in antitrust case law is more applicable in this particular context than the stricter
24 definition used in the modern economics literature, the Suppliers are clearly a
25 monopolist under either definition.
- 26 • The Suppliers have abused their monopoly power in their dealings with TCMUD
27 12. Two of the public interest criteria in P.U.C. SUBST. R. §24.133(a)(3),
28 Determination of Public Interest have been violated.

III. THE SUPPLIERS JOINTLY OPERATE AS A MONOPOLY

Q. What is a monopoly?

A. In the economics literature, a monopoly is a market structure within which one producer (or a group of producers acting in concert) exercises exclusive control over all, or nearly all, of a supply of a good or service in a certain area or market, and where there are formidable barriers to entry.

Antitrust law and courts in the U.S. have developed a definition using a much lower standard to classify a market structure as a monopoly. Small rival suppliers may be present, and the market structure may nonetheless be considered a monopoly. Courts in the U.S. often consider a 70% market share sufficient to establish a *prima facie* case of monopoly power,¹ while economists would be reluctant to conclude that a true monopoly exists at such a level of concentration. In the modern economics literature, this market structure would usually be called a market structure with a dominant firm. Thus, a *dominant firm*, as defined in economics literature, is what antitrust law means by a *monopolist*.

The difference in definitions is due to how the economics literature has changed over time. At the time the Sherman Act was passed in 1890, the economics literature referred to a market structure where one supplier was dominant as a monopoly, regardless of whether there were also smaller rival firms present in the market. Thus, the Sherman Act used the terms *monopoly* and *monopolization*. In the years since 1890, the economics profession adopted a narrower standard for what constitutes a monopoly, while the Sherman Act continues to be the foundation for federal antitrust law, and case law has developed using the terms contained in the Sherman Act. Antitrust laws written in more-recent years in other nations (e.g., the European Commission Treaty)

¹ Stephen Calkin, *Competition Today*, ed. Vinod Dhall, Oxford, 2007, p. 420.

1 use the phrase *dominant position* in a manner similar to how the term *monopolist*
2 is used in antitrust law in the U.S.²

3 **Q. In this proceeding, should the Commission adopt the definition of**
4 **monopoly prevalent in the economics literature or the interpretation**
5 **established through case law?**

6 A. Given that the purpose of P.U.C. SUBST. R. §24.133 is to explore the public
7 interest associated with a particular situation, I believe that the definition
8 established through court decisions is more appropriate. Nonetheless, in this
9 particular situation, my findings are unaffected by which definition is employed.
10 Consequently, I will apply both definitions here.

11 **Q. Why would the definition established through case law be more**
12 **appropriate in exploring issues surrounding the public interest than the**
13 **very strict definition of a monopoly adopted in modern economics**
14 **literature?**

15 A. The public interest concern of regulatory agencies surrounds situations where a
16 supplier or group of suppliers has a sustainable ability to control prices or the
17 quantities supplied in a market. If this is the case, it may be in the public interest
18 for the regulatory authority to review and approve the prices charged by the
19 dominant firm. This situation can occur even if there are some smaller “fringe”
20 suppliers with a significant market share in the same market as the dominant
21 firm.

22 **Q. Do the Suppliers (West Travis County Public Utility Agency and its three**
23 **participants, City of Bee Cave, Texas; Hays County, Texas; and West Travis**
24 **County Municipal Utility District No. 5) exercise control over all, or nearly**
25 **all, of the supply of water services in the TCMUD 12 service area defined**
26 **here as The Highlands?**

27 A. Yes. The Suppliers are presently the only provider of services related to the
28 diversion, treatment, and delivery of water (“wholesale water services”) within the
29 retail water service area of TCMUD 12. As stated in the Direct Testimony of Mr.

² For a further discussion of this topic, see Einer Elhauge and Damien Geradin, *Global Competition Law and Economics*, Hart Publishing, Oxford, 2007, p. 243.

1 Joe DiQuinzio, the Suppliers exercise sole control over the supply of water
2 services required by the retail customers of The Highlands.

3 **Q. Is it also important to consider barriers to entry in a determination of**
4 **whether a market structure is a monopoly?**

5 A. Yes. If it is easy for new producers to enter the market, then the incumbent
6 producer(s) cannot act as a monopolist. With “ease of entry” – i.e., very low
7 barriers to entry – the producer(s) have less control over the supply of the good
8 or service, and less control over prices due to the threat of competition. When
9 there is ease of entry and exit such that the market is “contestable,” any attempt
10 to change a price or change the quantity supplied of the good or service could
11 invite competition, resulting in diminished control by the incumbent producer(s)
12 and more-competitive market outcomes. Thus, barriers to entry are a key
13 consideration in determining if the Suppliers are a monopoly.

14 **Q. Are there barriers to entry which would prevent TCMUD 12 from acquiring**
15 **wholesale water services from an alternative supplier or group of**
16 **suppliers?**

17 A. Yes, there are formidable barriers to entry. As stated in the Direct Testimony of
18 Mr. Joe DiQuinzio, there is no practical alternative to the use of the Suppliers’
19 system by TCMUD 12. There are no other existing suppliers of wholesale water
20 services with the capacity and infrastructure necessary to provide an alternative
21 to the system controlled by the Suppliers. Building a new system which could
22 serve as a substitute for the system controlled by the Suppliers would be
23 prohibitively expensive, and might lead to the abandonment of capacity reserved
24 on the system controlled by the Suppliers which TCMUD 12 has already paid for.

25 **Q. How might the Suppliers respond to an attempt by TCMUD 12 to develop a**
26 **competing system which would displace TCMUD 12’s need for wholesale**
27 **water services from the Suppliers?**

28 A. It is difficult to speculate how the Suppliers would respond but several provisions
29 in the agreements provide useful information. It is informative to note that the
30 Suppliers are obligated by contract to “prohibit” competing systems. Section
31 7.07(h) of the Acquisition, Water Supply, Wastewater Treatment and Conditional

1 Purchase Agreement³ signed by the three participants in the West Travis County
2 Public Utility Agency reads:

3 No Competition. To the extent permitted by law, it will not grant any
4 franchise or permit for the acquisition, construction, or operation of any
5 competing facilities which might be used as a substitute for such
6 Participant's System's facilities, and, to the extent permitted by law, each
7 Participant will prohibit any such competing facilities.

8 Under the same Acquisition Agreement, the Participants are also prohibited from
9 reselling water that they purchase from the PUA to third party wholesalers
10 without obtaining consent of the PUA and the other Water Participants; and the
11 Water Participants are prohibited from entering into contracts with any entity
12 other than the PUA for supply of water during the term of the Acquisition
13 Agreement.⁴

14 Under the Wholesale Water Services Agreement,⁵ LCRA (and now the PUA)
15 agreed to divert, transport, and treat for TCMUD 12 *all water needed and*
16 *requested* by TCMUD 12 for the District Service Area, up to a peak hourly flow
17 rate of 414,000 gallons per hour and a maximum daily flow rate of 3,980,000
18 gallons per day.⁶ The Agreement also provides that if TCMUD 12's demand for
19 wholesale water services exceeds that amount, TCMUD 12 must notify LCRA
20 (now the PUA) of the shortage and the additional water required. Only if LCRA
21 (now the PUA) is unable to provide additional water may TCMUD 12 seek water
22 from another source. If the LCRA (now the PUA) is unable to provide the
23 amount of water required under the Water Services Agreement, then LCRA (now
24 the PUA) will be in default.⁷

³ JZ Exhibit 2, Acquisition, Water Supply, Wastewater Treatment and Conditional Purchase Agreement (Mar. 19, 2012) (WTCPUA 00006075 – 6125).

⁴ JZ Exhibit 2, Section 5.08.

⁵ JAD Exhibit 4.

⁶ *Id.*, Section 3.03.a.

⁷ *Id.* at Section 3.03.c.

1 **Q. If a competing supply of wholesale water services could be built to supply**
2 **TCMUD 12, what would that involve?**

3 A. Construction of a competing supply of wholesale water services would require
4 considerable time and investment. And during the time required to construct a
5 substitute system, the Suppliers would continue to enjoy monopolist status.

6 **Q. How does the Texas Water Code define a monopoly?**

7 A. As stated in Texas Water Code §13.001(b): "retail public utilities are by definition
8 monopolies in the area they serve."

9 Similarly, the Public Utility Regulatory Act refers to regulated transmission
10 and distribution electric utilities as monopolies.⁸

11 **Q. Are the participants in, and the West Travis County Public Utility Agency,**
12 **retail public utilities?**

13 A. Yes.

14 **Q. Is TCMUD 12 within the water area served by the Suppliers?**

15 A. Yes. TCMUD 12 is within the water area served by the Suppliers. Exhibit C to
16 the Acquisition, Water Supply, Wastewater Treatment and Conditional Purchase
17 Agreement signed by the Suppliers includes the The Highlands as part of the
18 PUA Water Service Area.⁹ In addition, the Wholesale Water Services
19 Agreement between LCRA and TCMUD 12, which was the subject of the
20 Transfer Agreement between TCMUD 12, LCRA and PUA,¹⁰ defines the LCRA
21 Service Area as the service area for the LCRA System¹¹ depicted in Exhibit B¹²
22 as the "West Travis County Regional Water System." TCMUD 12 receives

⁸ See, for example, PURA §31.001(b) ("Electric utilities are by definition monopolies in many of the services provided and areas they serve. As a result, the normal forces of competition that regulate prices in a free enterprise society do not always operate. Public agencies regulate electric utility rates, operations, and services, except as otherwise provided by this subtitle.")

⁹ JZ Exhibit 2 at Exhibit C, referenced in Section 5.08.

¹⁰ JAD Exhibit 5.

¹¹ JAD Exhibit 4, Article I, Definitions ("LCRA Service Area", "LCRA System")

¹² *Id.*, at Exhibit B.

1 wholesale water service on behalf of The Highlands from the West Travis County
2 Regional Water System, which is now known as the PUA Water Service Area.

3 **Q. Are there formal tests for determining whether a supplier (or group of**
4 **suppliers) is a monopolist?**

5 A. While the ability of a producer or group of producers to control prices and/or
6 quantities supplied requires some consideration of the market setting, some
7 simple “screens” have been developed. Such screens are informative, but may
8 not provide conclusive evidence.

9 For example, formulas have been developed to estimate the degree of
10 market power in a given market. However, when there is only one firm or group
11 of firms with the ability to provide a good or service in a given market, there is
12 little need to conduct a formal test.

13 Nonetheless, I shall provide an example calculation. The Herfindahl-
14 Hirschman Index (HHI) is often used by the U.S. Department of Justice (US DOJ)
15 to measure market concentration.¹³ It uses the formula:

$$16 \quad HHI = S_1^2 + S_2^2 + S_3^2 + \dots + S_n^2$$

17 where S_n is the market share of firm i .

18 The relevant market in this situation is the provision of wholesale water
19 services to TCMUD 12 for the benefit of The Highlands’ retail water service area.
20 The Suppliers have 100% of the market share, thus the index is:

21 $HHI = S_1^2 = 100^2 = 10,000$. The US DOJ regards a market structure
22 with a HHI this high as a monopoly. In fact, under the US DOJ’s guidelines,
23 markets with an HHI over 1,800 are considered to be highly concentrated, and
24 may merit further examination.

25 **Q. Is “market concentration” synonymous with “market power”?**

26 A. Not quite. However, higher market concentration tends to be associated with a
27 greater ability to control the prices and quantity supplied to a market.
28 Consequently, statistics pertaining to market share and formulas such as the HHI

¹³ See: <http://www.justice.gov/atr/public/guidelines/hhi.html>.

1 are often used as an initial screen. Yet, some understanding of the price
2 elasticity of demand, the cost structure of various suppliers, and other factors
3 may also be informative, as well as barriers to entry as discussed earlier.

4 **Q. Is it unusual for a market to have a single provider of a good or service?**

5 A. This is a common situation for utility products or services. Utilities tend to have
6 *natural monopoly* characteristics. That is, it tends to be uneconomical to
7 construct and operate competing systems to transport and distribute electricity or
8 water. In such situations, and if the product or service is viewed as sufficiently
9 important, then the suppliers of such services may be subject to regulation.

10 **Q. Why would the price elasticity of demand have any bearing on whether a**
11 **monopoly exists?**

12 A. The price elasticity of demand affects the ability of the monopolist or dominant
13 firm to control prices. If the demand for a product or service is very elastic, such
14 that a 1% increase in price results in a decline in demand of well over 1%, then a
15 monopolist may be unable to profit from an increase in prices (although the cost
16 structure of the producer may affect this conclusion). If, however, a change in
17 price has little effect on the quantity demanded, then the monopolist or dominant
18 firm will tend to have greater control over prices.

19 The demand for water (and electricity) tends to be very price-inelastic.
20 That is, a change in price tends to have a less-than-proportionate effect on the
21 demand for the product. We view such products as necessities. This provides
22 another justification for regulatory oversight.

23 **Q. Please summarize your analysis into the question of whether the Suppliers**
24 **operate as a monopolist in providing wholesale water services to TCMUD**
25 **12 on behalf of The Highlands?**

26 A. The Suppliers clearly operate as a monopolist, under either the strict definition of
27 the term used in the economics literature or the lower standards established by
28 case law. They are presently the only entity that provides wholesale water
29 services to The Highlands retail water service area. There are no practical
30 alternatives to reliance upon the Suppliers by TCMUD 12 for these services.

1 Absent regulatory oversight, the Suppliers have the ability to control the price and
2 quantity of water services in the market served by TCMUD 12 at the retail level.

3 **IV. THE SUPPLIERS HAVE ABUSED THEIR MONOPOLY POWER**

4 **Q. For the purpose of granting the relief requested by the TCMUD 12 in this**
5 **proceeding, is a finding that the Suppliers operate as a monopoly**
6 **sufficient?**

7 A. No. There must also be evidence that the monopolist has abused its monopoly
8 power. This requirement within the PUC's Public Interest Rule¹⁴ parallels the
9 legal standards established in antitrust cases. For example, in the *United States*
10 *v Grinnel Corp*, the U.S. Supreme Court ruled:

11 The offense of monopoly under 2 of the Sherman Act has two elements:
12 (1) the possession of monopoly power in the relevant market and (2) the
13 willful acquisition or maintenance of that power as distinguished from
14 growth or development as a consequence of a superior product, business
15 acumen, or historic accident.¹⁵

16 Though perhaps less relevant here, the European Commission Treaty, Article 82,
17 similarly requires some evidence that the dominant firm abused its market
18 position before an antitrust action is triggered:

19 Any abuse by one or more undertakings of a dominant position within the
20 common market or in a substantial part of it shall be prohibited as
21 incompatible with the common market insofar as it may affect trade
22 between Member States.

23 The Commission's rules for the operation of the ERCOT wholesale market
24 similarly define market power and market power abuse separately.¹⁶

¹⁴ P.U.C. SUBST. R §24.133(a)(3).

¹⁵ *United States v Grinnel Corp* 384 US563, 570-71 (1966).
<http://caselaw.lp.findlaw.com/scripts/getcase.pl?court=US&vol=384&invol=563>

¹⁶ PUCT Subst. R. §25.504.

1 **Q. What are the standards through which it may be determined whether a**
2 **water utility has abused its monopoly power?**

3 **A.** P.U.C. SUBST. R. §24.133, Determination of Public Interest, states (in part):

4 (a) The commission shall determine the protested rate adversely affects the
5 public interest if after the evidentiary hearing on public interest the
6 commission concludes at least one of the following public interest criteria
7 have been violated:

8 ...

9 (3) the protested rate evidences the seller's abuse of monopoly power in its
10 provision of water or sewer service to the purchaser. In making this
11 inquiry, the commission shall weigh all relevant factors. The factors may
12 include:

13 (A) the disparate bargaining power of the parties, including the purchaser's
14 alternative means, alternative costs, environmental impact, regulatory
15 issues, and problems of obtaining alternative water or sewer service;

16 (B) the seller's failure to reasonably demonstrate the changed conditions that are
17 the basis for a change in rates;

18 (C) the seller changed the computation of the revenue requirement or rate from
19 one methodology to another;

20 (D) where the seller demands the protested rate pursuant to a contract, other
21 valuable consideration received by a party incident to the contract;

22 (E) incentives necessary to encourage regional projects or water conservation
23 measures;

24 (F) the seller's obligation to meet federal and state wastewater discharge and
25 drinking water standards;

26 (G) the rates charged in Texas by other sellers of water or sewer service for
27 resale;

28 (H) the seller's rates for water or sewer service charged to its retail customers,
29 compared to the retail rates the purchaser charges its retail customers as
30 a result of the wholesale rate the seller demands from the purchaser;

1 **Q. Have you found evidence that the suppliers have violated any of these**
2 **criteria?**

3 A. Yes. I have found evidence that the criteria in (A) and (C) of that section have
4 been violated.

5 **Q. Please explain how standard (A) is violated: the disparate bargaining power**
6 **of the parties, including the purchaser's alternative means, alternative**
7 **costs, environmental impact, regulatory issues, and problems of obtaining**
8 **alternative water or sewer service?**

9 A. As noted earlier, TCMUD 12 has no practical alternative but to rely upon the
10 system controlled by the Suppliers for wholesale water services. This has left
11 TCMUD 12 in a position of diminished bargaining power in its relationship with
12 the Suppliers. This became evident in the setting of rates for calendar year
13 2014.

14 The Suppliers exercised or abused this disparate bargaining power to their
15 advantage. As explained in the Direct Testimony of Mr. Jay Joyce, TCMUD 12
16 expressed concern over the rates calculated by the Suppliers but those concerns
17 were ignored when the Board of the PUA approved new rates for wholesale
18 customers on November 21, 2013 for calendar year 2014.

19 Further evidence of the greatly disparate bargaining power of the PUA is
20 evidenced in The Resolution of West Travis County Public Utility Agency
21 Authorizing the Negotiation and Execution of Form Amendments to Wholesale
22 Customer Agreements¹⁷ which instructed the PUA's General Manager to
23 "negotiate" amendments to wholesale contracts, provided the amendment did not
24 substantially differ from the PUA's preferred amendment. The subsequent letter
25 from the PUA to TCMUD 12 on December 17, 2013¹⁸ stated the revised rates
26 that were to go into effect on January 1, 2014, and suggested there was no
27 opportunity to negotiate these rates unless TCMUD 12 would agree to reduce its
28 maximum reserved capacity on the Suppliers' system. The PUA's offer to
29 consider amending the maximum reserved capacity in the contract had to be

¹⁷ JZ Exhibit 3 (WTCPUA00002825 – 2832).

¹⁸ See JAD Exhibit 13.

1 jointly executed on or before December 27, 2013, only 10 days after the offer
2 was extended. For the reasons Mr. DiQuinzio explains, TCMUD 12 did not
3 agree to amend its maximum reserved capacity.

4 These actions by the PUA prove that the rate for water services was
5 apparently not negotiable. The only means of receiving a reduction from the
6 rate set by the PUA was to agree to a reduction in the quantity of wholesale
7 water services. Suppliers exerted control over prices and quantities, which
8 proves their disparate bargaining power was abused to the advantage of the
9 PUA.

10 **Q. What would have happened if TCMUD 12 had simply refused to contract**
11 **with the Suppliers at the time the Suppliers assumed operation of the West**
12 **Travis County Water System from the Lower Colorado River Authority**
13 **(LCRA)?**

14 **A.** It appears likely that TCMUD 12 would then still be paying the rates set by the
15 Suppliers, as well as an additional administrative fee. In recent years, the LCRA
16 has sought to sell most of the water utility systems it formerly acquired and
17 operated. Two retail water utilities which failed to agree to the assignment of
18 their LCRA contracts to the PUA -- Deer Creek Water Co., Inc., and Lazy Nine
19 Municipal Utility District (MUD) No. 1A -- were nonetheless required to pay the
20 rates set by the Suppliers in addition to an administrative fee to the LCRA.
21 These administrative fees were \$831 per month for Deer Creek Water Co., Inc.,
22 and \$3390 per month for Lazy Nine Municipal Utility District (MUD) No. 1A.¹⁹

23 This further suggests that the rates imposed by the Suppliers cannot be
24 avoided. The Suppliers control prices in this market. And an attempt to avoid
25 them can be greeted with the same rates, moreover with an administrative fee
26 tacked-on.

27 This also confirms that the LCRA is quite uninterested in being an
28 alternative supplier. This price premium quoted by the LCRA (i.e., the additional

¹⁹ JZ Exhibit 4 (LCRA Board Agenda, January 16, 2013, Item 9 Adopt Wholesale Potable Water Rates for Deer Creek Water Co., Inc., and Lazy Nine MUD No. 1A, and Exhibit A.

administrative fee) provides an incentive for retail water utilities to contract with the Suppliers.

Q. Please explain how the Suppliers have abused monopoly power by violating standard (C): the seller changed the computation of the revenue requirement or rate from one methodology to another.

A. In reaching the conclusion that the Suppliers abused their monopoly power by violating the standard found in P.U.C. Subst. R. 24.133(a)(3)(C), I relied upon discovery responses from the PUA and on Mr. Jay Joyce's analysis reflected in his testimony. Ms. Nelissa Heddin, a rate consultant to the Suppliers, refers in her fiscal year ending (FYE) 2014 Wholesale Customer Minimum Bill Analysis to the "proposed new methodology" "proposed approach" or the "proposed methodology."²⁰ Thus, it is apparent that the rate consultant to the Suppliers views the November 2013 Rate Order which established wholesale rates for 2014 to represent a change in rate methodology.

Further, the Direct Testimony of Mr. Jay Joyce confirms that the Suppliers did indeed change both the revenue requirement and the rate methodologies to wholesale customers at that time. Based upon the foregoing, I conclude that the rates protested here evidence the Suppliers abuse of their monopoly power in providing water services to TCMUD 12, because the Suppliers changed the computation of the revenue requirement and rate from one methodology to another.

Q. P.U.C. SUBST. R. §24.133(a)(3), dealing with abuse of monopoly power as evidence that the public interest criteria has been violated, also provides: "In making this inquiry, the commission shall weigh all relevant factors." What other factors should the Commission consider?

A. The over-riding issue in this proceeding is whether the rates for wholesale water services, as set by a monopolist, evidence abuse of monopoly power. TCMUD 12 has had little effective involvement in the establishment of the rates and has no viable alternative to paying the rates demanded by the Suppliers. In my

²⁰ JZ Exhibit 5 - (WTCPUA 00008854-8855, 00008860 – 8861, 00009057- 00009060).

1 opinion, the actions taken by the Suppliers indicate they have abused their
2 market power, which means the Public Interest is adversely affected by the
3 wholesale water rates effective in 2014. Given that conclusion, only a review of
4 the Suppliers' rate setting by this Commission can provide the public, TCMUD 12
5 and its retail customers in particular assurance that these rates are set in a fair
6 manner, consistent with generally accepted ratemaking principles.

7 **Q. Based on your analysis, did the Suppliers abuse their monopoly power?**

8 A. Yes. The criteria in (A) and (C) P.U.C. SUBST. R. §24.133(a)(3), Determination
9 of Public Interest, have been violated, based on my application of the relevant
10 economic and legal tests and the evidence that I have reviewed.

11 **Q. DOES THIS COMPLETE YOUR TESTIMONY?**

12 A. Yes.



Jay Zarnikau

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PROFESSIONAL EXPERIENCE

- 1999- President, Frontier Associates, Austin, Texas**
 Responsible for providing assistance in the design and implementation of energy efficiency programs, utility resource planning, electricity pricing, rate analysis/design, program evaluation, demand forecasting, and energy policy. Also assists industrial and commercial energy consumers in rate negotiations and energy procurement activities.
- 1992-1999 Vice President, Planergy, Austin, Texas**
 Responsible for providing assistance in the design and implementation of energy efficiency programs, and providing consulting assistance in the areas of utility resource planning, electricity pricing, program evaluation, demand forecasting, and energy policy.
- 1991-1993 Manager of Energy Strategies Research Program, The University of Texas at Austin Center for Energy Studies, Austin, Texas**
 Held faculty-level research position.
 Responsible for the oversight of research projects in the areas of utility resource planning, regulation, electricity pricing, and policy analysis, including assessments of the potential for energy efficiency savings in Texas.
 Program Manager for EPRI-sponsored effort to develop a new integrated resource planning framework and model.
- 1983-1991 Director of Electric Utility Regulation (from 1988 to 1991), Economist (1983 to 1988) Public Utility Commission of Texas, Austin, Texas**
 Supervised a professional staff of over fifty accountants, economists, and engineers responsible for analyzing regulatory and technical issues and providing recommendations to the Commission. Prepared and defended testimony in over twenty proceedings.



1982-1983 Research Associate, Bureau of Business Research, University of Texas at Austin, Austin, Texas

Assisted in maintenance of statewide economic-demographic forecasting model, prepared projections for state legislature and state agencies, and conducted studies to determine the value of various mineral resources in Texas.

EDUCATION

Ph.D. (1990) and M.A. (1983) in Economics, University of Texas at Austin. Fields completed in Econometrics, Resource Economics, and Micro Modeling

B.S. in Business Administration and Economics, State University of New York, Oswego, New York, May 1981

McGill University, Montreal, Quebec, 1979-1980

OTHER ACTIVITIES

Adjunct Lecturer and Visiting Professor, University of Texas LBJ School of Public Affairs and College of Natural Sciences Division of Statistics. Teaches courses in Applied Regression Analysis and Introduction of Quantitative Analysis. Since 2003

Board of Editors, ISRN Economics journal and Frontiers in Energy journal.

ERCOT Working Group on Demand Side Resources, Founder and Co-Chair (2001)

Board Member and Vice President for Publications, Association of Energy Services Professionals, 2001-2007

Retail Energy Aggregators of Texas, Director, 2001-2003

State of Texas Energy Policy Partnership, Member, 1992

National Association of Regulatory Utility Commissioners Staff Subcommittee on Wheeling and Transmission, Member, 1990

Member of American Economic Association, International Association for Energy Economics, and American Statistical Association.

Reviewer for International Energy Review; ACEEE Summer Study; IEEE Transactions on Power Systems; Energy Economics; Energy Policy; Energy, Power Engineering Society; Energy Exploration and Exploitation; International Journal of Electrical Power and Energy Systems; Energy Efficiency; International Journal of Psychology, British Journal of Economics, Management & Trade; Journal of Scientific Research and Reports; British Journal of Applied Science and Technology; and The Energy Journal

Previous Testimony Before Regulatory Commissions

California PUC Rulemaking 13-09-011 to Enhance the Role of Demand Response.

Compared the attributes of different types of demand response. On behalf of Pacific Gas and Electric.

Arkansas PSC Docket No. 13-126-TF: In the Matter of a Request by Arkansas Electric Cooperative Corporation to Establish a Rider for the Collection of Certain Costs Related to the Transmission of Electricity by Other and TRO-Market Administration, Monitoring, and Compliance Services Costs. Reviewed treatment of interruptible discount in rate rider. On behalf of Nucor Steel.

Arizona Corporation Commission Docket No. E-04204A-12-0504: In the Matter of the Application of UNS Electric, Inc. for the Establishment of Just and Reasonable Rates and Charges Designed to Realize a Reasonable Rate of Return on the Fair Value of the Properties of UNS Electric, Inc., Devoted to its Operations Throughout the State of Arizona and Relative Approvals. Rate Design. On behalf of Nucor Steel.

State Office of Administrative Hearings (SOAH) Docket No. 473-09-5470 and Public Utility Commission of Texas (PUCT) Docket No. 36633: Petition of CPS Energy for Enforcement Against AT&T Texas and Time Warner Cable Regarding Poll Attachments. Analysis of statistical issues. On behalf of Time Warner Cable.

Arkansas PSC Docket No. 12-053-U: In the Matter of the Application of Arkansas Electric Cooperative Corporation for Modification of Rates and Charges. Reviewed proposed interruptible credit riders in light of new state laws pertaining to the rate regulation of electric cooperatives. On behalf of Nucor Steel.

Arizona Corporation Commission Docket No. E-04100A-04-527: Application of Southwest Transmission Cooperative, Inc. for a Rate Increase. Provided cost allocation and rate design recommendations on behalf of the applicant.

Arkansas PSC Docket No. 09-071-U: In the Matter of the Application of Arkansas Electric Cooperative Corporation for Modification of Rates and Charges. Reviewed proposed interruptible credit riders in light of new state laws pertaining to the rate regulation of electric cooperatives. On behalf of Nucor Steel.

Virginia State Corporation Commission Case No. PUE-2007-00031 and PUE-2007-000033; Public Service Commission of West Virginia Case No. 07-0508-E-CN; and Pennsylvania PUC Docket No. A-110172, Application of Trans-Allegheny Interstate Line Company for A Certificate of Convenience and Necessity to Construct a Transmission Line. Examined the feasibility of using demand-side management as an alternative to the proposed line. Testimony on behalf of the applicant.

PUCT Docket No. 31540: Proceeding to Consider Protocols to Implement a Nodal Market in the Electric Reliability Council of Texas Pursuant to PUC Subst. R. 25.501. Testimony before the PUCT on behalf of Nucor Steel and Chaparral Steel on demand side issues.

Public Service Commission of South Carolina, Docket No. 2005-1-E: Progress Energy Carolinas, Inc. Annual Review of Base Rates for Fuel Costs. Reviewed the utility's fuel costs and rates on behalf of a large industrial customer of the utility.

Railroad Commission of Texas, Docket No. 9400: Application of TXU Gas Company for a Rate Increase. Provided cost allocation and rate design testimony on behalf of a group of cities. Also provided testimony in a district court to support a Writ of Mandamus.

U.S. Bankruptcy Court, Southern District, In re. Texas Commercial Energy, LLC, Case No. 03-20366-C-11. Testified in support of a claim.

Public Utility Commission of Texas (PUCT) Docket No. 23950: Petition of Reliant Energy to Establish Price to Beat Fuel Factor. Presented (on the utility's behalf) a forecast of the Company's future sales of electricity.

PUCT Docket No. 22537: Application of Reliant Energy HL&P to Implement Wholesale Power Service – General Land Office Rate Schedule. Testified in support of tariff approval.

PUCT Docket No. 22355: Application of Reliant Energy HL&P for Approval of Unbundled Cost of Service Rate. Examined competitive opportunities that might be available to commercial and residential customers under various parties' rate design proposals.

PUCT Docket No. 22349: Application of Texas-New Mexico Power Company for Approval of Unbundled Cost of Service Rate. Requested (on behalf of the utility) funding for energy efficiency programs and system benefit fund programs.

PUCT Docket No. 21527: Application of TXU Electric Company for Financing Order to Securitize Regulatory Assets. Evaluated application on behalf of Nucor Steel.

PUCT Docket No. 17942: Application for Approval of Time-of-Use Rate Options for TU Electric Company. Analyzed utility proposal on behalf of Nucor Steel Company.

PUCT SOAH Docket No. 473-96-0333: Application of TU Electric Company for Real-Time Pricing Proposal in Compliance with the Commission's Order in Docket No. 14570. Analyzed the utility's filing on behalf of Nucor Steel Company.

- PUCT Docket No. 9491: Texas-New Mexico Power Company rate case.* Described applicable prudence standards and explored purchased power, cogeneration, and conservation as alternatives to the completion of the TNP One power plant project. Analyzed the utility's filing on behalf of PUCT Staff.
- PUCT Docket No. 6992 Remand: Texas-New Mexico Power Company power plant certification case.* Projected the costs of standby, wheeling, purchased power and cogeneration over a forty-year horizon, and explored purchased power, cogeneration, and conservation as alternatives to the completion of the TNP One power plant project. Analyzed the utility's filing on behalf of PUCT Staff.
- PUCT Docket No. 9300: TU Electric rate case.* Recommended changes to proposed tariffs for interruptible service and explored other rate design and system planning issues. Analyzed the utility's filing on behalf of PUCT Staff.
- PUCT Docket No. 8425: Houston Lighting and Power Company rate case.* Analyzed proposed tariffs for interruptible service, standby service, economic development rates and wheeling services, and recommended alternative rates and calculation methodologies. Analyzed the utility's filing on behalf of PUCT Staff.
- PUCT Docket No. 8422: Rita Blanca Cooperative tariff application.* Proposed some modifications to the design of a proposed economic development tariff. Analyzed the utility's filing on behalf of PUCT Staff.
- PUCT Docket No. 8363: El Paso Electric Company rate case.* Provided recommendations regarding future generation mix and total fuels expenses. Analyzed the utility's filing on behalf of PUCT Staff.
- PUCT Docket No. 7460: El Paso Electric Company rate case.* Reviewed the demand forecasts upon which the utility relied in its decision to participate in the Palo Verde nuclear project. Analyzed the utility's filing on behalf of PUCT Staff.
- PUCT Docket No. 7195/6755: Gulf States Utilities Company rate case.* Reviewed the demand forecasts upon which the utility relied in its decision to initiate the River Bend nuclear project. Analyzed the utility's filing on behalf of PUCT Staff.
- PUCT Docket No. 6992: Texas-New Mexico Power Company power plant certification case.* Projected the availability of purchased power and confirmed its viability as an alternative to the proposed TNP One power plant. Analyzed the utility's filing on behalf of PUCT Staff.
- PUCT Docket No. 6184: Economic Viability for South Texas Unit 2.* Analyzed the capabilities of various resource planning models to assist in selecting an appropriate means of determining the reasonableness of completing a nuclear power plant construction project. Analyzed the utility's filing on behalf of PUCT Staff.

PUCT Docket No. 8191: Cherokee County Electric Cooperative rate case. Reviewed adjustments to test-year sales, demand, and numbers of customers data. Analyzed the utility's filing on behalf of PUCT Staff.

PUCT Docket No. 6375: Central Power and Light Company rate case. Reviewed adjustments to test-year sales, demand, and numbers of customers data. Critiqued the utility's long-term load forecast. Analyzed the utility's filing on behalf of PUCT Staff.

PUCT Docket No. 6105: Central Power and Light Company Avoided Cost calculation. Recommended rejection of the utility's long-term load forecast for the purpose of calculating long-run avoided costs. Analyzed the utility's filing on behalf of PUCT Staff.

PUCT Docket No. 6064: Houston Lighting and Power Company Avoided Cost calculation. Reviewed the utility's demand projections. Analyzed the utility's filing on behalf of PUCT Staff.

PUCT Docket No. 5994: Inquiry into the rates paid by Houston Lighting and Power Company to Qualifying Facilities. Projected future demand for electricity on the utility system and the need for firm cogeneration capacity. Analyzed the utility's filing on behalf of PUCT Staff.

PUCT Docket No. 8015: Amendment to TU Electric's certificate for the Comanche Peak nuclear plant. Reviewed the utility's future demand and capacity needs. Analyzed the utility's filing on behalf of PUCT Staff.

PUCT Docket No. 6526: TU Electric Company power plant certificate case. Reviewed the utility's demand projections. Analyzed the utility's filing on behalf of PUCT Staff.

PUCT Docket No. 5568: Texas-New Mexico Power Company rate case. Reviewed adjustments to test-year sales, demand, and number of customers data, and miscellaneous operations and maintenance expenses. Analyzed the utility's filing on behalf of PUCT Staff.

Jay Zarnikau
PUBLICATIONS

Refereed Journals:

- “Did the introduction of a nodal market structure impact wholesale electricity prices in the Texas (ERCOT) market?” *Journal of Regulatory Economics*. Vol. 45(2), 2014. With C.K. Woo and Ross Baldick.
- “The Identification of Peak Period Impacts When a TMY Weather File is Used in Building Energy Use Simulation.” *Open Journal of Energy Efficiency*. Vol. 3, 2014. With Shuangshuang Zhu.
- “The Impact of Wind Generation on Wholesale Electricity Prices in the Hydro-Rich Pacific Northwest.” *IEEE Transactions on Power Systems*, 2013. With C.K. Woo, Ira Horowitz, Jonathan Kadish, and Jianhui Wang.
- “The response of large industrial energy consumers to four coincident peak (4CP) transmission charges in the Texas (ERCOT) market.” *Utilities Policy*. 2013. With Dan Thal.
- “Transparency of Retail Energy Pricing: Evidence from the U.S. Natural Gas Industry.” *Managerial and Decision Economics*. 2012. With C.K. Woo, Ira Horowitz, and Alice Shiu.
- “The Many Factors that Affect the Success of Regulatory Mechanisms Designed to Foster Energy Efficiency,” *Energy Efficiency*. Vol. 5, No. 3, 2012, pp. 393-410.
- “Blowing in the Wind: Vanishing Payoffs of a Tolling Agreement for Natural Gas-Fired Generation of Electricity in Texas,” *The Energy Journal*, 2012, Vol. 33(1), with C.K. Woo, Ira Horowitz, Brian Horii, and Ren Orans.
- “Wind Generation and Zonal-Market Price Divergence: Evidence from Texas,” *Energy Policy*, Vol. 39(7), 2011, pp. 3928-3938. With C.K. Woo, J. Moore, and I. Horowitz.
- “Successful Renewable Energy Development in a Competitive Electricity Market: A Texas Case Study,” *Energy Policy*, Vol. 39(7), 2011, pp. 3906-3913.
- “System Energy Assessment (SEA), Defining a Standard Measure of EROI for Energy Businesses as Whole Systems.” *Sustainability*. Vol. 3(10), 2011, pp. 1908-1943. With Phil Henshaw and Carey King.
- “Exact Welfare Effect for Double-Log Demand with Partial Adjustment”, *Empirical Economics*, Springer, Vol. 42(1), 2010, pp. 171-180. With C.K. Woo and Eli Kollman.
- “Demand Participation in the Restructured Electric Reliability Council of Texas Market,” *Energy -- the International Journal*. 2009.

- "Did the Expiration of Retail Price Caps Affect Competitive Electricity Prices in Texas?," *Energy Policy*, Vol. 37(5), pp. 1713-1717, 2009; with Linhong Kang.
- "Aggregate Consumer Response to Wholesale Prices in the Restructured Texas Electricity Market," *Energy Economics*. Vol. 30(4), pp. 1798-1808, 2008. With Ian Hallett.
- "Industrial Energy Consumer Response to Wholesale Prices in the Restructured Texas Electricity Market," with Greg Landreth, Ian Hallett, and Subal Kumbhakar. *Energy -- the International Journal*. 2007.
- "Trends in Prices to Commercial Energy Consumers in the Competitive Texas Electricity Market," *Energy Policy*. Vol. 35(8), 2007, pp. 4332-4339. With Marilyn Fox and Paul Smolen.
- "Testing Functional Forms in Energy Modeling: An Application of the Bayesian Approach," *Energy Economics*, Vol. 54(2), 2007, pp. 158-166. With Ni Xiao and Paul Damien.
- "Has Electric Utility Restructuring Led to Lower Electricity Prices for Residential Consumers in Texas?" *Energy Policy*, Vol. 34(15), pp. 2191-2200. With Doug Whitworth.
- "A Review of Efforts to Restructure Texas' Electricity Market," *Energy Policy*, Vol. 33(1), 2005, pp. 15-25.
- "Consumer Demand for 'Green Power' and Energy Efficiency," *Energy Policy*, Vol. 31(15), 2003, pp. 1661-1672.
- "Functional Forms in Energy Demand Modeling," *Energy Economics*, Vol. 25(6), pp. 603-613, 2003.
- "Defining Total Use in Econometric Studies, Does the Aggregation Approach Matter?," *Energy Economics*, Vol. 21(5), 1999, pp. 485-492.
- "Will Tomorrow's Energy Efficiency Indices Prove Useful in Economic Studies?," *The Energy Journal*, Vol. 20(3), 1999.
- "A Re-examination of the Causal Relationship between Energy Consumption and GDP," *Journal of Energy and Development*, 1996.
- "The Evolution of the Cogeneration Market in Texas," *Energy Policy*, Vol. 24(1), 1996, pp. 67-79.
- "Can Different Energy Resources be Added or Compared?," *Energy - The International Journal*, 1995, Vol. 21, No. 6; with Philip Schmidt and Sid Guermouche.

“Spot Market Pricing of Water Resources and Efficient Means of Rationing Water During Scarcity.” *Resource and Energy Economics*. Vol. 16(3), 1994, pp. 189-210.

“Advanced Pricing in Electrical Systems: Theory,” *IEEE Trans. on Power Systems*, 1995; with Martin Baughman and Shams Siddiqi.

“Advanced Pricing in Electrical Systems: Applications,” *IEEE Trans. on Power Systems*, 1995; with Martin Baughman and Shams Siddiqi.

“Integrating Transmission into IRP: Theory,” *IEEE Trans. on Power Systems*, 1998; with Martin Baughman and Shams Siddiqi.

“Integrating Transmission into IRP: Applications,” *IEEE Trans. on Power Systems*, 1998; with Martin Baughman and Shams Siddiqi.

“Customer Responsiveness to Real-Time Pricing of Electricity,” *The Energy Journal*, December 1990, Vol. 11, No. 4.

“Spot Market Pricing of Electricity,” *Forum for Applied Research and Public Policy*, Winter 1990, Vol. 5, No. 4; with Martin Baughman and George Mentrup.

Under Review:

“The Estimated Impact on Real-Time Electricity Market Prices in California of the 2013 Shutdown of the San Onofre Nuclear Plant.” With C.K. Woo, Tony Ho, Arne Olson, Ryan Jones, Michele Chait, Ira Horowitz, and Jianhui Wang.

Non-Refereed Journals and Widely-Accessible Proceedings:

“Three Simple Steps to Clip the Peak in the Texas (ERCOT) Electricity Market. USAEE Working Paper No. 13-143.
http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2334001

“Will the SIEPAC Transmission Project Lead to a Vibrant Electricity Market in Central America?,” *Energy Forum*, 4th Quarter 2013. With Ian Partridge, John Dinning, and Daniel Robles.

“Texas Electricity Market: Best Gets Better,” in *Evolution of Global Electricity Markets*, ed. Fereidoon Sioshansi, Elsevier. 2013. With Parviz Adib and Ross Baldick.

“Getting to Zero: Green Building and Net Zero Energy Homes,” in *Smart Living in the Coming Age of Scarcity*, edited by F. P. Sioshansi, Elsevier, 2010. With Meredith Gray.

- “Defining a Standard Measure for Whole System EROI, Combining Economic Top-Down and LCA Bottom-Up Accounting,” *Proceedings of Energy Sustainability 2010*, American Society of Mechanical Engineers, May 2010, Phoenix. With Carey King and Phil Henshaw.
- “Will Electricity Market Reform Likely Reduce Retail Rates?,” *The Electricity Journal*, Vol. 22(2), 2009, pp. 40-45. With C.K. Woo.
- Barriers and Policy Solutions to Energy Efficiency as a Carbon Emissions Reduction Strategy,” in *Electricity Generation in a Carbon-Constrained World*, edited by F. P. Sioshansi, Elsevier, 2009. With Bill Prindle and Erica Allis.
- “Integrating Demand Response into Restructured Wholesale Markets,” in *Competitive Electricity Markets: Design, Implementation, and Performance*, edited by F. P. Sioshansi, Elsevier, 2008.
- “The Quest for Competitive Electricity Markets,” *LBJ Journal of Public Affairs*, 2008.
- “Texas: The Most Robust Restructured Electricity Market in North America,” in *Electricity Market Reform: An International Perspective*, Ed. F. P. Sioshansi and Wolfgang Pfaffenberger, Elsevier, 2007.
- “Changing Installation Practices of A/C Installers – Three Years of Results,” *ACEEE Summer Study on Energy Efficiency in Building*, 2006. With Mike Stockard and Phil Audet.
- “Using Demand Response Programs to Provide Operating Reserves in Wholesale Power Markets: A Case Study of the ERCOT Market,” *US Energy Association’s Dialogue*, 2006.
- “Energy Efficient Windows in the Southern Residential Windows Market,” *ACEEE Summer Study Proceedings*, with Alison Tribble, Kate Offringa, Bill Prindle, Dariush Arasteh, Arlene Stewart, and Ken Nittler. 2002.
- “Agriculture: An Often-Overlooked Opportunity for Energy Conservation,” *Strategic Planning for Energy and the Environment*, with Alex Lee, 1997.
- “Energy Efficiency Opportunities in the Industrial Sector,” *Energy Engineering*, Vol. 93, No. 3, 1996; with Alex Lee.
- “Taking Advantage of Real-Time Pricing Programs to Reduce Energy Costs in Manufacturing,” *ACEEE Summer Study on Energy Efficiency in Industry Proceedings*, August 1997.
- “Opportunities for Energy Efficiency in the Texas Industrial Sector,” *ACEEE Summer Study on Energy Efficiency in Industry Proceedings*, August 1995; contributor.
- “Has Texas Become a Net Importer of Energy Resources?” *Texas Business Review*, 1997.

“Plugging into the Texas Electricity Market: Avoiding the Mistakes of California?” *Texas Business Review*, 2001.

“Rewired for Competition: The Restructuring of Electricity Markets in Texas?” *Texas Business Review*, 1999.

“Wheeling Nonutility Power: The Texas Experience” *The Electricity Journal*, Vol. 2(7), pp. 32-41, 1989. With Bill Moore and Martin Baughman.

ACQUISITION, WATER SUPPLY, WASTEWATER TREATMENT AND CONDITIONAL PURCHASE AGREEMENT

THIS ACQUISITION, WATER SUPPLY, WASTEWATER TREATMENT AND CONDITIONAL PURCHASE AGREEMENT (this "Agreement") is dated and entered into to be effective as of March 19, 2012 ("Effective Date"), by and among the West Travis County Public Utility Agency (the "PUA"), a public utility agency and political subdivision of the State of Texas (the "State"), created and existing under the laws of the State, including Chapter 572, Texas Local Government Code, as amended; the City of Bee Cave, Texas, a Type A general law municipality of the State (the "City"); Hays County, Texas, a political subdivision of the State (the "County"); and West Travis County Municipal Utility District No. 5, a municipal utility district and political subdivision of the State ("MUD 5").

RECITALS

WHEREAS, Subchapter C of Chapter 572, Local Government Code, as amended (the "PUA Act"), authorizes certain public entities to create a public utility agency for the collection, transportation, treatment, or disposal of sewage or the conservation, storage, transportation, treatment, or distribution of water for such public entities; and

WHEREAS, the governing bodies of the City, the County and MUD 5 (collectively, the "Participants") have created the PUA as their constituted authority, instrumentality and agent to plan, finance, acquire, construct, own, operate, or maintain facilities necessary for the collection, transportation, treatment, and disposal of sewage and the conservation, storage, transportation, treatment, and distribution of water for the Participants pursuant to the PUA Act; and

WHEREAS, the Participants expect to pursue legislative changes to the PUA Act for the purpose of enabling the PUA to serve end users directly, with the goal of creating a combined utility system owned and operated by the PUA and providing water supply and wastewater treatment services from the PUA directly to the current customers of the Participants; and

WHEREAS, the Participants are entering into this Agreement to provide for water supply and wastewater treatment services to the Participants and their customers until such time as such legislative changes to the PUA Act are accomplished, with the intent that at such time all outstanding Bonds (as defined herein) of the PUA will be paid in full and this Agreement will terminate; and

WHEREAS, pursuant to Section 572.058, Local Government Code, and that certain Utilities Installment Purchase Agreement (the "Purchase Contract"), dated as of January 17, 2012, by and between the PUA and the Lower Colorado River Authority (the "LCRA"), the PUA has agreed to purchase and the LCRA has agreed to sell certain water supply and wastewater treatment facilities (the "Supply and Treatment Components") and water distribution and sanitary sewer collection facilities (the "Distribution and Collection Components") and, together with the Supply and Treatment Components, the "System") and to operate the System as a single system for the purpose of providing water and wastewater services to the Participants; and

WTCPUA00006075

WHEREAS, pursuant to the PUA Act, the PUA will (i) own the Supply and Treatment Components, (ii) convey by conditional sale the Distribution and Collection Components within the service area of each Participant to each such Participant, and (iii) operate the System, all for the benefit of the Participants; and

WHEREAS, the Participants wish to enter into this Agreement to (i) obtain water services for the City, the County and MUD 5 (collectively, the "Water Participants") pursuant to Sections 552.018 and 562.016, Local Government Code, and Section 49.213, Water Code, respectively; (ii) obtain wastewater treatment services for the City and MUD 5 (together, the "Wastewater Participants") both pursuant to Section 791.026, Local Government Code; and (iii) acquire by conditional sale the Distribution and Collection Components of the System within the service area of each Participant pursuant to Sections 552.001 and 562.016, Local Government Code, and Section 49.213, Water Code, respectively; and

WHEREAS, it is expected by the PUA and the Participants that from time to time the PUA will issue its Bonds (as hereinafter defined), payable from and secured solely by payments to be made by the Participants under this Agreement for water and wastewater services and for the acquisition of the Distribution and Collection Components of the System; and

WHEREAS, the PUA, to the best of its ability, shall do or cause to be done all such things as may be required for the financing, acquisition, maintenance and operation of the System;

NOW, THEREFORE, in consideration of the mutual covenants and agreements herein contained, the sufficiency of which are hereby acknowledged, and upon and subject to the terms and conditions hereinafter set forth, the Participants and the PUA mutually undertake, promise, and agree as follows:

ARTICLE I

DEFINITIONS AND INTERPRETATIONS

Section 1.01 Definitions. In addition to the terms defined above, the following terms shall have the meanings assigned to them below wherever they are used in this Agreement, unless the context clearly requires otherwise:

"Accountant" means a nationally recognized independent certified public accountant, or an independent firm of certified public accountants, selected by the PUA.

"Annual Payments" means the amount of money, constituting the sum of the Installment Payments, the Bond Payment and the Operation and Maintenance Expenses, to be paid to the PUA by the Participants, on a several basis, as described in Section 4.04 hereof.

"Authorized Representative" means any person to whom has been delegated the authority to act on behalf of a Participant or the PUA, as the case may be, which (i) for the City shall be the City Administrator of the City or such other officers or employees of the City authorized to act during his absence or incapacity, (ii) for the County shall be Hays County Commissioner,

Precinct 4, or such other officers or employees of the County authorized to act during his absence or incapacity, (iii) for MUD 5 shall be the President of the Board of Directors of MUD 5 or such other officers or employees of MUD 5 authorized to act during his absence or incapacity, and (iv) for the PUA shall be the President of the Board of Directors of the PUA or such other officer or employee of the PUA authorized to act on behalf of the PUA during the President's absence or incapacity, unless a party notifies the other party in writing of a change in its Authorized Representative.

"Bond Payment" means the portion of the Annual Payments calculated by reference to the Bonds, including payments of principal of and interest on the Bonds and deposits to funds related thereto.

"Bond Resolution" means any resolution adopted by the Board of Directors of the PUA authorizing the issuance of and securing the Bonds and all amendments and supplements thereto.

"Bonds" means all bonds, notes, or other obligations hereafter issued by the PUA, whether in one or more series or issues, to acquire the System and to pay other costs of the System (including any bonds or notes issued to repair, replace, or improve the System) or to refund any Bonds or to refund any such refunding Bonds.

"City" means the City of Bee Cave, Texas.

"Claim," as used in Section 10.13 of this Agreement, means claims, demands, and expenses, including reasonable attorney's fees.

"Code" means the Internal Revenue Code of 1986, and any amendments thereto, as in force and effect on the date of delivery of any series of Bonds.

"County" means Hays County, Texas.

"Delivery Point" means the place, whether one or more, to which the PUA will deliver water to each Water Participant pursuant to this Agreement, as more fully described in Exhibit B.

"Distribution and Collection Components" means the facilities, lines, booster pumps, and other appurtenances sufficient to deliver the water to the Water Participants and collect the Wastewater from the Wastewater Participants pursuant to this Agreement, all as more fully described in Exhibit B, and any improvements, additions, or extensions to such components.

"Facilities Fund" means the fund established by the PUA to which amounts may be transferred from the Rate Stabilization Fund from time to time for payment of capital additions and improvements to the System.

"Fiscal Year" means the Participants' fiscal years, which currently begin on October 1 of each year, as may be changed from time to time with notice to the PUA.

"Force Majeure" means such term as it is defined in Section 10.03 of this Agreement.

"Installment Payments" has the meaning given such term in the Purchase Contract.

"LCRA" means the Lower Colorado River Authority, a conservation and reclamation district and political subdivision of the State.

"Local Government Code" means Texas Local Government Code, as amended.

"MSRB" means the Municipal Securities Rulemaking Board and any successor to its duties.

"MUD 5" means West Travis County Municipal Utility District No. 5.

"Operation and Maintenance Expenses" means all costs and expenses of operation and maintenance of the System, including (for greater certainty but without limiting the generality of the foregoing) amounts payable under any contract with any person, including, but not limited to any federal, state, or local agency for the right to any source of water; any contribution or payment in lieu of taxes or any fee or charge by any government authority relating to the PUA's production of water or sale of treated water hereunder; fees and charges to be paid to TCEQ or any other federal, state or local agency for regulatory purposes or for services rendered; the costs of operating personnel, utilities, supervision, engineering, accounting, auditing, legal services, insurance premiums, supplies, services, and administration of the System; Overhead Expenses; costs of operating, repairing, maintaining, and replacing equipment for proper operation and maintenance of the System; and payments made in satisfaction of judgments resulting from claims not covered by insurance arising in connection with the acquisition, operation and maintenance of the System. The term "Operation and Maintenance Expenses" does not include depreciation charges or such portion of the above-described costs to the extent such costs are paid pursuant to an agreement other than this Agreement.

"Operations Transfer Date" means March 19, 2012.

"Outstanding" means, as of a particular date, all Bonds theretofore and thereupon delivered pursuant to the Bond Resolution except: (a) any Bonds canceled by or on behalf of the PUA at or before such date; (b) any Bonds defeased pursuant to the defeasance provisions of the Bond Resolution or otherwise defeased as permitted by applicable law; and (c) any Bonds in lieu of or in substitution for which a replacement Bond shall have been delivered pursuant to the Bond Resolution.

"Overhead Expenses" means the PUA's reasonable and necessary costs and expenses incurred at any time directly related to the issuance and servicing of the Bonds, the permitting, financing, acquisition and ownership of the System and any other activities required of or involving the PUA in connection with or attributable to the System or the Bonds, including, but not limited to:

- (a) per diem and reimbursable expenses incurred by the Directors of the PUA for special meetings of the PUA's Board of Directors related to the System;

(b) services of the professional, technical, skilled and unskilled persons and firms engaged by or associated with the PUA, other than PUA staff personnel, together with their reimbursable expenses paid or required to be paid by the PUA;

(c) salaries of the PUA's staff attributable to the System or the Bonds based on time expended, as documented or reasonably estimated by the President of the Board of Directors of the PUA;

(d) the costs of preparing applications for and obtaining all approvals and authorizations required for the System or the Bonds from the regulatory authorities having jurisdiction;

(e) the cost of property casualty and public liability insurance, including any insurance deductible charged to or required to be paid by the PUA;

(f) all costs incurred in litigation involving or relating to the System; and

(g) any and all other costs and expenses, including out-of-pocket expenses, incurred by the PUA attributable to the System or the Bonds, whether enumerated above or not.

"Participant's Account" shall mean the account held by the PUA on behalf of each Participant for deposit of payments received from such Participant's customers.

"Participants" means any public entities that may participate in the PUA from time to time, after adoption of the Concurrent Ordinance or Order in accordance with Section 572.053, Local Government Code, including the City, the County and MUD 5.

"Participant's System" means and includes (i) a Water Participant's waterworks distribution system or combined water distribution and wastewater collection system, (ii) a Wastewater Participant's wastewater collection system or combined water distribution and wastewater collection system, and (iii) all future extensions, improvements, enlargements, and additions thereto, including, to the extent permitted by law, reclaimed water systems within such Participants' waterworks distribution system or wastewater disposal system, and all replacements thereof; provided that, notwithstanding the foregoing, and to the extent now or hereafter authorized or permitted by law, the term Participant's System shall not include any waterworks distribution facilities or wastewater collection facilities which are hereafter acquired or constructed by such Participant with the proceeds from the issuance of "special facilities obligations" and which are declared by a Participant not to be a part of such Participant's System, which are hereby defined as being special revenue obligations of such Participant which are not secured by or payable from the net revenues of the Participant's System, but which are secured by and are payable solely from special contract revenues, or payments received by the Participant, or any combination thereof, in connection with such facilities; and such revenues or payments shall not be considered as or constitute gross revenues of the Participant's System, unless and to the extent otherwise provided in the order, ordinance or resolution authorizing the issuance of such "special facilities obligations;" and provided further that, except with the prior

approval of the Board of Directors of the PUA, no such facilities may be connected to the System.

"Participant's Utility Bonds" means the appropriate Participant's bonds and notes outstanding from time to time, if any, secured by a lien on and pledge of the net revenues of the Participant's System or any part thereof, regardless of lien priority.

"Permitted Liens" means:

(a) the rights reserved to LCRA in the System and its revenues in the Purchase Contract;

(b) minor irregularities, charges, liens, encumbrances, defects, easements, licenses, rights-of-way, servitudes, restrictions, mineral rights, and clouds on title which, in the opinion of counsel to the PUA, a copy of which shall be forwarded to each of the Participants, do not materially impair the use of the System for the purposes for which it is designed;

(c) easements for roads (as used in this Agreement, the term "roads" shall include, without limitation, streets, curbs, gutters, drains, ditches, sewers, conduits, canals, mains, aqueducts, aerators, connections, ramps, docks, viaducts, alleys, driveways, parking areas, walkways, and trackage), utilities (which for purposes of this Agreement shall include, without limitation, water, sewer, electricity, gas, telephone, pipeline, railroad, and other collection, transportation, light, heat, power, and communication systems) and similar easements and other easements, rights-of-way, rights of flowage, flooding, diversion or outfall, licenses, restrictions, and obligations relating to the operation of the System which, in the opinion of counsel to the PUA, a copy of which shall be forwarded to each of the Participants, do not materially impair the use of the System for the purposes for which it is designed; and

(d) rights of the United States or any state or political subdivision thereof, or other public or governmental authority or agency or any other entity vested with the power of eminent domain to take or control property or to terminate any right, power, franchise, grant, license, or permit previously in force.

"Point(s) of Entry" means the point(s) designated in Exhibit B to this Agreement where wastewater will be received from Wastewater Participants into the System.

"Proportionate Share of the Annual Payment" shall be determined in accordance with the procedures described in Exhibit A hereto.

"Prudent Utility Practice" means any of the practices, methods, and acts, in the exercise of reasonable judgment, in the light of the facts, including but not limited to the practices, methods, and acts engaged in or approved by a significant portion of the public utility industry prior thereto, known at the time the decision was made, that would have been expected to accomplish the desired result at the lowest reasonable cost consistent with reliability, safety, and expedition. It is recognized that Prudent Utility Practice is not intended to be limited to the

optimum practice, method, or act at the exclusion of all others, but rather is a spectrum of possible practices, methods, or acts which could have been expected to accomplish the desired result at the lowest reasonable cost consistent with reliability, safety, and expedition. In the case of any facility included in a Participant's System which is owned in common with one or more other entities, the term "Prudent Utility Practice," as applied to such facility, shall have the meaning set forth in the agreement governing the operation of such facility.

"PUA" means the West Travis County Public Utility Agency and its lawful successors and assigns.

"PUA Act" means Chapter 572, Texas Local Government Code, as amended, or any successor statute.

"Purchase Contract" means that certain Utilities Installment Purchase Agreement, dated as of January 17, 2012, by and between the PUA and the LCRA, and any authorized amendments thereto.

"Rate Stabilization Fund" means the fund described in Section 4.05.

"Rule" means SEC Rule 15c2-12, as amended from time to time.

"Sale and Offering Documents" means any official notice of sale, official bid form, preliminary official statement, official statement, or other offering document for the Bonds.

"SEC" means the United States Securities and Exchange Commission and any successor to its duties.

"Supply and Treatment Components" means the portions of the System other than the Distribution and Collection Components.

"System" means the Supply and Treatment Components and the Distribution and Collection Components purchased from LCRA pursuant to the Purchase Contract, and all future extensions, improvements, enlargements, and additions thereto approved by the PUA Board.

"TCEQ" means the Texas Commission on Environmental Quality or its successors or assigns.

"Trustee" means any trustee named under a trust indenture or the paying agent/registrars named in a paying agent/registrars agreement entered into by the PUA securing the payment of the Bonds and authorized by a Bond Resolution.

"Wastewater" means liquid and water-carried waste discharged from sanitary conveniences of dwellings, business buildings, institutions and the like including garbage which has been shredded to such degree that all particles will be carried freely under flow conditions normally prevailing in public sewers, with no particle greater than one-half (1/2) inch in any dimension and the liquid wastes from industrial processes, and includes any infiltration of water

that has migrated from the ground into the System, or inflow water from above the ground entering the System.

"Wastewater Participants" means any Participant who contracts with the PUA for treatment of wastewater, initially the City and MUD 5.

"Water Code" means Texas Water Code, as amended.

"Water Participants" means any Participant who contracts with the PUA for water service, initially the City, the County and MUD 5.

Section 1.02 Interpretation. The table of contents and caption headings of this Agreement are for reference purposes only and shall not affect its interpretation in any respect. Unless the context otherwise requires, words of the masculine gender shall be construed to include correlative words of the feminine and neuter genders and vice versa. This Contract and all the terms and provisions shall be liberally construed to effectuate the purpose set forth herein and to sustain the validity of this Agreement.

ARTICLE II

ACQUISITION OF THE SYSTEM; FINANCING OF INSTALLMENT PAYMENTS

Section 2.01 General. Subject to the terms and provisions of this Agreement, the PUA agrees to acquire the System pursuant to the terms of the Purchase Contract and to issue the Bonds to finance the Installment Payments due thereunder. It is expressly understood and agreed that any obligations on the part of the PUA to acquire the System and issue its Bonds to finance the Installment Payments, to provide water to the Water Participants and treat wastewater of the Wastewater Participants, and to conditionally sell the Distribution and Collection Components to the Participants shall be (i) conditioned upon the PUA's ability to obtain all necessary permits, material, labor, and equipment, and upon the ability of the PUA to (A) finance the cost of the System through the actual sale of the Bonds, (B) provide water to the Water Participants and (C) treat wastewater of the Wastewater Participants, and (ii) subject to all present and future valid laws, orders, rules, and regulations of the United States of America, the State, and any regulatory body having jurisdiction.

Section 2.02 Acquisition. The PUA has executed the Purchase Contract to effect the acquisition of the System and shall, as soon as possible, undertake to make, execute, deliver, and prosecute such other contracts, orders, receipts, writings, and instructions with or to other persons, and in general do or cause to be done all such other things, as may be required for the proper acquisition of the System. If such other contracts, orders, receipts, writings and instructions with or to other persons would cause a material modification to the terms and conditions of this Agreement, then this Agreement shall be modified pursuant to Section 10.06 below prior to the effectiveness of such other contracts, orders, receipts writings or instructions.

Section 2.03 Obligation to Pay Annual Payments. It is acknowledged and agreed that payments to be made under this Agreement will be the sole source of revenue available to the

PUA to provide the money necessary for the PUA to satisfy its payment obligations with respect to the Purchase Contract and the Bonds. Each Participant therefore agrees to pay, on a several basis, its Proportionate Share of the Annual Payments in full when due as provided in this Agreement; **provided, however, that each Participant's obligation to make such payments shall be limited solely to the extent of revenues of each such Participant's System.**

Section 2.04 Liens. Neither the Participants nor the PUA will create or permit or suffer to exist any lien, encumbrance, or charge upon the System or any interest therein at any time, except Permitted Liens.

Section 2.05 Approvals. Unless otherwise required by law, each consent, approval, or other official action required of the Participants or the PUA by any provision of this Agreement shall be deemed in compliance with this Agreement when written evidence of such action, signed by the respective Authorized Representative, is delivered to the party who is to receive evidence of such action. All contracts to be entered into by the PUA shall be authorized by the PUA's Board of Directors. The Participants will cooperate with the PUA in the acquisition, financing, maintenance and operation of the System and, following the adoption of each Bond Resolution by the PUA's Board of Directors, will take all such actions as are necessary to effect the acquisition of the System and any other purpose for which Bonds may be issued and will not take any action or fail to take any action (including, without limitation, any exercise or denial of its consent or approval of any action proposed to be taken by the PUA or any of its agents hereunder), if taking or failing to take such action, respectively, would unreasonably delay or obstruct the acquisition of the System by the PUA or any other purpose for which Bonds may be issued.

Section 2.06 Issuance of Bonds. (a) The PUA's payment of the Installment Payments pursuant to the Purchase Contract will be financed by the PUA through the issuance of one or more series or issues of its Bonds payable from and secured solely by an assignment of the Annual Payments made under this Agreement. In consideration of the covenants and agreements set forth in this Agreement, and to enable the PUA to carry out the intents and purposes hereof, including the issuance of the Bonds, this Agreement is executed to assure the acquisition of the System and the issuance of the Bonds and to provide for and guarantee the due and punctual payment by the Participants to the PUA, or to the Trustee under the trust indenture (or paying agent/registrar agreement) securing the Bonds, of the Annual Payments. Each of the Participants hereby agrees to make, or cause to be made, its Proportionate Share of the Annual Payment, as and when due, for the benefit of the owners of the Bonds, as provided in the Bonds and the Bond Resolution.

(b) Except for Bonds issued pursuant to Section 10.22 hereof, the proceeds from the sale of the Bonds will be used for (i) payment of the Installment Payments as defined in and payable by the PUA pursuant to the Purchase Contract, (ii) funding capital improvements to the System; and (iii) funding any required funds and paying any expenses related to the Bonds and the System described in the Bond Resolution, as determined by the Board of Directors of the PUA. The Bonds will be issued by the PUA in the amounts required to pay the Installment Payments and to fund debt service reserve or other funds, costs of issuance of the Bonds and any other expenses related to the Bonds, to the extent deemed advisable by the PUA.

- (c) (1) Each Bond Resolution of the PUA shall specify the maximum principal amount of the Bonds to be issued thereunder. The Bonds shall mature not more than forty (40) years from the date of such Bonds and shall bear interest at not to exceed the maximum legal rate then permitted by law, and the Bond Resolution may create and provide for the maintenance of a revenue fund, an interest and sinking fund, a debt service reserve fund, and any other funds deemed prudent by the PUA, all in the manner and amounts as provided in such Bond Resolution.
- (2) All covenants and provisions in the Bond Resolution affecting, or purporting to bind, the Participants shall, upon the delivery of the Bonds, become absolute, unconditional, valid, and binding covenants and obligations of the Participants so long as the Bonds and interest thereon are Outstanding, and may be enforced as provided in this Agreement and the Bond Resolution. Particularly, the obligation of each of the Participants to pay, promptly when due, all Annual Payments specified in this Agreement shall be absolute and unconditional, and said obligation may be enforced as provided in this Agreement.

Section 2.07 Proceeds of Bonds. Subject to the terms and provisions of this Agreement (and excluding Bonds issued in accordance with Section 10.22), the proceeds of the Bonds shall be used by the PUA for the purposes described in Section 2.06. The PUA shall use its best efforts to issue its Bonds, in one or more series, in amounts which will be sufficient to accomplish such purpose. A trust indenture may be entered into between the PUA and a corporate trustee for the purpose of securing the payment of the Bonds. It is anticipated that the Bonds will be issued pursuant to the Bond Resolution and that a paying agent/registrars agreement will be executed between the PUA and/or the Trustee concerning the payment procedures with respect to the Bonds.

Section 2.08 Refunding of Bonds. The PUA reserves the right to issue refunding bonds in accordance with the laws of the State.

Section 2.09 Redemption of Bonds. The PUA, in its sole discretion or upon the written request of all of the Participants (and provided that the affected Bonds are subject to redemption or prepayment prior to maturity at the option of the PUA, and provided that such request is received in sufficient time prior to the date upon which such redemption or prepayment is proposed), forthwith shall take or cause to be taken all action that may be necessary under the applicable redemption provisions of affected Bonds to redeem such Bonds or any part thereof, to the full extent of funds that are either made available for such purpose by the Participants or already on deposit under the Bond Resolution and available for such purpose. The redemption of any outstanding Bonds prior to maturity at any time shall not relieve the Participants of their absolute and unconditional obligation to pay each remaining Annual Payment with respect to any remaining Outstanding Bonds, as specified in the Bond Resolution.

Section 2.10 PUA Rights Assigned to Trustee. The Participants are advised and recognize that as security for the payment of the Bonds, the PUA may assign to the Trustee,

pursuant to one or more trust indentures (or paying agent/registrars agreements) to be authorized by the Bond Resolution, the PUA's rights under this Agreement to receive the Annual Payments hereunder. The Participants herewith consent to such assignment and will make the Annual Payments directly to the Trustee without defense or set-off by reason of any dispute between one or both of the Participants and the PUA or the Trustee. All rights against the Participants arising under this Agreement or the Bond Resolution and assigned to the Trustee may be enforced by the Trustee, or the owners of the Bonds, to the extent provided in the Bond Resolution, and the Trustee, or the owners of the Bonds, shall be entitled to bring any suit, action, or proceeding against the Participants, to the extent provided in the Bond Resolution, for the enforcement of this Agreement, and it shall not be necessary in any such suit, action, or proceeding to make the PUA a party thereto.

Section 2.11 Tax-Exempt Bonds. The parties hereto understand and agree that the PUA will use its best efforts to provide for, but will not be liable for a failure to produce, the lowest overall debt service cost for the Bonds. In connection therewith, the parties intend that the PUA will issue Bonds the interest on which is excludable from the gross income of the owners thereof for federal income tax purposes. The parties hereto acknowledge their understanding that the federal income tax laws impose certain restrictions on the use and investment of proceeds of such tax-exempt bonds and on the use of the property financed therewith and the output produced therefrom. Accordingly, the parties agree and covenant that if the Bonds are offered to investors with the understanding that the interest will be exempt from federal income taxation, then the parties, their assigns and agents, will take such action to assure, and refrain from such action which will adversely affect the treatment of such Bonds as obligations described in section 103 of the Code. Should any party fail to comply with such covenant, the effect of which being that the Bonds no longer qualify as obligations described in the Code, such defaulting party shall be liable for all costs resulting from the loss of the tax-exempt status of the Bonds. The parties hereby agree and covenant to comply with all of the representations and covenants relating to such exemption which are set out in any Bond Resolution. The parties further agree and covenant that in the event the Bonds issued are to be tax-exempt, they will modify such agreements, make such filings, restrict the yield on investments, and take such other action necessary to fulfill the applicable provisions of the Code. For these purposes, the parties may rely on the opinion of any firm of nationally-recognized bond attorneys selected by them.

Section 2.12 Payment to Rebate Fund. In the event that tax-exempt Bonds are issued as provided in Section 2.11, the PUA hereby covenants and agrees to make the determinations and to pay any deficiency into a rebate fund at the times and as described in the Bond Resolution to comply with the provisions of section 148(f)(2) of the Code. In any event, if the amount of cash held in the rebate fund shall be insufficient to permit the Trustee to make payment to the United States of America of any amount due on any date under section 148(f)(2) of the Code, each of the Participants forthwith shall pay its proportionate share of the amount of such insufficiency (calculated in the same proportion as each such Participant's Proportionate Share of the Annual Payment is calculated) on such date to the Trustee in immediately available funds for such purpose. The obligations of the Participants under this Section 2.12 are direct obligations of each Participant, acting under the authorization of, and on behalf of, the PUA and the PUA shall have no further obligation or duty with respect to the rebate fund.

Section 2.13 Sale and Offering Documents. At the request of the PUA, each of the Participants shall provide to the PUA current and historical information concerning the Participants' Systems, the financial conditions, results, and prospects of the Participants, and such other information concerning the Participants as the PUA shall deem advisable for inclusion in the Sale and Offering Documents for the Bonds of each series and shall certify to the PUA and the underwriters of any offering of Bonds to be made by means of such Sale and Offering Documents when and if the Participant deems such Sale and Offering Documents to be complete and final for purposes of the Rule. Each of the Participants represents and warrants that all statements concerning it (including, without limitation, its financial condition, results, and prospects, its portion of the Participants' Systems, and any demographic and economic information concerning the area served by its portion of the Participants' Systems) that are contained in any Sale and Offering Document shall be true in all material respects and shall not omit to state any material fact necessary to make the statements made in such Sale and Offering Document, in the light of the circumstances in which they are made, not misleading.

Section 2.14 Right of Participants to Prepay. The Participants shall have the right at any time to prepay all or any portion of its Proportionate Share of the Annual Payments. Subject to the provisions of Section 2.11, such prepaid Proportionate Share of the Annual Payments shall be used by the PUA as directed by the Participant which prepaid (i) as a credit against future Proportionate Share of the Annual Payment obligations of such Participant, (ii) to redeem Bonds pursuant to the provisions of Section 2.09, or (iii) to provide for the defeasance of Bonds pursuant to the provisions of the Bond Resolution. Such prepaid amounts shall be invested by the PUA with the concurrence of the prepaying Participant. Any such prepayment shall not cause a termination of this Agreement with respect to such Participant until all other amounts owed or to be incurred by the PUA or any other person under the provisions of the Bond Resolution and hereunder (including Section 10.05 hereof) have been paid in full or waived by such person.

ARTICLE III

CONDITIONAL PURCHASE AND SALE OF DISTRIBUTION AND COLLECTION COMPONENTS

Section 3.01 Conditional Purchase and Sale. The PUA hereby sells to the Participants, and the Participants hereby purchase from the PUA, each Participant's respective Distribution and Collection Components; provided, however, that in the event that a Participant shall for any reason fail to fully discharge its pecuniary obligations to the PUA throughout the term of this Agreement, then title to such Participant's Distribution and Collection Components shall immediately and automatically revert to the PUA without any requirement of further action.

ARTICLE IV

OPERATION AND MAINTENANCE OF SYSTEM; PAYMENT COLLECTION

Section 4.01 Operation and Maintenance of System. The PUA covenants to operate and maintain the System, including the Distribution and Collection Components, on behalf of the

Participants, in accordance with Prudent Utility Practices and in accordance with applicable regulatory requirements. The PUA will establish and set customer service rules and policies for customers served by the System, wholesale and retail rates for service, and other related fees and charges necessary for the proper management and operation of the System and as necessary to make the Annual Payments by each Participant under this Agreement and allow for the repayment of the Bonds. In setting wholesale and retail rates for service, and other related fees and charges as necessary to comply with the terms of this Agreement, the PUA is acting as agent of each of the Participants. Each Participant hereby agrees that, if the PUA shall fail, for any reason, to set rates and charges necessary to comply with the terms hereof, it will take immediate action to set such rates and charges in its service area as necessary to comply with the terms hereof.

Section 4.02 Impact Fees. To the extent allowed by law, the Participants agree to adopt and assess impact fees, if necessary, in accordance with Chapter 395 of the Local Government Code to fund capital expansions of the System provided that such Participant approves the land use assumptions, ten year capital improvements plan, and impact fee calculations supporting the adoption of such fees. Any impact fees adopted and assessed for the System shall be collected by the PUA and used only for the purposes as authorized by Chapter 395 of the Local Government Code.

Section 4.03 Billing. The PUA will render bills to, and collect and receive payments from, the customers of the Participants not more than once each month, for service commencing on the Operations Transfer Date. As such term is defined in the Purchase Agreement. All payments received shall be deposited in the appropriate Participant's Account.

Section 4.04 Deductions for Proportionate Share of Annual Payments. On the 15th day of each month, commencing as of the Operations Transfer Date, the PUA shall debit each Participant's Account in the amount of one-twelfth of its Proportionate Share of the Annual Payment.

Section 4.05 Disbursement of Additional Revenues. On the 15th day of each month, commencing as of the Operations Transfer Date, the PUA shall transfer from each Participant's Account to the Rate Stabilization Fund all amounts remaining therein after all deductions therefrom pursuant to Sections 4.03 and 4.04 for such month. Funds in the Rate Stabilization Fund may be used at the discretion of the PUA for any lawful purpose, including capital additions and improvements to the System and to enable the PUA to manage rates and charges recommended to the Participants pursuant to Section 7.03(b); provided, however, that such funds shall be used in the following order of priority:

- (a) **First**, for funding of operating and maintenance reserves and payment of principal of and interest on the Bonds, in accordance with Prudent Utility Practice;
- (b) **Second**, for redemption or defeasance of outstanding Bonds, if economically advantageous in the discretion of the Board of the PUA; and

(c) Third, for transfer to the Facilities Fund for payment of costs of any capital additions and improvements to the System, including reimbursement of any Participant for payment of such costs, upon request of such Participant and at the discretion of the Board of the PUA. At the discretion of the Board of the PUA, amounts on deposit in the Facilities Fund may be transferred to the Rate Stabilization Fund from time to time and used for any lawful purpose.

ARTICLE V

WATER MATTERS

Section 5.01 Title to Water. Title to the water delivered by the System shall be in the PUA.

Section 5.02 Access to Water Participants. Should any facilities, pipelines, or appurtenances owned by the PUA be installed in any street, alley, or public way within the jurisdiction of the Water Participants, as same are now constituted or as may hereafter be extended, the Water Participants hereby grant to the PUA the right, privilege and franchise of using such streets, alleys and public ways for the purposes of maintaining, operating, laying, repairing, or removing such facilities, pipelines, and appurtenances.

Section 5.03 Easements. The Water Participants hereby agree to grant to the PUA such easements as may be reasonably necessary for the purposes of placing, constructing, operating, repairing, maintaining, rebuilding, replacing, relocating, and removing water facilities upon, over, across and through the Water Participants' property and giving to the PUA, and its successors and assigns, all of the rights and benefits necessary or appropriate for the full enjoyment and use of the easement, including but without limiting the same to the free right of ingress and egress to and from the Water Participants' property. Such rights shall be subject to applicable ordinances and regulations of the Participants.

Section 5.04 Lake Pointe Preserve. Notwithstanding anything to the contrary contained herein, access, use, placement, construction, operation, repair, maintenance, rebuilding, replacement, relocation, or removal of any PUA facilities (collectively the "Preserve Work") within the habitat conserved for the Golden-cheeked Warbler ("GCW") owned or managed by MUD 5 (the "Lake Pointe Preserve") must comply with Permit, PRT-782186, and the following related permit documents: Agreement with Respect to the Lake Pointe Habitat Conservation Plan (the "Implementing Agreement"), the Habitat Conservation Plan for the Lake Pointe Development ("HCP"), and the biological opinion issued by the U.S. Fish and Wildlife Service. Prior to any Preserve Work, the PUA shall receive written authorization from MUD 5 that the proposed Preserve Work is covered by the terms and conditions of the PRT-782186, the related permit documents, and the operation and maintenance provision of the Implementing Agreement, Section V.D.

Section 5.05 Cross-Utilization of Lines. Each Water Participant acknowledges that it may be necessary for certain of its transmission lines to be utilized in order for the PUA to transmit treated water to another Water Participant or other entity and each Water Participant hereby agrees to permit the PUA to so utilize its transmission lines in accordance with Section

5.02 and Section 5.03. In such case, the Water Participant involved agrees to inform the PUA of any special requirements with respect to pressure or other matters relating to the transmitting Water Participant's lines.

Section 5.06 Delivery Points. The PUA will deliver water to the Delivery Point(s) for each Water Participant at the location(s) depicted in Exhibit B.

Section 5.07 Quantity. During any period of time that the treated water produced by the System is insufficient to satisfy 100% of the needs of all Water Participants, then each Water Participant's proportionate share of the available treated water produced by the System shall be equal to each Participant's Proportionate Share of the Annual Payment as determined in Exhibit A.

Section 5.08 Other Contracts. The PUA shall not enter into contracts with other persons for the supply of water outside of its service area (as more fully described in Exhibit C) without the prior consent of Water Participants and any Water Participant may withhold its consent in its sole and absolute discretion. The Water Participants may not resell water that they purchase from the PUA to third party wholesalers without obtaining the written consent of the PUA and the other Water Participants. The Water Participants shall not enter into contracts with any entity other than the PUA for supply of water during the term of this Agreement.

Section 5.09 Quality. The water to be delivered by the PUA and received by the Water Participants shall be surface water produced from and treated by the System. Each of the Water Participants has satisfied itself that such water is suitable for its needs. The PUA and each of the Water Participants shall cooperate, each within its legal powers, in preventing possible pollution and contamination of the sources from which the water is obtained.

ARTICLE VI

WASTEWATER MATTERS

Section 6.01 Wastewater Flow. The PUA agrees to receive, transport and treat Wastewater of each Wastewater Participant, respectively, at its Point(s) of Entry in accordance with this Article. The PUA agrees to provide adequate facilities and processes to meet volume and peaking requirements of the Wastewater Participants as provided herein.

Section 6.02 Flow Rates.

A. Each Wastewater Participant agrees that during each Fiscal Year while the System is in operation, it shall be obligated to transport and discharge into the System at its respective Point(s) of Entry, all of the Wastewater which is generated and collected within its service area, subject to the restrictions hereinafter stated.

B. The total quantity of Wastewater discharge into the System shall never exceed the amount which the System is capable of receiving, treating, and disposing, unless approved by the PUA, subject to the terms and conditions to be established by the PUA. Notwithstanding the foregoing, no Wastewater Participant shall ever make any discharge into the System which

would cause the System to be overloaded or be in violation of its permits from the State and/or the United States of America.

C. Wastewater will be received into the System at the Point(s) of Entry for each respective Wastewater Participant, as shown on Exhibit B attached hereto and incorporated herein for all purposes, or at such other points of entry that may be established by mutual agreement between the PUA and Wastewater Participant, if such other points of entry are determined by the PUA to be economical and beneficial to the System.

Section 6.03 Access.

A. Each Wastewater Participant agrees to provide ingress and egress for PUA employees and agents to all its premises inside Wastewater Participants' service area to install, operate, inspect, test, and maintain facilities owned or maintained by PUA within corporate or jurisdictional limits of Wastewater Participant or to make such inspections or tests authorized by this Agreement.

B. The PUA agrees to provide ingress and egress for Wastewater Participant employees and agents to all premises under control of the PUA to install, operate, inspect, test, and maintain facilities, and read meters owned or maintained by Wastewater Participant.

Section 6.04 Resale. Wastewater Participants hereby agree not to accept and transport to their respective Point(s) of Entry any Wastewater from outside such Wastewater Participant's corporate boundaries or prescribed service area (as may be adjusted from time to time).

Section 6.05 Other Contracts. The PUA shall not enter into contracts with other persons for the treatment of Wastewater outside of its service area (as more fully described in Exhibit D) without the prior consent of Wastewater Participants and any Wastewater Participant may withhold its consent in its sole and absolute discretion. The Wastewater Participants shall not enter into contracts with any entity other than the PUA for treatment of Wastewater during the term of this Agreement.

ARTICLE VII

ANNUAL PAYMENTS COVENANTS

Section 7.01 Annual Estimate of Annual Payments. Not less than ninety (90) days prior to the beginning of each Fiscal Year, the PUA shall furnish to the Participants an estimate and schedule of the Annual Payments required to be paid by the Participants in such Fiscal Year.

Section 7.02 Annual Payments by the Participants. (a) Each of the Participants hereby agrees that it will make payments of its Proportionate Share of the Annual Payments to the PUA, or to the Trustee on behalf of the PUA, as provided in the Bond Resolution and in accordance with the procedures established in Section 4.03 hereof. If a Participant at any time disputes the amount to be paid by it to the PUA, deductions shall nevertheless promptly be made from such Participant's Account, but if it is subsequently determined by agreement or court decision that such disputed payments should have been less, or more, the PUA shall promptly revise the

charges for such Participant in such manner that a Participant will recover its overpayment or the PUA will recover the amount due it. The PUA shall pursue all legal remedies against the Participants to enforce and protect the rights of the PUA and the owners of the Bonds, and the Participants shall not be relieved of the liability to the PUA for the payment of all amounts which are due by them hereunder.

(b) The PUA shall redetermine the estimate and schedule of Annual Payments due in any Fiscal Year at any time during such Fiscal Year, as and to the extent deemed necessary or advisable by the PUA to accurately forecast the amount and date of Annual Payments to be made by the Participants, if (i) the PUA issues Bonds to refund any Bonds, (ii) actual interest rates on any variable interest rate Bonds differ from those projected by the PUA, or (iii) any other event occurs which results in an increase or decrease in the Annual Payments required to be made by the Participants in such Fiscal Year.

(c) If, during any Fiscal Year, the Annual Payment is redetermined in any manner as provided or required in this Section, the PUA will promptly furnish the Participants with an updated schedule of payments reflecting such redetermination.

(d) Notwithstanding anything herein to the contrary, no failure of the PUA to estimate, and no mistake by the PUA in any estimate of, the amount of or schedule for Annual Payments due from the Participants in any Fiscal Year shall relieve the Participants from (or defer) their absolute and unconditional obligation to make all Annual Payments in full when due.

Section 7.03 Source of Payment. (a) Each of the Participants represents and covenants that all payments to be made by them under this Agreement shall constitute reasonable and necessary "operating expenses" (as defined in Section 572.061(c), Local Government Code) of the Participants' Systems, but only to the extent of each Participant's Proportionate Share of the Annual Payment, and the Participants shall not be obligated to make any payments under this Agreement from any source other than the gross revenues of the Participants' Systems. Each of the Participants further represents that the governing bodies of the Participants have determined that the services to be provided by the System are absolutely necessary and essential to provide the water to the Water Participants and, with respect to the Wastewater Participants to treat the wastewater of the Wastewater Participants, contemplated by this Agreement.

(b) Each of the Participants agrees throughout the term of this Agreement to (i) implement such rates and charges for services to be supplied by such Participant's System as shall be set by the PUA as will produce gross revenues at all times during the term of this Agreement in an amount at least equal to all of the expenses of operation and maintenance of such Participant's System, including specifically its payments under this Agreement and (ii) fix and collect such rates and charges for services to be supplied by such Participant's System all other amounts as required by law and the provisions of the ordinances or resolutions authorizing the Participant's Utility Bonds, if any, or other obligations now or hereafter outstanding payable, in whole or in part, from the net revenues of such Participant's System, including the amounts required to pay all principal of and interest on such Participants Utility Bonds, if any, and other obligations. Each of the Participants further agrees throughout the term of this Agreement to fix

and collect such rates and charges for services to be supplied by such Participant's System sufficient to satisfy clause (i) above if the PUA shall for any reason fail to do so.

(c) No ad valorem tax revenues of any of the Participants shall be pledged to the payment of any amounts to be paid by the Participants to the PUA under this Agreement, nor shall the PUA have the right to demand payment of any amounts to be paid by the Participants under this Agreement be paid from funds raised or to be raised from ad valorem taxation from the Participants and the obligations under this Agreement shall never be construed to be a debt or pecuniary obligation of the Participants of such kind as to require the Participants to levy and collect an ad valorem tax to discharge their obligations.

Section 7.04 Installment Payments. Each Participant hereby acknowledges and agrees that the Annual Payments due hereunder initially include the Installment Payments owed by the PUA to the LCRA pursuant to the Purchase Contract. Each Participant further acknowledges and agrees that upon issuance of each series of Bonds hereunder and application of the proceeds thereof by the PUA to payment of Installment Payments under the Purchase Contract, (i) the amount of the Annual Payments owed by the Participants hereunder will be reduced by the amount of the Installment Payments funded by such series of Bonds, and (ii) the amount of the Annual Payments owed by the Participants hereunder will be increased by the amount of the Bond Payment related to such series of Bonds.

Section 7.05 Annual Budgeting by the Participants. The Participants shall make provision in each of their annual budgets and shall appropriate an amount sufficient, at a minimum, for the payment of all amounts required to be paid by the Participants under this Agreement.

Section 7.06 Revenue Sources Pledged. Each of the Participants hereby pledges the gross revenues of such Participant's System to the payment of its obligations under this Agreement and recognizes that the PUA will, and authorizes the PUA to, pledge the Annual Payments owing to it by the Participants under this Agreement to the payment of the Installment Payments and the Bonds. The PUA agrees to make the payments for the Installment Payments and Bonds when and as required by the Purchase Contract, the Bond Resolution and this Agreement, from Annual Payments made by the Participants. The PUA and the Participants hereby agree and acknowledge that, pursuant to and in accordance with the PUA Act, the Installment Payments payable to LCRA pursuant to the Purchase Contract constitute an operating and maintenance expense of the PUA and a first lien on the revenues of the PUA, payable prior to payment of principal of and interest on the Bonds.

Section 7.07 General Covenants. Each Participant further represents, covenants and agrees that in accordance with and to the extent permitted by law:

(a) Performance. It will faithfully perform at all times any and all covenants, undertakings, stipulations, and provisions contained in each ordinance or resolution authorizing the issuance of its Participants Utility Bonds, if any; and it will, at the time and in the manner prescribed, deposit or cause to be deposited the amounts required to be deposited into the fund and accounts created by said ordinances or resolutions, but only

from and to the extent of the sources of funds and after satisfaction of all prior obligations described therein.

(b) Legal Formation and Existence. It is duly created and existing under the laws of the State and is duly authorized under the laws of the State to enter into this Agreement; that all action on its part for the execution and delivery of this Agreement has been duly and effectively taken; and that this Agreement is a valid and enforceable special obligation of the Participants in accordance with its terms.

(c) Title. It has or will obtain lawful title, whether such title is in fee or lesser interest, to the lands, buildings, structures, and facilities constituting such Participant's System; it will defend the title to all the aforesaid lands, buildings, structures, and facilities, and every part thereof against the claims and demands of all persons whomsoever, and it is lawfully qualified to pledge the gross revenues of such Participant's System to the payment of the payments required by this Agreement in the manner prescribed herein, and has lawfully exercised such rights.

(d) Liens. It will from time to time and before the same become delinquent pay and discharge all taxes, assessments, and governmental charges, if any, which shall be lawfully imposed upon such Participant's System; it will pay all lawful claims for rents, royalties, labor, materials, and supplies which if unpaid might by law become a lien or charge thereon, the lien of which would be prior to or interfere with the liens hereof, so that the priority of the lien granted hereunder shall be fully preserved in the manner provided herein; and it will not create or suffer to be created any mechanic's, laborer's, materialman's, or other lien or charge which might or could be prior to the liens hereof, or do or suffer any matter or thing whereby the lien hereof might or could be impaired; provided however, that no such tax, assessment, or charge, and that no such claims which might be used as the basis of a mechanic's, laborer's, materialman's, or other lien or charge, shall be required to be paid so long as the validity of the same shall be contested in good faith by such Participant.

(e) Books, Records, and Accounts. The PUA shall keep proper books, records, and accounts separate and apart from all other records and accounts, in which complete and correct entries shall be made of all transactions relating to each Participant's System, and shall cause said books and accounts to be audited annually as of the close of each Fiscal Year by the Accountant. Such annual audit report shall be open to the inspection of the Trustee, if any, and the owners of the Bonds at all reasonable times. At the request of a Participant, the PUA shall allow such Participant to audit such books, records, and accounts at any reasonable time and from time to time.

(f) Insurance.

(1) Except as otherwise permitted in clause (2) below, it shall cause to be insured such parts of the Participant's System as would usually be insured by corporations operating like properties, with a responsible insurance company or companies, against risks, accidents, or casualties against which and to the extent:

insurance is usually carried by corporations operating like properties, including, to the extent reasonably obtainable, fire and extended coverage insurance, insurance against damage by floods, and use and occupancy insurance. Public liability and property damage insurance shall also be carried unless counsel to the Participant gives a written opinion to the effect that the Participant is not liable for claims which would be protected by such insurance. At any time while any contractor engaged in construction work shall be fully responsible therefor, the Participants shall not be required to carry insurance on the work being constructed if the contractor is required to carry appropriate insurance. All such policies shall be open to the inspection of the PUA at all reasonable times.

(2) In lieu of obtaining policies for insurance as provided above, the Participants may self-insure against risks, accidents, claims, or casualties described in clause (1) above.

(3) The annual audit hereinafter required shall contain a section commenting on whether or not the Participant has complied with the requirements of this Section with respect to the maintenance of insurance, and listing the areas of insurance for which the Participant is self-insuring, all policies carried, and whether or not all insurance premiums upon the insurance policies to which reference is hereinbefore made have been paid.

(g) Governmental Agencies. It will comply with all of the terms and conditions of any and all franchises, permits, and authorizations applicable to or necessary with respect to such Participant's System, and which have been obtained from any governmental agency; and each Participant has or will obtain and keep in full force and effect all franchises, permits, authorizations, and other requirements applicable to or necessary with respect to the acquisition, construction, equipment, operation, and maintenance of such Participant's System.

(h) No Competition. To the extent permitted by law, it will not grant any franchise or permit for the acquisition, construction, or operation of any competing facilities which might be used as a substitute for such Participant's System's facilities, and, to the extent permitted by law, each Participant will prohibit any such competing facilities.

(i) Rights of Inspection. The PUA, the Trustee, and the owners of 10% or more in principal amount of the Bonds of any series shall have the right at all reasonable times to inspect each Participant's System and all records, accounts, and data of the Participant relating thereto, and upon request each Participant shall furnish to the PUA, the Trustee, and such owners of Bonds such financial statements, reports, and other information relating to the Participant and such Participant's System as any such person may from time to time reasonably request.