

**UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF KENTUCKY
OWENSBORO DIVISION**

CIVIL ACTION NO. 4:04-CV-87-M

**CITY OF OWENSBORO and
CITY UTILITY COMMISSION OF THE CITY
OF OWENSBORO, KENTUCKY, a/k/a
OWENSBORO MUNICIPAL UTILITIES**

PLAINTIFFS

V.

KENTUCKY UTILITIES COMPANY

DEFENDANT

FINDINGS OF FACT AND CONCLUSIONS OF LAW

This litigation arises out of a longstanding wholesale electricity supply contract between the City of Owensboro, Owensboro Municipal Utilities, and Kentucky Utilities Company. In its amended counterclaim, Kentucky Utilities Company alleges that the City of Owensboro and Owensboro Municipal Utilities breached the contract by failing to operate and maintain the Elmer Smith Generating Station (“ESGS”) in a good and workmanlike manner. (DN 217, Am. Counterclaim. ¶ 32.) The Court conducted a bench trial on this counterclaim between October 21, 2008 and November 7, 2008. The parties have filed proposed findings of fact and conclusions of law [DN 508, DN 518]. After fully considering the evidence and the arguments of counsel, the Court, pursuant to Federal Rule of Civil Procedure 52(a), makes the following findings of fact and conclusions of law.

I. BACKGROUND

A. The Parties

Owensboro Municipal Utilities (“OMU”) is a municipally-owned, non-regulated utility located in Owensboro, Kentucky. (DX 598.) Kentucky Utilities Company (“KU”), which is owned by E.ON U.S. (“EON”), is an investor-owned utility regulated by the Kentucky Public Service Commission and FERC. (TR Vol. I-A: Lonnie Bellar at 42, 44.) Plaintiffs, the City of Owensboro (the “City”) and OMU, and Defendant, KU, initially entered into a contract on September 30, 1960 to construct an electric generating facility that would provide both parties with resources for electrical power (the “Contract”). (DX 598.) The Contract, which sets forth the rights and duties of the parties regarding ESGS, has been amended several times with the most recent amendment taking place in 1998.¹ ESGS, a generating station owned by OMU, is comprised of two power generating units with a combined capacity exceeding 400 megawatts (“MW”). The first unit (“Unit 1”) has a capacity of 165 MW and the second unit (“Unit 2”) has a capacity of approximately 250 MW. This combined capacity of over 400 MW significantly exceeds the generation necessary to meet OMU’s power requirements. (TR Vol. I-A: Bellar at 55.)

B. The Terms of the Contract

Under Article III, Section 2 of the Contract, OMU has the right to take such part of the capacity and electric energy output from ESGS as it needs to serve the City of

¹ Unless otherwise indicated, references to “the Contract” are to the 1960 Contract as amended from time-to-time to its most recent revision.

Owensboro, its inhabitants and other ultimate consumers in OMU's service area ("native load"). Any surplus capacity and electric energy then remaining shall be available for KU to purchase. (Contract, Article III, § 2.) In other words, the power generated by ESGS is first used to meet the needs of the City; KU may then purchase any available excess or surplus energy to meet its own needs. (Id.) The Contract also envisioned the possibility that from time to time, OMU would require energy not produced by ESGS. The rights and duties of the parties regarding this "back-up energy" are set forth in Article VI of the Contract. The Contract provides that, in the event of an interruption in service from ESGS, KU will provide OMU with back-up energy. (Contract, Art. VI, § 1; TR Vol. VII-A: Stan Conn at 86.)

The parties share costs under the Contract, including capacity costs and energy costs. (Contract, Art. III.) OMU's and KU's share of capacity costs vary from month to month based upon the proportionate amount of generating capacity allocated for use by each party. (Id. at Art. III, § 3(a).) The capability of ESGS (the overall amount of energy that ESGS can produce) is tested by OMU on a biannual basis. (TR Vol. VIII: Conn at 179-180.) Each month, OMU's portion of capacity costs is determined by taking the highest amount of energy used by OMU to serve its native load in a one hour period over the prior 12 months (peak demand) and adding a contractual reserve margin factor/adder of 1.15% to 1.20% depending on OMU's availability. (Id. at Art. III, § 3(d)(5); 1998 Amendment.) The proportion of this energy allocated to OMU in relation ESGS's tested capability is the proportion of capacity costs that OMU must pay each month. (Id.) The remaining proportion of capacity costs is allocated to KU even if it receives no energy from ESGS. (Id.

at Art. III, § 3(d)(6); TR Vol. I-A: Bellar at 66.) Historically, KU has paid over half of the capacity costs of ESGS. (TR Vol. I-A: Bellar at 118-19.) In addition to paying their portion of capacity costs, KU and OMU also pay for energy costs. Unlike capacity costs, however, the costs of energy are divided between KU and OMU based upon the actual amount of energy taken from ESGS by each party. (Id. at Art. III, § 3(b); TR Vol. I-A: Bellar: 67-68.) Historically, KU has taken over 60 percent of the energy generated at ESGS. (TR Vol. I-A: Bellar at 119.)

Article III of the Contract governs the rights and duties of the parties in relation to the operation and maintenance of ESGS. Article III of the Contract provides that “[t]he Commission [OMU] will operate and maintain Station 2 [ESGS] and associated substation facilities in a good and workmanlike manner.” (Contract, Art. III, § 1.) The Contract further provides that “[a]ll repairs shall be made with materials and workmanship of a standard at least equal to that which prevailed in the construction of Station 2.” (Id.) Under the Contract, KU is granted the right to inspect ESGS at all reasonable times, and to give recommendations to OMU with respect to the care, maintenance and operation of ESGS. OMU agreed to comply with all reasonable recommendations or requests. (Id. at Art. III, § 4.) The Contract also requires that OMU maintain records of its operation and maintenance of ESGS; KU’s authorized representatives have the right to inspect these records at all reasonable times. (Id. at Art. III, § 5.) OMU also provides KU monthly reports regarding the operation of ESGS including a list of what OMU believes to be the cause of any outages and derates that occurred at ESGS during each month. (Id.) The cause of these outages and

derates are provided to KU in the form of cause codes—a standardized method of reporting outages and derates as developed by the Generating Availability Data System (“GADS”). (TR Vol. III-B: James Hawks at 18-21.) Because OMU is in contact with KU dispatch (Contract, Art. V, § 5), this same information is also reported to KU as outages and derates occur (TR Vol. I-B: John Malloy at 73).

C. Termination of Contract

In the late 1990s, deregulation of the power industry occurred permitting utilities to sell excess power in the open market. Realizing that it lacked access to the open market because of its obligations under the Contract, OMU initiated efforts to renegotiate the terms of the Contract. (TR Vol. I-A: Bellar, 68-72, 76-77; DX 407; TR Vol. VII-A: Conn at 85.) After nearly five years, negotiations between OMU and KU broke down in 2004. (TR Vol. I-A: Bellar at 107; TR Vol. VII-A: Conn at 97-98; DX 349.) OMU filed this lawsuit in May 2004 seeking a declaration of its rights under the Contract. In May of 2006, OMU provided notice to KU of its intent to terminate the Contract effective May 2010. (DX 670.) In January of 2007, KU filed this amended counterclaim for breach of contract, alleging in part that OMU failed to operate and maintain ESGS in a good and workmanlike manner.

II. LEGAL STANDARD

KU asserts that OMU breached the Contract by failing to operate and maintain ESGS in a good and workmanlike manner. To recover for breach of contract under Kentucky law, a plaintiff must “show the existence and the breach of a contractually imposed duty.” Lenning v. Commercial Union Ins. Co., 260 F.3d 574, 581 (6th Cir. 2001); Strong v.

Louisville & Nashville R. Co., 43 S.W.2d 11, 13 (Ky. 1931). If a plaintiff can show the existence and breach of a contractually imposed duty, the plaintiff is entitled to recover those damages that are the natural, direct and proximate cause of the breach. Hogg v. Edley, 32 S.W.2d 744, 745 (Ky. 1930) (“The general rule for measuring damages flowing from a violated contract is that the violator “is liable to the person injured in compensatory damages for all the natural and direct or proximate consequences of his wrongful act or omission.” Id. (citation omitted)); Staves Mfg. Corp. v. Robertson, 128 S.W.2d 745 (Ky. 1939). The proper measure of damages “is that sum which will put the injured party into the same position he would have been had the contract been performed.” Olive Hill Limestone Co. v. Gay-Coleman Constr. Co., 51 S.W.2d 465, 467-468 (Ky. 1932). A plaintiff can recover damages even though such damages have not been proven to a mathematical certainty so long as “the evidence permits [the claimed damages] to be established with reasonable certainty.” Pauline’s Chicken Villa, Inc. v. KFC Corp., 701 S.W.2d 399, 401 (Ky. 1985) (quoting Restatement (Second) Contracts, § 352)). KU has the burden of proving the elements for breach of contract by a preponderance of the evidence.

III. BREACH OF CONTRACT CLAIM

It is undisputed that a valid contract exists between OMU and KU. Although the Contract does not guarantee that OMU will supply a specific amount of energy to KU, it does provide that “[t]he Commission [OMU] will operate and maintain Station 2 [ESGS] and associated substation facilities in a good and workmanlike manner.” (Id., Art. III, § 1.) The parties agree that the phrase “good and workmanlike” means:

the degree of skill, efficiency, and knowledge that is possessed by those of ordinary skill, competency, and standing in the particular trade or business for which the person is employed, and where the contract does not provide for a higher degree of skill, only ordinary skill and the degree of skill adequate to the performance of the undertaking is required. No breach will be found if the contractor performed the work in accordance with industry standards.

17A Am. Jur.2d Contracts § 612 (2008) (citations omitted).

KU maintains that it relies upon the Contract to fulfill its native load obligations to its customers and to keep its generation competitively priced. (TR Vol. I-A: Bellar at 47, 50, 51; TR Vol. II: Charles Martin at 11-12.) As a low cost, base load unit, ESGS is dispatched to serve load nearly 100% of the time. (TR Vol. II: Martin at 31, 92.) KU argues that if ESGS was operated and maintained according to industry standards, it could have acquired more low-cost energy from ESGS under the Contract than ESGS was able to supply. Instead, KU was forced to go off-system and acquire energy from more expensive resources to serve KU's native load. Additionally, KU argues that it had to supply OMU with backup power from KU's assets resulting in lost profit from the sale of KU's system power on the market. KU maintains that it has proven by a preponderance of the evidence that OMU breached the Contract by failing to operate and maintain ESGS in a good and workmanlike manner. In support of its breach of contract claim, KU relies on (1) performance statistics of ESGS; (2) operation and maintenance practices at ESGS; and (3) specific instances of outages at ESGS. Below the Court summarizes the evidence KU presented at trial related to these three categories and OMU's evidence presented in response. The Court will then set forth its findings of fact and conclusions.

A. Performance Statistics

1. KU's Evidence

KU maintains that OMU's equivalent forced outage rate ("EFOR") and equivalent availability factor ("EAF") performance statistics reflect a failure by OMU to operate and maintain ESGS in a good and workmanlike manner. EFOR measures the percentage of equivalent hours that a generating unit, because of unplanned circumstances, is unable to generate expected energy. ESGS had a combined EFOR rate of 4.9% in 1997, 7.9% in 1998, and 5.5% in 1999. In 2000, ESGS's EFOR began to increase. ESGS had an EFOR of 11.7% in 2000, 11.0% in 2001, 18.2% in 2002, 16% in 2003, 11.1% in 2004, 21.56% in 2005, 17.8% in 2006, and 28.3% in the first quarter of 2007. (TR Vol. VII-A; Conn at 91-92; DX 505, DX 744, DN 680, DN 681.) Similarly, ESGS's EAF, which measures the amount of time a generating unit is able to produce energy, declined during that same time period. ESGS had a combined EAF of 88.9% in 1997, 85.6% in 1998, 83.9% in 1999, 81.8% in 2000, and 84.4% in 2001. In 2002, however, ESGS had a combined EAF of 67.8% in 2002, 79.3% in 2003, 79.3% in 2004, 71.9% in 2005, 72.5% in 2006, and 67.1% through the first three months of 2007. (DX 666 at 21.)

a. Robert Shepard

In support of its position, KU presented the expert testimony of Robert Shepard.² Mr.

² Prior to trial, OMU moved to exclude the testimony and expert reports of Robert Shepard and Bill Abington. Similarly, KU moved to exclude the testimony and expert report of Mark McClernon. After reviewing the trial testimony and expert reports, the Court finds that the testimony of these witnesses satisfies the requirements of Rule 702 and Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579 (1993).

Shepard received a B.S. in Mechanical Engineering in 1987 from Mississippi State University, is a licensed professional engineer, and has had other professional training concerning power plant operation, maintenance and repairs. He has worked in the power generation industry for approximately 20 years and has extensive experience in the areas of plant operation and maintenance. (TR Vol. IV-A: Robert Shepard at 7-8.) Mr. Shepard testified that “reliability” and “availability” are strong indicators of how well a power plant is being operated and maintained, and consideration of EFOR, EAF and unit start statistics to evaluate plant performance is consistent with industry practice. (TR Vol. IV-B: Shepard at 18.) Mr. Shepard reviewed the EFOR, EAF, and the number of unit starts for ESGS Units 1 and 2.

Based on his experience working in the field, Mr. Shepard opined that, over the time period from 2001 until March 2007, Unit 1, if operated and maintained according to industry standards, should have achieved an EFOR of 8-9%. Instead, ESGS achieved an average EFOR during that time period of 14.7%. (TR Vol. IV-A: Shepard at 38-39, 41-42, 45; TR Vol. IV-B: Shepard at 130; DX 666 at 15, 18-19; DX 749; DX 752.) Over the same time period, Mr. Shepard opined that Unit 2, if operated and maintained according to industry standards, should have achieved an EFOR of 5-6%. Unit 2's average EFOR during that time period, however, was 17.3%. (TR Vol. IV-A: Shepard at 45, 52-53; TR Vol. IV-B: Shepard at 6, 130; DX 666 at 16-19; DX 750; DX 753.) As with EFOR, Mr. Shepard opined that ESGS's EAF statistic did not reflect a plant operated and maintained according to industry standards. He opined that Units 1 and 2 should have achieved a six-year EAF average of

83.6%, but only achieved an EAF of 79.5% and 73.6% respectively. (DX 666 at 15, 20-21; DX 753.) Mr. Shepard also indicated that the number of unit starts for Units 1 and 2 was more than double what he would expect out of a plant operated and maintained in a good and workmanlike manner. (TR Vol. IV-B: Shepard at 14-15; DX 666 at 14, 22; DX 755.)

Based on this analysis of ESGS's performance statistics, Mr. Shepard concluded that ESGS was not operated and maintained in a good and workmanlike manner.

b. Solomon & Associates

KU asserts that Mr. Shepard's opinions are supported by a benchmarking study conducted by Solomon & Associates ("Solomon"). In September 2006, OMU secured funding to retain Solomon, an independent third party, to perform a reliability benchmarking study by analyzing OMU GADS data over a five year period. (DX 495; Anthony Carrino 4/7/08 Dep. at 246.) OMU pursued this benchmarking study to "gain additional knowledge regarding the reliability performance of the generating units at [ESGS], to identify potential improvement opportunities, and to use the analysis results to better manage its business planning for current and future activities." (DX 551 at 1-1.) Furthermore, OMU believed that the benchmarking study could be used as a tool to help draft future budgets, to make capital and maintenance decisions, and to arrange power sales. (TR Vol. VII-B: Conn at 11-12; DX 554.) The benchmarking study was performed by Anthony Carrino, Senior Consultant for Solomon, by comparing ESGS performance statistics with the performance statistics of similar units, also known as a peer group, maintained in a proprietary Solomon database. (Carrino 4/7/08 Dep. at 5, 17, 18.)

On May 22, 2007, Solomon released a report discussing the findings from the benchmarking study (the “Solomon Report”). Solomon found that ESGS had “experienced relatively high unavailability over the 5-year period, 2002-06” based on comparisons to similar peer groups for each ESGS unit (DX 551 at pp. iii, 3-1.) The Solomon Report also noted that the Equivalent Unavailability Factor (the converse of the EAF) for ESGS exceeded the average for the relevant peer group. Furthermore, the Solomon Report indicated that the number of “starts” for ESGS approached twice that of their comparison peer group. From these observations, Solomon determined that “the relative differences between [ESGS] units and their peers are not coming from planned outages but rather from unplanned (including forced and maintenance) outages.” (Id. at 3-1.)

The Solomon Report concluded that:

First, the percentage [of outages] is tilted higher toward forced outages (and unplanned outages) for [ESGS] than its peers, at nearly 60% for [ESGS] vs. ___ for a comparable peer group. This suggests that the type of events occurring at [ESGS] require more immediate attention (are of a nature where action is necessary to protect equipment, environment, and/or personnel in the short-term), that root cause analysis and subsequent action is not taken in a timely manner, or that maintenance outages are not scheduled to group several pending repair times together, on a deferred basis.

(Id. at pp. iii, 3-3.) The Solomon Report also concluded that:

Second, there are clear indications of shifting and newly emerging reliability problem areas over the 5-year data review. Evidence shows that maintenance activities and betterment projects have positively affected targeted improvements in certain areas. Once the maintenance and betterment projects were executed, the number of events in these cause code areas showed significant improvement for the units. This should reinforce the idea that root cause analysis, targeted budget allocations, and betterment project execution can resolve high-impact reliability problems.

(Id. at pp. iii.)

The Solomon Report noted that “OMU management has taken a proactive step to address potential areas of opportunity with respect to enhancing reliability performance of the [ESGS] generating assets by participating in the current benchmarking study and by requesting this 5-year GADS reliability events data analysis.” (Id. at 3-5.)

c. Testimony of KU’s Employees

On various occasions, KU voiced its displeasure over ESGS’s performance statistics with OMU. Particularly, KU did not believe that the performance of ESGS was meeting KU’s expectations under the Contract. John Malloy, Director of Generation Services at EON, testified that when he began his position with Generation Services in 2003, he noticed that OMU was not meeting any standard objective performance criteria. (TR Vol. I-B: Malloy at 46.) Mr. Malloy testified he had ongoing discussions with Bob Hunzinger, OMU’s former General Manager, and Stan Conn, OMU’s former Director of Power Production and present General Manager, over performance issues, including causes of forced outages and recovery time from the same. (Id. at 47-48; DX 352 (e-mail over length of time to repair pump).) In 2005, Mr. Malloy had KU’s Generation Planning group create a PowerPoint presentation to identify these concerns. In August 2005, John Voyles, Vice President of Generation Services for EON, presented these concerns to Bob Hunzinger. (TR Vol. III-A: John Voyles at 19-29.) The PowerPoint presentation identified that OMU ranked in the bottom quartile against its peers in performance of its units, when measured by EFOR and EAF, for the years 2001-2003. During the meeting, Mr. Voyles suggested a process

whereby KU would send engineers to assist and make suggestions to OMU, if any were warranted. (TR Vol. III-A: Voyles at 29; DX 456.) Mr. Malloy testified that OMU's performance did not improve as a result of the presentation. (TR Vol. I-B: Malloy at 65, 66.) KU also pointed to evidence which it believes shows that OMU knew its performance statistics were unacceptable. For example, KU presented a March 2007 e-mail from Mr. Hunzinger to Mr. Conn in which Mr. Hunzinger candidly recognized that "[w]e are currently in the bottom quartile, and likely the bottom 10% unit comparison for the past few years." (DX 765.)

KU contends that the discrepancy between ESGS performance statistics and the performance of industry peers indicates inadequate operation and maintenance practices by OMU.

2. OMU's Evidence

OMU maintains that KU has not proven by a preponderance of the evidence that OMU failed to operate and maintain ESGS in a good and workmanlike manner. OMU argues that performance statistics, such as EFOR, are not a reliable measure of whether a utility is operated and maintained in accordance with industry standards. In support of its position, OMU presented the rebuttal testimony of Professor Mark McClernon to address the allegations asserted by KU. Professor Mark McClernon is the Chair of the Civil and Mechanical Engineering Department at the University of Missouri, Kansas City. (TR Vol. XI-A: Mark McClernon at 4-5.) In his position at the University of Missouri, Professor McClernon teaches classes in power plant design, advanced thermodynamics, and graduate

level classes in statistics. (Id. at 5, 10.) He was previously employed as an engineer at Black & Veatch, one of the largest power plant engineering firms in the United States. (Id. at 6-13.) He is an expert in reliability engineering and, in particular, reliability engineering as applied to coal fired-power plants. (Id. at 6-13, 16-21.)

Professor McClernon criticized Mr. Shepard's use of EFOR statistics to determine whether ESGS was operated in a good and workmanlike manner. Professor McClernon testified that EFOR is not a goal, but one component of an engineering systems analysis. (TR Vol. XI-A: McClernon at 35-36.) According to Professor McClernon, EFOR statistics are not intended to measure and do not measure the quality of utility operation and maintenance practices. (PX 48 at 13.) Professor McClernon opined that the failure of a piece of equipment can occur despite even the best of operation and maintenance practices. (Id.)

As stated by Professor McClernon:

[b]y itself, an EFOR statistic does not provide information as to the root cause or causes of the particular outages at issue, let alone constitute proof of poor maintenance and operation practices. I am unfamiliar with anyone in the industry using EFOR statistics (alone) as a measure of operation and maintenance practices. An EFOR statistic may be an indicator to a utility or engineer to inquire into the root causes of a plant's outages and to assess utility practices. But an EFOR statistic does not tell you why a particular plant experienced forced outages. Mr. Shepard fails to provide any support for his direct correlation between plant EFOR levels and poor maintenance practices. I regard Mr. Shepard's reliance upon EFOR levels as a measure of plant operations and maintenance practices to be wholly unreliable.

(PX 48 at 13; see also Vol. XI-A: McClernon at 35, 43.)

Additionally, Professor McClernon testified that the concept of EFOR in isolation of the factors of capital cost, maintenance cost, operation cost and fuel cost is not a prudent

basis of assessing operation and maintenance practices of a plant. (TR Vol. XI-A: McClernon at 38.) Professor McClernon opined that reliability and availability are expensive commodities generally associated with significant cost increases. (Id. at 38-39.) Specifically, Professor McClernon criticized Mr. Shepard's failure to perform both an analysis of the remediation procedures needed to increase the level of availability and of the associated cost of those remediation procedures. (Id. at 32-34.)

Professor McClernon not only criticized Mr. Shepard's use of EFOR to directly evaluate OMU's operation and maintenance practices, he also criticized the manner in which Mr. Shepard used EFOR in his overall assessment of those practices. Professor McClernon testified that the first step in assessing a utility's operation and maintenance practices is to look at overall power plant performance statistics to determine whether operation and maintenance problems might exist and need to be evaluated. (TR Vol. XI-B: McClernon at 102.) If the statistics reflect a potential problem with the reliability or availability of a unit, then the second step is to perform an investigation of the causal factors driving the outages. (TR Vol. XI-A: McClernon at 35.) Professor McClernon noted that while Mr. Shepard identified the systems that were experiencing failures during the time period in question, Mr. Shepard failed to examine why those system failures occurred. (Id.)

In his own benchmarking assessment, Professor McClernon determined that there is a range of typical performance for generating stations that are part of the peer group for Units 1 and 2. (TR Vol. XI-A: McClernon at 71-76.) In calculating the range of typicality for both units, Professor McClernon calculated the mean, the median, and the standard deviation of

each unit's peer group. (PX 48.) Utilizing the standard deviation, Professor McClernon opined that the range of typicality for Unit 1's peer group was between approximately 5 and 20 percent. (TR Vol. XI-A: McClernon at 72.) He testified that ESGS Unit 1 for the period from 2001 to 2006 operated right in the middle of this range for the six-year average. With respect to Unit 2, Professor McClernon opined that the range of typicality for that unit's peer group was between approximately 1 and 15 percent. Professor McClernon testified that ESGS Unit 2 for the period from 2001 to 2006 operated at or just above the upper limit of the range. (TR Vol. XI-A: McClernon at 75-77.) Because ESGS's EFOR was not so far outside of the range of typicality as to indicate operation and maintenance issues in the first instance, Professor McClernon did not believe it would be necessary to perform the second step of investigating the causal factors driving outages at ESGS. (Id.)

B. Operation and Maintenance Practices

1. KU's Evidence

KU argues that OMU's operation and maintenance practices did not conform to industry standards. Particularly, KU stresses that OMU did not utilize standard practices in the areas of preventive, predictive and emergent maintenance, outage planning, plant improvement/capital planning, management oversight, and root cause analysis. (TR Vol. IV-B: Shepard at 75-76, 81-82, 84-90; DX 666 at 25-28.) KU maintains that these deficiencies establish that OMU has breached the Contract.

a. Robert Shepard

Mr. Shepard testified that he and several colleagues reviewed thousands of pages of

documentation provided by OMU to determine the adequacy of OMU's operation and maintenance practices. (TR Vol. IV-B: Shepard at 76-78; TR Vol. V-A: Shepard at 164.) He testified that although it would have been impossible to review every word of every document, he and his colleagues reviewed every document. (TR Vol. V-A: Shepard at 165-166.) Specifically, Mr. Shepard reviewed the documents to assess OMU's preventive, predictive, and emergent maintenance programs. Preventive maintenance refers to maintenance tasks performed on units prior to failure which are designed to detect or prevent the possibility of future failure. Predictive maintenance refers to measures that detect the onset of a degradation of mechanisms. Emergent maintenance involves compiling and maintaining a list of priority items needing repair or attention in the event of a forced outage.

Mr. Shepard testified that he found little or no preventive, predictive, or emergent maintenance practices in place at ESGS. For example, Mr. Shepard opined that the lack of entries in OMU's computerized maintenance management system ("CMMS")³ and in work logs for several critical pieces of equipment indicate that OMU's preventive, predictive, and emergent maintenance practices were inadequate. (TR Vol. IV-B: Shepard at 85-86, DX 666 at 30.) Mr. Shepard testified that OMU does have a CMMS, but that OMU's failure to use advanced features of its CMMS does not comport with industry standards. (TR Vol. IV-B: Shepard at 81-82; DX 666 at 28-29.) Mr. Shepard also commented on OMU's outage

³ CMMS is a database utilized by OMU to keep track of problems with plant equipment and set priorities in the repair of that equipment. (TR Vol. X: Allen at 193-217; PX 97.)

planning program. Outage planning involves the identification of problem areas experienced since the last outage in order to identify target areas of concern so as to mitigate or prevent their reoccurrence. Mr. Shepard further testified that it is industry standard for generating stations to provide a detailed schedule every year for each planned outage. Mr. Shepard testified that there was no documentation reflecting that OMU performed any planning efforts in anticipation of planned outages or prepared a detailed outage schedule. (TR Vol. IV-B: Shepard at 82-85; DX 666 at 29.) Mr. Shepard further testified that OMU's plant improvement and capital planning programs were wholly inadequate and failed to comply with industry standards. Plant improvement and capital planning programs involve a proper investigation, budgeting, evaluation, and planning of projects. (DX 666 at 30.) In reviewing OMU's capital planning processes, Mr. Shepard testified that he found only annual budgets with no justification of how OMU is spending the money. (TR Vol. IV-B: Shepard at 89-90.)

Mr. Shepard also opined that it was standard within the industry to provide management oversight and performance objectives. Because Mr. Shepard did not find documentation regarding action items, performance targets, or incentives for management to achieve a particular performance target, he does not believe that OMU's management objectives meet industry standards. (TR Vol. IV-B: Shepard at 90-93; DX 666 at 31.) Mr. Shepard also examined OMU's root cause analysis program. Root cause analysis examines failures after the fact to determine the underlying conditions giving rise to the event. Mr. Shepard testified that he found no documentation of any formal root cause analysis program, which is something he would expect to see from a plant maintained in accordance with

industry standards. (TR Vol. IV-A: Shepard at 10-11, 24-25; TR Vol. IV-B: Shepard at 24-25, 62-63; DX 663 at 3-4; DX 666 at 30.)

In addition to analyzing these documents, Mr. Shepard also performed a site visit of the ESGS facility on August 27, 2007. During the site visit, Mr. Shepard performed a “walk down” of the plant. (TR Vol. IV-B: Shepard at 96; DX 666 at 5.) Mr. Shepard stated that during his visit he made several key observations “indicative of a failure to operate and maintain [ESGS] in a good and workmanlike manner,” including OMU’s alleged failure to timely address additional external cooling needs of a shell and tube heat exchanger; a packing leak on a feedwater heat drain valve; poor lighting around critical equipment; multiple ash slurry pumps in failure mode without action taken to repair the alternative pump; a noisy pulverizer that had not been attended to; extensive casing leaks and fugitive exhaust gas releases on both Units; and the letters “SAMO” written on equipment in several locations in the plant. (TR Vol. IV-B: Shepard at 98-103,105-07; DX 158; DX 666 at 6-10.)

b. Testimony of KU’s Employees

On October 16, 2006, Mr. Malloy sent a letter to Mr. Hunzinger informing him that KU was concerned about the performance of the plant and that KU would be sending various specialists from EON’s Generation Engineering Group to assess “the issues that are negatively impacting the plant’s operation.” (TR Vol. I-B: Malloy at 67; TR Vol. II: Dan Wilson at 81; DX 627.) Mr. Malloy testified that KU intended to assess these issues and make recommendations to OMU on remedying the problems the group found. (TR Vol. I-B: Malloy at 68.) Dan Wilson, the manager of the group, visited ESGS approximately six to

ten times. (TR Vol. II: Wilson at 80-81.) Mr. Wilson's first visit to ESGS took place in Fall 2006. Specialists from the group also met on-site with OMU employees in the areas of their specialties. Among other things, the KU specialists assessed high energy piping inspection, pollution controls and boiler tube failures. (TR Vol. II: Wilson at 82-83, 85.) During these visits, the specialists made verbal recommendations to OMU. (TR Vol. I-B: Malloy at 68-69; TR Vol. II: Wilson at 93.) For example, when Mr. Wilson visited ESGS, he normally met with Stan Conn or the plant's maintenance or operation supervisor. During these meetings, and through email exchanges, Mr. Wilson conveyed his observations and informal, general suggestions concerning ways to improve the operation and availability of ESGS. Mr. Wilson testified that OMU implemented the verbal recommendations made by his team on "several occasions." (TR Vol. II: Wilson at 107.)

The engineers also prepared a draft report of their findings and recommendations, but the drafts were never finalized at the recommendation of KU's attorneys. (TR Vol. I-B: Malloy at 69-70.) In the draft report, the group made various findings, including that OMU needed to adopt a formal review process of plant performance (DX 223 at 7); that OMU fixed symptoms without conducting an investigation to prevent future breakdowns (TR Vol. II: Wilson at 124-125; DX 223 at 13); that ESGS had no documented controls strategy (TR Vol. II: Wilson at 102-03; DX 223 at 18); that ESGS did not have a predictive maintenance program and does not perceive a value in performing routine predictive maintenance such as periodic vibration monitoring and routine thermography surveys (DX 223 at 21-22; TR Vol. II: Wilson at 104-05); and that OMU management follows a "run to failure"

methodology for much of the plant equipment (TR Vol. II: Wilson at 106-07; DX 223 at 22.) Although KU prepared the draft assessment of ESGS in January of 2007, KU never presented its findings to OMU outside the context of this litigation. (TR Vol. I-B: Malloy at 12-13, 69-70.)

Mr. Wilson also testified that various aspects of OMU's operation and maintenance practices do not meet industry standards. For example, Mr. Wilson suggested that OMU did not perform standard preventive/predictive maintenance tasks such as routine vibration monitoring or thermography. (TR Vol. II: Wilson 104-105; DX 223.) Mr. Wilson criticized OMU's failure to investigate the root cause of outages. (TR Vol. II: Wilson 104-105, 106-107, 120-121.) Similarly, Mr. Carrino as part of the Solomon Report suggested that ESGS's forced outages during 2002 through 2006 might reflect the untimeliness of OMU's root cause analysis. (DX 551.) Mr. Wilson also testified that OMU, instead of performing a root cause analysis, focused on treating the symptoms of equipment failure. Mr. Wilson believes that OMU's failure to send off failed boiler tubes for analysis by a metallurgical lab and OMU's failure to consult an operating manual to remedy an air heater support bearing failure are indications of this mentality. (TR Vol. II: Wilson at 104-05,106-07, 120-121.)

c. Other Evidence of Inadequate Operation and Maintenance Practices

KU points to other evidence that OMU failed to operate and maintain ESGS in a good and workmanlike manner. First, KU argues that, just as the Solomon Report confirmed Mr. Shepard's opinion related to ESGS's performance statistics, the Solomon Report also confirmed Mr. Shepard's opinion as to ESGS's operation and maintenance practices.

Second, KU asserts that OMU's refusal to make corrections at ESGS until OMU issued its termination notice is further evidence of a breach of contract by OMU. KU asserts that between 2001 and 2006 OMU consistently underspent its capital budgets and that OMU's spending has been skewed toward reactive maintenance. The budget for 2001 was \$2.2 million, whereas actual expenditures were only \$826,000. (TR Vol. VII-B: Conn at 57-58.) In 2007, OMU greatly increased its maintenance budget for Fiscal Year 2008 from \$10.5 million to over \$25 million. (TR Vol. X: John Allen at 264-65.) OMU's budget for ESGS for 2009 increased to \$32.9 million. (TR Vol. VII-B: Conn at 18; DX 766.) KU points out that these budget increases did not occur until after Solomon issued its report and only after OMU sent its notice of contract termination. KU argues that this evidence, and the evidence regarding OMU's failure to comply with KU's recommendations, indicate that OMU willfully refused to improve the operation and maintenance practices at ESGS and thus breached the Contract.

2. OMU's Evidence

OMU maintains that KU failed to prove by a preponderance of the evidence that OMU's operation and maintenance practices identified by KU did not conform to industry standards. OMU argues that it did comply with industry standards in the areas of preventive, predictive and emergent maintenance, outage planning, plant improvement/capital planning, management oversight, and root cause analysis. At trial, OMU presented testimony of its employees in an effort to dispel any allegation that its operation and maintenance programs were deficient.

With respect to OMU's preventive, predictive, and emergent maintenance programs, John Allen, the Supervisor of Maintenance at ESGS for 20 years, testified that OMU utilizes a CMMS program to conduct these programs. (TR Vol. X: Allen at 193-217; PX 97.) Mr. Allen testified that OMU's CMMS allows the company to maintain records related to work requests and work orders. Any ESGS employee, as they come across issues related to plant equipment, can submit a work request form to identify damage or any other work that needs to be performed on plant equipment. These work request forms contain tracking numbers which are attached to the identified piece of equipment. Using the tracking number, a general clerk enters the information contained in the work request forms into the CMMS. (Id. at 193-197.) OMU maintenance planner, Bill Keach, reviews all work requests submitted and generates work orders. The CMMS system enables staff to see the type of work that needs to be done at the plant, the crew that has been assigned the work, a description of the problem associated with the particular piece of equipment, the status of the work order, a summary of the work performed on the particular piece of equipment, and details about who performed the work. (Id. at 200-203.) For each particular work order, the CMMS system also identifies the cost to repair the plant equipment. (Id. at 204.) This system also allows OMU to set priorities for the work orders internally, or if the work orders need to be completed immediately, they will be given directly to the maintenance manager. (Id. at 198, 209.) Furthermore, Mr. Allen indicated that the system allows OMU to identify whether the work should be performed during a planned or forced outage. (Id. at 207-211.) According to Mr. Allen, since 2001, 41% of the work orders generated from the CMMS were

related to preventive and predictive maintenance issues. (Id. at 212-214.) The CMMS also permits OMU to analyze problems or failures with ESGS equipment and to ensure OMU follows the recommended maintenance program for the equipment. (Id. at 214-216.)

Mr. Allen also testified that OMU has an extensive outage planning program to plan for annual outages and for major outages which occur every six years. In anticipation of these outages, OMU identifies project definitions; establishes budgets; creates a list of major contracted services; and initiates public bidding on projects, including preparation of technical specifications, receipt of proposals, award of projects, and consultation with contractors. (TR Vol X: Allen at 218-220; PX 100.) Mr. Allen testified that OMU utilizes Microsoft Project to develop an outage schedule. Microsoft Project helps OMU schedule the work to be done, identify the resources necessary to complete the particular repair or replacement, project the length of the task, and also coordinate inspections of other equipment during outages. Mr. Allen stated that the outage schedule is finalized within the month prior to the outage. During the actual outage, OMU utilizes Microsoft Project to monitor the progress of the work. (Id. at 220-226.)

Mr. Conn addressed OMU's plant improvement/capital planning program. According to Mr. Conn, OMU's capital planning is an integral part of the budgeting process which begins a year before it is adopted and remains in flux until the budget is approved. (TR Vol. VIII: Conn at 86-93; PX 69.) OMU has a database for budget and capital planning which, among other things, allows OMU personnel to compare previous years' budgets. Mr. Conn discussed the 2002 Annual Budget and identified the justification for each expenditure found

in the budget. (PX 69.) Additionally, Mr. Conn testified that much of OMU's capital planning during the period at issue is also contained in the NOx compliance project material which was financed with the revenue bonds issued by the City in 2002. (TR Vol. VIII: Conn at 37-44.) Many of the capital items for this period were approved by KU in connection with OMU's NOx compliance project. (PX 43, Attachment 1.)

Mr. Conn also discussed OMU's management oversight practices. He testified that ESGS management staff meet regularly and frequently both with one another and with their respective staff. (TR Vol. VIII: Conn at 96-99.) In fact, some meetings occur daily. Because ESGS is a one-plant utility, all operation and maintenance management staff are on-site and usually just down the hall from one another. (Id.) Additionally, Mr. Conn and Mr. Allen testified that the CMMS utilized by OMU brings together plant performance information, maintenance information, and accounting information for the benefit of plant personnel. Mr. Conn testified that the information is available across the plant network including staff computers, management computers, and computers available in the operation and maintenance areas of the plant. (TR Vol. VII-B: Conn at 85-89.) These programs make both current and archival information available electronically to all of the ESGS management staff. (Id. at 96-98.)

Finally, with respect to a root cause analysis program, OMU acknowledges that it has no formal root cause analysis program. Plant employees exercise their own engineering judgment to determine the cause of an outage and to determine whether or not plant staff need to investigate further. Mr. Kevin Frizzell, Director of Power Production, testified that

a formal root cause analysis program may not “fit the needs for [the] plant.” Mr. Frizzell explained that what “may fit a large corporation and how they do these types of things may not be the best or most effective for us.” (TR Vol. VI: Kevin Frizzell at 95-98; see also TR Vol. X: Frizzell at 184-185.) Likewise, Mr. Conn testified that OMU does not use a formal root cause analysis program. (TR Vol. X: Conn at 11-15.) However, Mr. Conn testified that OMU personnel do analyze the cause of problems, examine the failure mechanisms of problems, and monitor them. (TR Vol. VIII: Conn at 170-171.)

C. Specific Outages and Derates

1. KU’s Evidence

At trial, Mr. Shepard identified the top ten causes for lost megawatt hours for Units 1 and 2 based upon cause codes assigned by OMU for each outage and derate that occurred at ESGS over a seven year period. (TR Vol. IV-B: Shepard at 18-73; DX 666 at 24; DX 732; DX 756.) According to KU, the outages and derates that occurred at ESGS reflect a failure by OMU to implement an industry standard preventive maintenance program. KU also contends that these outages and derates reflect an inadequate root cause analysis program. Shepard acknowledged that it was not possible for him to review the actual cause of each and every outage that occurred at ESGS in the seven years he reviewed. Specifically, Shepard stated that “[t]here was no way for me to actual [sic] go through and investigate each event, whether it be an outage or derate, and – and what the actual cause of that – or root cause of that – of that failure or derate would have been.” (TR Vol. IV-B: Shepard at 23-24.) The following tables reflect the top ten causes for lost megawatt hours (“LMWH”) for Units

1 and 2 as identified by Mr. Shepard. For many of the items in the table, Mr. Shepard stated that the number of outages for that item exceeded his expectations, but he was unable to identify at what point the outages were caused by a failure to operate and maintain ESGS according to industry standards.

Top 10 for Unit 1

Rank	Group	Cause Code Explanation	LMWH
1	Steam turbine	Lube oil pumps	136,019
2	Boiler Tube Leaks	Second superheater	94,926
3	Boiler Air and Gas Systems	Air heater fouling (regenerative)	72,446
4	Boiler Tube Leaks	Waterwall (Furnace wall)	71,053
5	Slag and Ash Removal	Other slag and ash removal problems	66,500
6	Feedwater System	Feedwater pump	55,255
7	Boiler Tube Leaks	Cyclone furnace	53,558
8	Boiler Air and Gas Systems	Air heater (regenerative)	48,602
9	Steam turbine	Bearings	41,602
10	Cyclone	Cyclone furnace	35,087

Top 10 for Unit 2

Rank	Group	Cause Code Explanation	LMWH
1	Boiler Tube Leaks	Waterwall (Furnace wall)	594,912
2	Boiler Tube Leaks	First reheater	175,371
3	Boiler Tube Fireside Slagging or Fouling	Waterwall (Furnace wall)	126,491
4	Boiler Tube Leaks	Platen superheater	125,265
5	Boiler Tube Leaks	Generating tubes	111,654
6	Boiler Tube Leaks	Economizer	103,648
7	Circulating Water Systems	Circulating water pumps	101,411
8	Boiler Water Condition	Boiler water condition	95,636
9	Condensing System	Condenser tube leaks	70,186
10	Boiler Fuel Supply from Bunkers to	Pulverizer lube oil system	49,536

Although unable to precisely identify which of these outages were caused by a failure

to operate and maintain ESGS according to industry standards, Mr. Shepard attributed many of the outages in Unit 1 to various operation and maintenance defects such as: (1) failure to perform preventive maintenance during planned outages prior to equipment failure (TR Vol. IV-B: Shepard at 26-28; DX 732); (2) excessive tube leak failures (TR Vol. IV-B: Shepard at 29); (3) failure to minimize soot buildup (TR Vol. IV-B: Shepard at 31-32); (4) failure to monitor slag buildup (TR Vol. IV-B: Shepard at 36-38; DX 732); (5) inadequate maintenance (TR Vol. IV-B: Shepard at 39-40; DX 732); and (6) failure to make proper corrective repairs (TR Vol. IV-B: Shepard at 44-45; DX 732). As for Unit 2, Mr. Shepard identified the following operation and maintenance defects as the cause of outages and derates: (1) failing to implement efforts to mitigate the effects of NO_x control technologies (TR Vol. IV-B: Shepard at 52-53; DX 732); (2) failing to take measures to mitigate the effects of the Selective Non-Catalytic Reduction (“SNCR”) system (TR Vol. IV-B: Shepard at 55-66; DX 732); (3) failing to utilize water cannons, soot blowers, and wall blowers to minimize the effect of slagging and ash buildup (TR Vol. IV-B: Shepard at 57-58); (4) not responding to events or taking corrective measures within a timely fashion (TR Vol. IV-B: Shepard at 65-70; DX 732); and (5) failing to implement even a basic preventive maintenance program (TR Vol. IV-B: Shepard at 71-72; DX 732).

Through testimony of its personnel, KU presented additional examples of alleged failures by OMU to operate ESGS in a good and workmanlike manner. For instance, Unit 1 entered a forced derate in 2006 after its coal bunker unexpectedly ran out of coal. (TR Vol. II: Martin at 48-52; DX 166 recordings.) Mr. Wilson also testified that a forced outage of

Unit 2 occurred in 2007 when the circulating water pump failed. (TR Vol. II: Wilson at 108-114; DX 666 at 33.) Additional outages and derates that KU employees testified to include a derate on Unit 1 that occurred in April 2007 as a result of a large condenser tube leak (TR Vol. II: Wilson at 127-29; DX 192) and a forced outage of Unit 2 that occurred in April of 2007 as a result of a failure with a boiler feed pump motor (TR Vol. II: Wilson at 129-32; DX 203; DX 191).

2. OMU's Evidence

OMU maintains that Mr. Shepard's identification of the leading causes of forced outages and derates during the 2001 to 2007 time period based on cause code data does not establish a breach of the operation and maintenance provision of the Contract. In support of its position, OMU presented the testimony of Professor McClernon and OMU employees.

At trial, Professor McClernon testified that Mr. Shepard's cause code analysis is not a reliable method for assessing the cause of a unit's outages or derates. According to Professor McClernon, cause code data provides a breakdown of system failures, but it does not explain why the equipment failed. An actual causal investigation of the outage or derate must be performed to provide an accurate explanation of the cause of the failure. (TR Vol. XI-B: McClernon at 19-20.)

Additionally, Mr. Conn, Mr. Allen, and Mr. Frizzell explained the underlying causes of the outages and derates identified by Mr. Shepard and OMU's response to those events. For example, OMU presented evidence that the plant equipment, such as the pump and motor, is overhauled in accordance with Original Equipment Manufacturer recommendations

(TR Vol. IX-A: Conn at 23-24); that many of the lost megawatt hours in the top ten outage list are associated with catastrophic one-time events which were corrected during forced outages (id. at 25-26); that many of the lost megawatt hours are due to the implementation of NOx pollution control equipment (TR Vol. X: Frizzell at 85-89); and that recommendations of Sargent and Lundy, a consulting firm, to reduce outages from NOx equipment were implemented by OMU (TR Vol. IX-A: Conn at 28-31). Mr. Conn testified that OMU also consulted with Babcock & Wilcox, the manufacturer of various equipment at ESGS, to reduce the number of outages that were occurring. (TR Vol. IX-A: Conn at 31-32 (waterwall leaks); id. at 34-37 (slag tank modification).)

Mr. Conn also testified that the waterwall tube leaks associated with Unit 2 were caused by the implementation of the NOx pollution control technology, but that efforts were taken before the leaks occurred and even before the installation of the equipment to ensure the tube leaks would not fail or leak. Prior to the implementation of this technology, OMU hired consultants, Sargent and Lundy, Advanced Burner Technologies (“ABT”) and Reaction Engineering (“REI”), to perform modeling to predict the burner areas where problems such as tube leaks might occur. (TR Vol. IX-A: Conn at 69-72.) This modeling did not indicate problems with the waterwall in the lower furnace. (Id.) In 2005, after problems developed in the lower furnace, OMU tested the furnace to determine the thickness of the tubes, replaced tubes, performed metallurgical analysis on various tubes, and placed a corrosion resistant coating on the tubing. OMU also consulted with ABT and REI to conduct further modeling and to determine a solution to the problem. (TR Vol. X: Frizzell at 156-162.) Mr.

Frizzell testified that no tube leaks have been reported on Unit 2 since the application of this corrosion resistant coating in the Spring of 2006. (Id. at 170.)

Mr. Frizzell and Mr. Conn further testified that the implementation of the NOx pollution control technology contributed to many of the other outages experienced by OMU. Mr. Frizzell testified that when a major retrofit is done to a generating unit, it is expected that problems will result. According to Mr. Frizzell, OMU was aware that installing NOx pollution control technology would impact the combustion of the plant and would impact the plant in general. (TR Vol VI: Frizzell at 104-06.) In an effort to anticipate these problems, OMU tested and studied the NOx control measures. OMU employed Sargent and Lundy and other consulting engineers to help OMU design, model and install the pollution control measures. (TR Vol. X: Frizzell at 89.) OMU representatives traveled to different plants around the world to study and plan the pollution control measures to be taken at ESGS. (Id. at 85-98.) KU reviewed and approved the NOx compliance measures which OMU began implementing in 2002. (PX 42 at 1988 Agreement; PX 43.)

This reflects only a small portion of OMU's testimony as to the cause of the top ten outages and derates and efforts OMU had taken to mitigate such outages. (See, e.g., TR Vol. IX-A: Conn at 23-91; TR Vol. X: Frizzell at 156-162.)

D. Findings and Conclusions

In order to prove its case, KU was required to prove that OMU's operation and maintenance of ESGS fell below industry standards. Having reviewed the testimony and expert reports of Mr. Shepard and Professor McClernon, the Solomon Report, and the

testimony of OMU and KU employees, the Court finds that KU has failed to establish by a preponderance of the evidence that OMU breached the Contract by failing to operate and maintain ESGS in a good and workmanlike manner.

First, KU relied heavily upon the probative value of ESGS's EFOR performance statistics. While KU was able to show that ESGS's performance statistics were below its industry peers during the time period in question, this evidence reflects minimally on the precise question presented. Contrary to the argument by KU and Mr. Shepard, the Court finds that the performance statistics utilized by Mr. Shepard are not a reliable measure of the quality of a utility's operation and maintenance practices. (PX 48 at 13.) Equipment can fail and outages can occur despite the best operation and maintenance practices. (Id.) In fact, it is possible for a unit to experience an EFOR of 100% and still be operated and maintained in a good and workmanlike manner. (TR Vol. XI: McClernon at 34-36.)

The Court finds Professor McClernon's testimony about the role of EFOR in the utility industry persuasive. EFOR is not a goal, but is rather only one component of an engineering systems analysis. As indicated by Professor McClernon, the first step in assessing a utility's operation and maintenance practices is to look at overall power plant performance statistics to determine whether operation and maintenance problems might exist and need to be evaluated. (TR Vol. XI-A: McClernon at 35-36; TR Vol. XI-B: McClernon at 102.) If the statistics reflect a potential problem with the reliability or availability of a unit, then the second step is to perform an investigation of the causal factors driving the outages. (TR Vol. XI-A: McClernon at 35.) "An EFOR statistic may be an indicator to a utility or

engineer to inquire into the root causes of a plant's outages and to assess utility practices. But an EFOR statistic does not tell you why a particular plant experienced forced outages." (PX 48 at 13; see also Vol. XI-A: McClernon at 35, 43.) EFOR statistics simply do not show whether an outage is caused by poor operation and maintenance practices or whether the outage is caused by some other reason.

Contrary to KU's argument, the Court finds that the benchmarking study conducted by Solomon & Associates does not support Mr. Shepard's opinions with respect to the role of performance statistics in assessing the operation and maintenance practices of OMU. Instead, the deposition testimony of Mr. Carrino, the Solomon consultant who conducted the analysis, supports the position of OMU. Mr. Carrino testified that a statistical analysis alone cannot be used to formulate an opinion as to whether or not OMU operated and maintained ESGS in a good and workmanlike manner. (Carrino Dep. at 258.)

Second, with respect to KU's evidence of alleged deficiencies in specific areas of OMU's operation and maintenance practices, at most, KU was able to show that there might be better, more effective and efficient ways for OMU to conduct operations. However, despite this evidence, the Court finds that the record demonstrates that OMU complied with industry standards in the areas of preventive, predictive and emergent maintenance, outage planning, plant improvement/capital planning, management oversight, and root cause analysis.

Specifically, the record reflects that OMU utilizes preventive, predictive, and emergent maintenance practices in its operation and maintenance of ESGS. OMU uses a

CMMS program to guide it in operating and maintaining the units at ESGS. At trial, John Allen explained at length the Avantis CMMS system implemented by OMU. The CMMS system allows OMU to schedule and track maintenance activities, including preventive and predictive maintenance tasks. (TR Vol. X: Allen at 193-217; PX 97.) Likewise, with respect to OMU's outage planning program, the Court finds that OMU presented evidence that OMU has an outage schedule for each major outage and annual outage. Mr. Allen testified that OMU prepares for scheduled outages well in advance of the outage and utilizes Microsoft Project to prepare for and monitor the work to be done during outages. (TR Vol X: Allen at 218-226; PX 100.) Similarly, the record reflects that OMU's plant improvement/capital planning program is incorporated in the budgeting process and the NOx compliance project materials. In fact, Mr. Conn testified that OMU plans its budget over a year before it is adopted and utilizes a database to plan for capital improvement projects. The budget contains an explanation of the work needing to be done and the reason or justification for the expenditure of monies for those plant improvements. (TR Vol. VIII: Conn at 37-44; PX 69.)

The Court also finds that OMU's management oversight procedures do not fall below industry standards. As a one-plant utility, all key operation and maintenance management staff are on-site, and in OMU's case just steps from one another making communication efficient. Additionally, the record reflects that the management at ESGS meets regularly with each other and their respective staff. (TR Vol. VIII: Conn at 96-99.) Further, the Court finds that the failure of OMU to implement performance incentives has no bearing on whether there is proper management oversight at ESGS. The Court accepts Director of

Power Production Kevin Frizzell's testimony; if OMU focuses on getting the process right at the plant, the statistics will take care of themselves. (TR Vol. VI: Frizzell at 66, 82.) Likewise, the Court credits the testimony of Mr. Allen, Mr. Frizzell and Mr. Conn regarding OMU's informal root cause analysis program. While not a formal written root cause analysis program as advocated by KU, OMU personnel exercise engineering judgment to examine the reason for outages and derates to determine the underlying cause giving rise to the event. (TR Vol VI: Frizzell at 96-98; TR Vol. VIII: Conn at 170-171.) Additionally, with respect to items identified by Mr. Shepard related to his site visit at ESGS, the Court finds that Mr. Conn adequately addressed each criticism explaining the reason for the condition and the response by OMU. (TR Vol. VIII: Conn at 131-159.)

Additionally, the Court does not find that the Solomon Report supports a finding of poor operation and maintenance practices on the part of OMU. OMU employed Solomon & Associates to conduct a benchmarking study to gain additional information regarding the performance reliability of the ESGS units and to identify potential improvement opportunities. However, Solomon & Associates did not assess the actual operation and maintenance practices of OMU at ESGS. In fact, Mr. Carrino testified that Solomon & Associates did not conduct any root cause analysis or form any opinion as to whether OMU was operating and maintaining ESGS in a good and workmanlike manner. (Carrino Dep. at 258.)

Likewise, the Court finds no credible support for KU's suggestion that variations in the level of annual expenditures at the plant over the last few years or the hiring of Solomon

& Associates are connected to a strategy on the part of OMU to deprive KU of energy under the terms of the Contract or demonstrate a willful refusal to improve operation and maintenance practices at the plant. The record reflects that OMU increased its maintenance budget in 2008 as a result of the major outage scheduled to occur in 2008. (TR Vol. VII-B: Conn at 53.) The Court also finds it reasonable that OMU, in light of the concerns expressed by KU during 2005 and 2006, would employ an outside consultant to identify areas of potential improvement at the plant.

As stated, at most, KU identified certain operation and maintenance practices at ESGS that could arguably be improved. However, many of the operation and maintenance practices identified by KU, such as a formal root cause analysis program, appear to be better suited for a larger, better financed utility company such as EON and might not be appropriate or feasible for a smaller municipally-owned utility. The fact that OMU has not implemented the biggest and best operation and maintenance practices as advanced by EON and KU does not mean that OMU's operation of ESGS fails to comply with industry standards. The Contract does not require the "highest degree of skill" in the industry, but only ordinary skill.

Third, KU presented the testimony of Mr. Shepard and other KU employees regarding specific outages and derates as evidence of OMU's failure to operate and maintain ESGS in a good and workmanlike manner. A discussion of these events, without having determined the underlying cause of the outage, is not persuasive evidence of the operation and maintenance practices at ESGS. The GADS cause codes relied upon by Mr. Shepard identify the piece of unit equipment that failed. However, these cause codes do not identify the

underlying cause of the failure nor whether the failure was the result of inadequate operation and maintenance practices. As noted by Professor McClernon, a cause code provides a breakdown of system failures, but it does not explain why it failed. (TR Vol. XI-B: McClernon at 19-20.) The fact that Mr. Shepard viewed many of the top ten reasons for outages for both Units 1 and 2 as excessive does not establish that those failures were the result of inadequate operation and maintenance practices at OMU.

Additionally, the Court finds that OMU employees adequately explained the reasons for the forced outages and derates identified by Mr. Shepard and KU employees. The Court also finds persuasive the testimony of both Kevin Frizzell and Stan Conn that the implementation of the NO_x pollution control technology contributed to many of the outages, such as the tube leaks, experienced by OMU and noted as excessive by Mr. Shepard. While it is undisputed that OMU encountered problems related to the installation of NO_x pollution control equipment, the Court finds that OMU attempted to timely identify and remediate problems that ESGS suffered as a result of this implementation.

Finally, the Court rejects KU's argument that OMU inadequately responded to KU's recommendations concerning OMU's performance statistics and operation and maintenance practices. The Court finds that OMU personnel responded to e-mails, phone calls, and accepted meetings with KU representatives regarding performance issues throughout the period in question. Clearly, KU wanted the availability and reliability of Units 1 and 2 to improve. The evidence reflects that OMU likewise wanted to improve its performance. Mr. Conn, Mr. Allen, and Mr. Frizzell testified at length regarding the actions OMU took during

this time to correct the problems the units were experiencing. Similarly, OMU's response to the verbal recommendations made by Mr. Wilson during his inspection of the plant do not demonstrate a breach of contract. In fact, Mr. Wilson testified at trial that he made only suggestions of a general nature to OMU and that he had been instructed not to give OMU any specific or detailed advice. (TR Vol. II: Wilson at 87, 156, 160-161.) Mr. Wilson also testified that OMU implemented the verbal recommendations on several occasions. (Id. at 107.) Mr. Conn likewise testified that the suggestions mentioned by Mr. Wilson "are things that we –Dan requested we do, and we did those things." (TR Vol. IX-B: Conn at 74.) KU also suggested at trial that OMU should have acted upon the recommendations contained in the draft report prepared by EON's Generation Services Group. The Court finds this position untenable. The draft report was never finalized and never formally presented to OMU. Instead, OMU only obtained the draft report during discovery. Thus, any failure by ESGS to address the "recommendations" contained in the draft report cannot support a breach of contract.

Considering all the evidence submitted at trial, and for the reasons set forth above, the Court finds that KU has not established by a preponderance of the evidence that OMU failed to operate and maintain ESGS in a good and workmanlike manner.

IV. DAMAGES

Given the above decision, it is not necessary to discuss damages; however, because an appeal is likely, the Court believes it prudent to state its findings with regard to damages. After considering the testimony of Mr. Abington and Professor McClernon, the Court finds

that, even if KU had proven that OMU breached the Contract, KU failed to prove damages with reasonable certainty.

First, the Court finds that the manner in which KU calculated its damages is not a sufficient basis on which to make a reasonable estimate of damages. In calculating damages, Mr. Abington identified the adjusted average EFOR for comparable units, compared those statistics with ESGS's EFOR average, and determined the lost megawatt hours and resulting damages for all outages and derates at ESGS above the adjusted average EFOR for the comparable units. However, Mr. Abington's damages calculation is based upon the incorrect premise that all outages or derates that resulted in an ESGS EFOR above the adjusted average EFOR were caused by the failure of OMU to operate and maintain ESGS in a good and workmanlike manner. The Court rejects Mr. Abington's damages calculation based on this incorrect premise. The Contract does not require OMU to meet or exceed a particular EFOR level. Instead, the Contract only requires that OMU will operate and maintain ESGS in a good and workmanlike manner. The record demonstrates that many of the forced outages and derates at ESGS were not due to a failure to operate and maintain ESGS in accordance with industry standard. Given that Mr. Abington's damages calculation is based solely on EFOR, the Court finds that KU failed to prove its damages with reasonable certainty.

Second, KU did not produce any outage-by-outage assessment of the underlying cause of each outage or derate, the amount of lost energy attributable to each outage or derate, and the resulting damage from each outage or derate. Without this information, any damages

assessed by the Court would merely be speculative. Under the facts of this case, the Court finds that KU could have provided testimony of damages on an outage-by-outage basis but failed to do so. This failure prevents KU from proving their damages with reasonable certainty.

Third, even if Mr. Abington's damages calculation was accepted by the Court, he still failed to take into consideration the increased energy and capacity costs KU would have incurred had OMU achieved the level of EFOR suggested by Mr. Shepard and Mr. Abington. The record reflects that increased reliability and availability are expensive commodities. (TR Vol. XI-A: McClernon at 38-39.) However, Mr. Abington's calculation did not take into account this expense. In fact, Mr. Abington conceded at trial that if the cost of energy from OMU would have increased in relation to an improvement of EFOR, an offset of the damages would have been appropriate. (TR Vol. V-B: Abington at 145.) But KU contends that it was OMU's obligation, and not KU's obligation to perform this offset. KU maintains that operation and maintenance spending has a "pay me now or pay me later" quality; while increased reliability requires some spending on the front end, failure to make this investment results in greater costs later when equipment fails. However, KU presented no evidence to show that these reactive maintenance costs meet or exceed what it would cost to implement the changes suggested by KU. Having presented no evidence of what KU suggests it would cost to operate ESGS in a good and workmanlike manner, the Court finds that KU's damages calculation is speculative at best.

After a review of the evidence presented at trial and for the reasons set forth above,

the Court finds that KU failed to present sufficient evidence establishing the amount of damages with reasonable certainty.

V. CONCLUSION

For the reasons set forth above, the Court finds that KU has failed to establish by a preponderance of the evidence that OMU breached the Contract by failing to operate and maintain the Elmer Smith Generating Station in a good and workmanlike manner and that KU has been damaged as a result of the alleged breach. Accordingly, the Court finds in favor of OMU and the City of Owensboro on KU's counterclaim.

cc: counsel of record