ORIGINAL

STATE OF INDIANA

INDIANA UTILITY REGULATORY COMMISSION

APPLICATION OF DUKE ENERGY INDIANA, INC. FOR APPROVAL OF A CHANGE IN ITS FUEL COST ADJUSTMENT FOR ELECTRIC SERVICE, FOR APPROVAL OF A CHANGE IN ITS FUEL COST ADJUSTMENT FOR HIGH PRESSURE STEAM SERVICE, AND TO UPDATE MONTHLY BENCHMARKS FOR CALCULATION OF PURCHASED POWER COSTS IN ACCORDANCE WITH INDIANA CODE § 8-1-2-42, INDIANA CODE § 8-1-2-42.3 AND VARIOUS ORDERS OF THE INDIANA UTILITY REGULATORY COMMISSION	) CAUSE NO. 38707 FAC 76 S1	) APPROVED: OCT 21 2009

BY THE COMMISSION:
David E. Ziegner, Commissioner
Loraine L. Seyfried, Administrative Law Judge

On April 24, 2008, pursuant to Ind. Code §§ 8-1-2-42 and 8-1-2-42.3 and various Orders of the Indiana Utility Regulatory Commission ("Commission"), Duke Energy Indiana, Inc. ("Duke Energy Indiana" or "Company") filed with the Commission an Application in Cause No. 38707 FAC 76, for approval of a change in its fuel cost adjustment for electric service, approval of a change in its fuel cost adjustment for steam service, and an update of monthly benchmarks. On April 29, 2008 and April 30, 2008, the Duke Energy Indiana Industrial Group ("Industrial Group") and Nucor Steel, a Division of Nucor Corporation, ("Nucor"), respectively, filed Petitions to Intervene, which were granted by the Presiding Officers on May 13, 2008.

As part of its case in chief in Cause No. 38707 FAC 76, Duke Energy Indiana presented testimony describing the impact on fuel costs of a forced outage commencing on January 20, 2008 and lasting sixty-six days at Duke Energy Indiana's Gibson Station Unit 4. On June 13, 2008, the Industrial Group filed a motion requesting the Commission initiate a subdocket for the purpose of investigating the Gibson Unit 4 forced outage and its impact on the Company's fuel costs. Nucor joined the Industrial Group's motion. In the Commission's June 25, 2008 Order in Cause No. 38707 FAC 76, we granted the motion for subdocket as it related to the Gibson Unit 4 outage, but allowed the Company to collect the related fuel cost revenues on an interim basis subject to, among other things, the outcome of this subdocket. *See*, Cause No. 38707 FAC 76 (June 25, 2008), p. 4, 13.

Pursuant to proper notice of hearing, published as required by law, proof of which was incorporated into the record by reference, a public evidentiary hearing was held in this cause on January 27, 2009, in Room 222, National City Center, 101 West Washington Street, Indianapolis, Indiana. Duke Energy Indiana offered into evidence the testimonies and exhibits of Mr. Donald J. Steinmetz, Mr. Donald E. Faulkner, Mr. Barry E. Pulskamp, and Mr. Scott A.

Burnside. The Industrial Group offered the testimony and exhibits of James R. Dauphinais. Duke Energy Indiana then offered the rebuttal testimonies and exhibits of Mr. Faulkner, Mr. Pulskamp and Mr. Ronald G. Halpern. All pre-filed testimonies and exhibits, as corrected at the hearing, were admitted into evidence without objection. All witnesses on behalf of the Company, except Mr. Burnside, were cross examined. No member of the general public appeared or participated in the hearing.

Based on applicable law and the evidence herein, the Commission finds:

1. **Commission Jurisdiction and Notice.** Due, legal and timely notice of the hearing in this Cause was given as required by law. Duke Energy Indiana is a public utility within the meaning of Ind. Code § 8-1-2, *et seq.*, as amended, and is subject to the jurisdiction of the Commission in the manner and to the extent provided by the laws of the State of Indiana. Therefore, the Commission has jurisdiction over the parties and the subject matter of this cause.

2. **Duke Energy Indiana's Characteristics.** Duke Energy Indiana is a public utility corporation organized and existing under the laws of the State of Indiana with its principal office in Plainfield, Indiana, as a wholly owned subsidiary of Duke Energy Corporation. Duke Energy Indiana is engaged in rendering electric utility service in the State of Indiana. The Company owns, operates, manages, and controls, among other things, plant and equipment within the State of Indiana used for the production, transmission, delivery and furnishing of such service to the public. The Company also renders steam service to one customer, Premier Boxboard Limited LLC.

3. **Duke Energy Indiana's Direct Evidence.** Mr. Donald Steinmetz, Manager of Regulated Generation Compliance and Protective Services (and Technical Manager of the Gibson Generating Station at the time of and prior to the Gibson Unit 4 outage), described Gibson Station as a five unit generating facility that was built and placed into service between 1975 and 1982. He stated all of the Gibson Station generators are water/hydrogen design generators. With this design, the water flows through strands of the stator providing cooling to the stator windings. The hydrogen flows through the stator body and through the field, or rotor, of the generator providing cooling to those parts of the generator. The fundamental purpose of the stator bars is to form the winding around the rotor to collect the magnetic forces from the rotating shaft to generate electricity. There are two types of stator bars in a generator - top bars and bottom bars. There are 42 of each type.

Mr. Steinmetz testified that Gibson Unit 4 tripped off-line on Sunday, January 20, 2008. Several Duke Energy Indiana employees as well as GE personnel were on-site Monday, January 21, 2008 for the initial inspection. He stated that by Tuesday, January 22, 2008, the upper half of the generator end bell was removed, which allowed access to the failure area. Mr. Steinmetz said that initial findings during visual inspections at that time showed considerable damage to the two phase connections attached to the stator bars T8 and B24, as well as contamination in the field. The generator was then disassembled and further inspections made.

Mr. Steinmetz summarized the damage to Gibson Unit 4: (1) two top bars, T8 and T9, along with bottom bar B24, were damaged to the extent of requiring replacement; (2) the stator cooling water filled the generator lead box area, soaking and contaminating the three phase and

three neutral bushings, requiring their replacement; (3) the generator field (rotor) was contaminated by the vaporizing of copper and insulation from the failed stator, requiring the rotor to be removed and sent to a GE repair shop for disassembly, cleaning and reassembly; (4) the 4B and 4C boiler feed pump turbines were damaged; (5) the turbine #3 bearing was damaged and repaired; (6) the generator hydrogen seals were damaged, requiring removal, repair, and reinstallation; and (7) the main power transformer was tested and one of the three high voltage bushings was found damaged and was replaced.

Mr. Steinmetz stated that by utilizing GE and numerous other contractors, the investigation and repair work continued seven days a week, twenty-four hours a day, until the unit was back on line. According to Mr. Steinmetz, the primary role of Company personnel was to coordinate all of the retained contractors and parts suppliers to insure that the repair work was done in an efficient and timely manner.

Mr. Steinmetz testified that to determine the full extent of the damage to the stator bars (*i.e.,* which of the stator bars were damaged and which were salvageable), GE performed a number of electrical, mechanical, and hydraulic tests. The hydraulic integrity test ("HIT") skid tests, consisting of the pressure decay test, vacuum decay test, helium leakage test and capacitance test, were performed to determine the integrity of the liquid cooling system in the stator winding. Electrical tests were also conducted. As a result, it was determined that two top bars and one bottom bar required replacement. To replace the bottom bar, 18 top bars were removed, refurbished and reinstalled. All other stator bars remained in place.

Mr. Steinmetz stated that typically, stator bars must be manufactured and it may take months to receive stator bars from the manufacturer. Duke Energy Indiana determined that its affiliate, Duke Energy Carolina's Cliffside Steam Station, had four stator bars on site that would fit Gibson Unit 4. These stator bars were on-site within three weeks of the failure. Mr. Steinmetz stated that the availability of those stator bars significantly reduced the repair schedule and length of the outage. In his opinion, without these bars, the sixty-six day outage time that actually occurred would have been extended by at least five weeks.

Mr. Steinmetz testified that the stator failure was a catastrophic failure, and the root cause of the failure was made undeterminable by the amount of collateral damage. Mr. Steinmetz said that in his opinion the length of this outage was extraordinary in that it only lasted sixty-six days. Under normal circumstances, he said that this outage would have lasted five to six months instead of sixty-six days. Factors he believed led to the relative shortness of this outage were the extraordinary efforts of Company personnel and the primary contractors; the availability of the four stator bars from the Cliffside Steam Station which enabled the Company to avoid production issues; the decision to maintain a twenty-four hour, seven day a week schedule; and the ability to coordinate all contracts and necessary supply and parts. In addition, many of the pieces needed to repair the stator connections were fabricated by GE personnel on site from raw materials or they were able to take pieces that had been saved from previous jobs and rework them to fit Gibson Unit 4.

Mr. Steinmetz concluded his testimony by opining that the Company has consistently exercised reasonable inspection and maintenance practices consistent with industry standards with respect to Gibson Unit 4. Mr. Steinmetz said that in his twenty years of experience as a

professional engineer at Gibson Station, the safe operation and maintenance of Gibson Station was job one of all station personnel. He noted that from 2000 to January 20, 2008, the longest outage for Gibson Unit 4 was five days. In Mr. Steinmetz' opinion, the maintenance practices at the Gibson Station achieved the appropriate balance between availability, reliability and cost.

Mr. Donald Faulkner, Vice President Fossil Plant of the Belews Creek Steam Station in North Carolina and General Manager of Gibson Station at the time of the Unit 4 outage, testified that GE introduced its generators with water-cooled stator windings in the 1960's. He stated GE began identifying stator winding leaks in its generators in the 1990s and has, over the years, issued Technical Information Letters ("TIL") recommending inspection procedures for potential stator bars leaks. Recommendations have evolved over the years as GE has continued investigating the root cause and solutions for stator bar leaks.

Mr. Faulkner testified that although GE recognizes that the suggested inspections and tests do not guarantee a leak-free winding, GE generally recommended the following tests be performed during both minor and major scheduled outages: (1) visual inspection of the accessible stator components; (2) vacuum decay test; and (3) pressure decay test. In order to perform the visual inspection, at a minimum the end bells of the generator must be removed. To perform the vacuum decay and pressure decay tests, the generator must be removed from service and all water removed from the stator cooling system. In addition to these tests, during major scheduled outages, GE recommended that a helium tracer gas test, stator bar capacitance mapping test, and the wet insulation detector test be conducted. In order to perform these tests, the generator must be disassembled and the rotor removed, which can only occur during a major outage.

Mr. Faulkner testified that prior to the Gibson Unit 4 outage that occurred on January 20, 2008, all of these tests (except the wet insulation detector test which was not available in 2003) were last performed by GE on Unit 4 during the major scheduled outage in the spring of 2003 when an SCR was installed on the Unit. The tests were performed successfully and no indication of leaks or wet insulation in the winding assembly was found.

Mr. Faulkner testified that although there was a minor scheduled outage in 2006 for purposes of conducting a boiler inspection on Unit 4, he approved the recommendation that the Company forego conducting the minor outage tests (visual inspection, vacuum decay test, and pressure decay test) at that time. Mr. Faulkner stated that this decision was based upon the following: (1) Unit 4 had successfully completed and passed these tests, as well as the more extensive and sensitive major outage testing, in 2003; (2) the Company daily monitors and/or inspects the stator system, which gave no indication of any problem or leak; (3) the operation of Unit 4 between 2003 and 2006 gave no indication that there were stator problems; and (4) the minor outage stator tests are not as sensitive as the other major outage tests recommended by GE and small leaks can be missed with these tests. Mr. Faulkner testified that he believes it is more efficient to perform these tests, in addition to the more sensitive tests, during major outages.

Mr. Faulkner testified that, in his opinion, if the minor outage stator tests (visual inspection, vacuum decay, and pressure decay) had been performed in 2006 on Unit 4, they would not have indicated any leaks. He further testified that oftentimes the Company follows the Original Equipment Manufacturer's ("OEM's") suggested testing and maintenance procedures,

but not always. The Company bases its testing and maintenance procedures on its decades of experience with the equipment, consideration of the other maintenance and outage schedules, and the desire to keep the units available to produce power to the maximum extent reasonably possible at a reasonable cost.

Mr. Faulkner testified that the Company has also experienced stator bar leaks on other units: Gibson Unit 1 in the spring of 2005 (clip to strand leak of a bottom bar, repaired by epoxy injection), Gibson Unit 3 in the fall of 2006 (top bar was suspected to have wet insulation and was replaced; water clips on both ends of a bottom bar were sealed with epoxy injection), and Gibson Unit 5 in the spring of 2008 (repaired with epoxy injection). There were no indications that any leaks existed on these units. The leaks were detected during major scheduled outages for turbine overhauls while performing the major stator inspections/tests. All three units passed the vacuum decay and pressure decay tests. The leaks were only detected using the helium tracer gas test and/or capacitance mapping tests.

Mr. Faulkner testified that the hydrogen pressure in the generator is continually monitored and an alarm will sound in the control room if the pressure drops. If that were to occur, the stator cooling water storage tank vent would be checked for elevated concentrations of hydrogen. Also, liquid level alarm monitors are used and the sight glasses are visually checked daily for indications of water in the generator. Mr. Faulkner testified that these systems were monitored for Unit 4 and there was no indication of a potential stator bar leak in the months, weeks and days leading up to the failure.

Mr. Faulkner further testified that after the first Gibson Station stator leak was detected on Unit 1 in 2005, the Company did not implement any changes to the way in which it monitored or tested the stator windings in the other units because this was the first leak ever experienced at Gibson Station in over 130 years of combined unit operating history. After the second stator bar leak was detected in the fall of 2006 on Unit 3, which required the replacement of a stator bar due to wet insulation, the Company initiated a program to rewind all of the stator windings in each of the Gibson units over the next several years, beginning with Unit 2 (the oldest unit) in the spring of 2007. After issuing a Request for Proposal and receiving and evaluating bids, the Company contracted with GE in December 2007 to perform the stator rewinds on the remaining units. The stator rewinds for the remaining Gibson units were scheduled in conjunction with the major outage schedule. No stator rewinds could be scheduled for 2008 because there were no GE manufacturing slots available until 2009. Gibson Unit 4 was the first unit scheduled for stator rewind under the contract, which was scheduled to occur during the planned Unit 4 major outage in the spring of 2009. The Unit 4 rewind was already scheduled at the time of the forced outage in 2008.

Mr. Faulkner testified that in December 2007, the Company installed GE Stator Leak Monitoring Systems ("SLMS") on Gibson Units 1, 3, and 5 (the Unit 5 installation was completed in spring 2008). The SLMS measure the hydrogen content in the stator cooling water and gas flow. Installation of SLMS on Units 2 and 4 was scheduled for 2009. The Company began planning for installation of SLMS on its Gibson Units as early as 2004, but there were problems with the GE model and in 2005 GE discontinued its existing SLMS model and began manufacturing a new model. After the stator bar leak test failure on Unit 3 in the fall of 2006,

the Company asked for revised quotes from GE for the new model, which it received in March 2007.

In Mr. Faulkner's opinion, as the General Manager of Gibson Station at the time of the Unit 4 outage, the Company exercised reasonable inspection and maintenance practices with respect to the Gibson Unit 4 generator and generator stator bars prior to the 2008 outage.

Mr. Pulskamp, Senior Vice President, Regulated Fossil/Hydro Operations, discussed the Company's maintenance practices for the Gibson units. He testified that the objective of the Company's maintenance plan is to optimize the cost, reliability, availability, and efficiency of its generating units over the life of the unit. The Company tries to achieve or exceed industry acceptable levels of unit availability, reliability and efficiency from its generating units at the lowest reasonable cost.

Mr. Pulskamp testified that the Company projects its maintenance program over at least a ten year period, meaning that the Company looks out at the next ten years and begins planning/budgeting out over those years the various capital and maintenance programs that must be done. He said the Company lines out what needs to be done in order to maximize the availability of all the units going forward. The Company then prioritizes maintenance projects so that the projects that provide the greatest return on investment are considered first. He said that the Company utilizes this procedure in an effort to keep its costs affordable for its customers and to maximize the availability of the units, especially in times of peak electric demand.

Mr. Pulskamp further testified that the Company uses a combination of major and minor outages to maintain its generating units. Major outages are scheduled to coincide with turbine and generator overhauls, and other major work since the disassembly and reassembly of the turbine and generators normally require the longest duration for the unit to be out of service. Shorter outages to perform boiler repairs and other work requiring up to three weeks are normally scheduled in between the major outages. According to Mr. Pulskamp, this approach increases the availability of the units for generation purposes with a positive economic impact for the Company's customers. He said that the Company tries to minimize the total length of time a unit is out of service to optimize the availability of the unit for service. Labor and equipment must be mobilized to support outage work. It is more cost efficient to schedule work to be done simultaneously on the units during scheduled outages.

Mr. Pulskamp also testified that although Duke Energy Indiana considers the OEM recommendations regarding maintenance and possible replacement of equipment, Duke Energy Indiana evaluates the recommendations against other factors (including its own extensive experience for each unit and fleet experience) and makes a reasoned decision as to whether to follow a particular recommendation. According to Mr. Pulskamp, the OEM's recommendation is an important consideration, but it is not a conclusive factor. The Company relies upon the expertise of its own personnel with assistance from other experts to make its decisions. Mr. Pulskamp testified that if the Company were to follow all OEM recommendations for each piece of equipment on a generating unit, it would need to remove units from service for several additional weeks each year at a considerable increase in cost and loss of availability of the unit during the additional outage weeks. Mr. Pulskamp stated that the Company believes its maintenance program meets or exceeds industry standards and is customized to Gibson Station

based on its vast experience from operating one of the largest generation systems in the United States.

Mr. Pulskamp testified that Gibson Station personnel continually perform a number of inspections, evaluations and tests, along with repairs and maintenance on Gibson Unit 4 during outages and while operating that unit. He explained that the Company also utilizes various predictive maintenance technologies as well as preventive maintenance to help prevent in-service failures. As a result, he stated, Gibson Unit 4 has been a very reliable unit. He testified that for the last five years, each of the Gibson Station units have experienced an equivalent forced outage rate ("EFOR") significantly less than the industry average for similar capacity units. Mr. Pulskamp stated that he believes the reliability of the Gibson Station units is directly attributable to the Company's prudent maintenance practices. In addition, the Company has participated in benchmarking studies, which demonstrate the overall effectiveness of its maintenance practices. Mr. Pulskamp explained that his Exhibit C-1 demonstrates that from 2005 to 2007 the Gibson Units compare favorably to the peer group in terms of higher availability and lower operating costs, equivalent forced outage rates and net capacity factors. He said that while unexpected outages occasionally occur, he opined that the Company's overall maintenance practices were reasonable and lead to reliability and overall reasonable rates for its customers.

Mr. Pulskamp also testified that to his knowledge the catastrophic failure that occurred on Gibson Unit 4 was unprecedented in the United States. Moreover, he did not believe it was representative of a typical stator bar leak. Mr. Pulskamp believed that this failure was unique and could not have been predicted with the tests recommended in GE's TILs for minor outages. He concluded that the inability to predict a catastrophic failure, such as occurred here, does not indicate any imprudent management with regard to the maintenance on Gibson Unit 4.

Mr. Burnside, Lead Accounting Analyst, testified regarding the cost impact of the Unit 4 outage. Mr. Burnside testified that his analysis was based upon a number of conservative assumptions and showed an estimated increase in native load fuel costs during the month of January of $4.3 Million, February of $7.8 Million, and March $13.4 Million – for a total of $25.5 Million. Mr. Burnside explained the assumptions used in the analysis. The assumptions and figures in the analysis were not contested by any party.

4. **Industrial Group's Direct Testimony**. The Industrial Group sponsored the direct testimony of James R. Dauphinais, a consultant employed by the firm of Brubaker and Associates. Mr. Dauphinais began his testimony by providing background for the Gibson Unit 4 forced outage that occurred on January 20, 2008. He said Mr. Steinmetz indicated that the exact cause of the failure of the Gibson Unit 4 generator stator could not be determined due to the extensive damage that occurred. However, citing Duke Energy Indiana's facility/generation station incident report (which made reference to a "stator bar clip failure getting insulation wet") and the February 5, 2008 insurance adjuster's report of the M.G. Thomas & Associates, Inc. (which made reference to a likely "clip leak, which soaked the bar insulation"), Mr. Dauphinais opined that it was "abundantly clear" that it was "very likely" the Gibson Unit 4 stator had an undetected water leak that caused the catastrophic failure.

Mr. Dauphinais opined that the Company's actions with regard to the detection of water leaks at Gibson Unit 4 were not prudent in that the Company did not conduct the vacuum and

pressure decay tests on the Unit 4 stator bars at the time of the Unit 4 boiler outage in 2006. He said prudency addresses the reasonableness of the actions taken based on the information known or knowable at the time that the decision was made. He stated that the reasonableness of the utility's actions should be judged in light of the circumstances and facts known or knowable at the time the decision was made, and that prudence does not permit a "hindsight" review of the actions taken.

Mr. Dauphinais presented his view of what was known or knowable to Duke with regard to the risks of stator failures and how they could be minimized by taking reasonable measures to detect water leaks. He first cited to GE's TIL 1447-2 and GE's document "Understanding, Diagnosing and Repairing Leaks in Water Cooled Generator Stator Windings." He said these two documents indicate that it was known or knowable by Duke Energy Indiana that the likelihood of a catastrophic stator failure could be minimized by strict adherence to the recommended on-line monitoring and maintenance inspections presented in the TIL.

Mr. Dauphinais stated that GE recommends during major inspections, all recommended minor inspection tests be done along with a helium tracer gas test and a stator bar capacitance mapping test. He said during minor outages, GE recommends a vacuum decay test and a pressure decay test. He also noted that GE recommended that the stator leak monitoring system ("SLMS") be installed for the purpose of on-line detection of water cooled stator winding leaks. He also noted that the TIL indicates each of the leak tests are complementary to each other. He further noted that on-line monitoring may not be able to detect small leaks that can be detected during major and minor inspection testing. While he conceded that the minor inspection tests (vacuum decay and pressure decay) are less sensitive at detecting leaks than the major inspection tests (helium tracer gas and capacitance mapping), he noted that the minor inspection tests have been shown as able to detect approximately half of all water leaks that have been detected through off-line monitoring.

Mr. Dauphinais testified that the major inspections and water leak tests were performed on Gibson Unit 4 in January and February of 2003. He noted that the February 28, 2003 inspection report indicated that Gibson Unit 4 passed the pressure decay, the vacuum decay and tracer gas tests and that there was no indication of leaks in the winding assembly. He also noted that capacitance mapping was conducted on the stator bar arms and the results of this test were good. He noted there was a maintenance concern regarding oil contamination that needed to be addressed to head off potential damage to the stator cooling water circuits. He also noted that the 2003 inspection report stated in three separate locations that vacuum and pressure decay tests should be performed as part of a regular maintenance program. He said this repetition was a sign of the level of concern that GE had with regard to strict conformance with TIL 1447-2.

Mr. Dauphinais stated that the minor inspection tests (vacuum and pressure decay tests) were last performed prior to the January 20, 2008 failure in January and February of 2003. He noted that approximately fifty-nine months had passed between when these tests were performed and the January 20, 2008 catastrophic failure. He stated that this interval was nearly twice the amount of time GE recommends for repetition of the minor inspection tests (thirty months) as contained in the TIL. Mr. Dauphinais said Gibson Unit 4 underwent a scheduled outage during March 25, 2006 to April 17, 2006, but Duke Energy Indiana chose not to perform the minor inspection tests even though Gibson Unit 4's next scheduled outage was not planned to occur

until 2009, at least seventy-one months after the last performance of the major and minor inspection tests in 2003. He said Duke Energy Indiana has conceded that the minor inspection tests could have been performed during the 2006 scheduled outage.

Mr. Dauphinais noted that on or about February 5, 2005, a little over a year before the planned 2006 scheduled outage for Gibson Unit 4, Duke Energy Indiana discovered a stator bar water leak during a major scheduled outage of Gibson Unit 1. He said this leak was identified by the helium tracer gas test, one of the major inspection tests recommended in TIL 1447-2. He noted this was the first stator water leak ever detected by Duke Energy Indiana on one of its Gibson generating units and in his opinion, this detection should have triggered three actions. First, Duke Energy Indiana should have immediately reviewed its practices for on-line monitoring for water leaks and brought such monitoring practice up to the minimum recommendations of GE to the extent that Duke Energy Indiana did not already conform to those recommendations. Second, Duke Energy Indiana should have reviewed its scheduled outage plans for all of GE's water-cooled generators to insure that the work plans for those outages conformed to maintenance test recommendations of TIL 1447-2. Third, in the review of its plan Duke Energy Indiana would have discovered, according to Mr. Dauphinais, that GE's minor inspection test recommendations were not being followed and that the interval between major inspection tests would be significantly exceeded. He said given this and other factors, Duke Energy Indiana should have given serious consideration to performing the major inspection tests in addition to adding the minor inspection tests to the then upcoming 2006 scheduled outage for Gibson Unit 4. He said Duke Energy Indiana's responses to data requests indicate that it did not undertake to review any of its maintenance practices after the leak on Gibson Unit 1 was discovered.

Mr. Dauphinais testified that Mr. Faulkner's opinion that there was no need for a change in testing because the Gibson Unit 1 water leak was the first leak ever experienced at the Gibson station is an unreasonable conclusion. He said the indication of a stator water leak at Gibson Unit 1 should have been seen as a leading indicator of possible water leak issues developing on the remaining four Gibson generating units. He said GE's TIL 1447-2 clearly shows the likelihood of a stator water leak increases with age.

Mr. Dauphinais also opined that the Company's position that since Gibson Unit 4 passed the major inspection tests three years earlier, there was a reasonable basis for postponing the minor inspection tests to the planned scheduled major outage for 2009, did not conform to GE's recommendations that the minor inspection tests be performed every thirty months. He said this position also leaves the stator untested for water leaks for at least seventy-one months, which is longer than the sixty month interval recommended between major inspection tasks. He said that Duke Energy Indiana has not produced any analysis that was performed to determine whether the Company could reasonably skip performing the recommended minor inspection tests nor has it produced any correspondence or meeting minutes documenting there was adequate peer review of the decision to skip the tests.

Mr. Dauphinais stated that it appeared the Company conformed to the GE TIL 1447-2 recommendations for on-line monitoring except in regard to installation of the SLMS, which he said is more sensitive at detecting water leaks than other on-line monitoring that is performed. Mr. Dauphinais said the Company did not aggressively pursue installation of SLMS until after

the identification of a water leak on Gibson Unit 1 in 2005. Due to the complicating factor identified by the Company of GE discontinuing its earlier SLMS model, Mr. Dauphinais stated he was not able to make a determination in regard to the adequacy of Duke's on-line monitoring for water leaks prior to the January 20, 2008 Gibson Unit 4 outage. He noted that Duke Energy Indiana confirmed that on-line monitoring did not reveal any problem with Gibson Unit 1 prior to the failure of the major inspection tests. He said GE considers on-line monitoring, minor inspection tests and major inspection testing to be complimentary of each other and that all three are needed. Mr. Dauphinais opined it was not reasonable to skip minor inspection tests between major outages unless an analysis had been performed that clearly demonstrated that such tests were ineffective and such analysis had been subject to at least internal peer review. He stated that Duke Energy Indiana did not take either of these steps. Mr. Dauphinais concluded that Duke Energy Indiana's failure to conduct the recommended minor inspection tests during the 2006 scheduled outage was imprudent.

Based on a review of Mr. Steinmetz' testimony, Mr. Dauphinais stated that the efforts by Duke Energy Indiana's personnel with regard to returning Gibson Unit 4 to service appeared extraordinary. He believed that these efforts likely saved Duke Energy Indiana between $25-50 million. However, he said the savings do not absolve Duke Energy Indiana of its imprudence with regard to not adhering to the OEM's testing recommendations.

Mr. Dauphinais concluded his testimony with a recommendation that the Commission deny recovery of the estimated $25.5 million of net replacement power costs.

5. **Duke Energy Indiana's Rebuttal Testimony**. Mr. Faulkner disagreed with Mr. Dauphinais' contention that the Company should have performed the pressure and vacuum decay tests during the 2006 minor boiler outage for several reasons. He stated that Gibson Unit 4 had passed successfully the extensive stator testing in 2003 and that leading up to the 2006 boiler outage, there was no indication of any leak from daily monitoring of hydrogen pressure and water gauges, or from the operation of the unit.

In addition, Mr. Faulkner stated that, based on this experience as well as GE information, the Company believed that the vacuum and pressure decay tests were not particularly sensitive and it made sense to do all of the tests during the next major outage. He noted that the Company, at the time of the Gibson Unit 4 minor outage in the spring of 2006, had only detected one stator bar leak during the entire 130 year operating history of the five Gibson Station units. Furthermore, that stator bar leak was discovered during a major outage of Gibson Unit 1 in the spring of 2005. Vacuum and pressure decay tests were performed at that time, as recommended by GE, but all stator bars passed both tests. The leak was only discovered by performing the more sensitive helium tracer gas test, which can only be performed during a major outage. Mr. Faulkner said that given that the Unit 1 stator bar leak was the first to occur at Gibson Station, the fact that Gibson Unit 4 had passed successfully the extensive stator testing during 2003, and the fact that there was no indication from the daily monitoring and inspection of Gibson Unit 4 of any leak, he approved the recommendation that to forego the vacuum and pressure decay tests during the 2006 minor outage.

Mr. Faulkner disagreed with Mr. Dauphinais' hindsight argument that the Company should have given "serious consideration" to running the major inspection tests during the 2006

boiler outage. In order to conduct such tests, Mr. Faulkner testified that the 2006 outage would have been extended by four days, at a cost of approximately $1.5 million. Second, given the long reliable history with the Unit 4 stator bars and the fact they had no indication of any leaks leading up to that outage, Mr. Faulkner saw no reason to disassemble Unit 4 to conduct the tests.

Mr. Faulkner testified that the GE investigation into the Gibson Unit 4 outage confirmed his decision not to perform the vacuum and pressure decay tests in 2006. As part of GE's investigation into the extent of the damage to Unit 4, GE plugged the open fittings to pressurize the windings after removing the damaged hose. The remaining winding (including the damaged bars) passed all of the stator tests (including the vacuum and pressure decay tests, as well as the more sensitive tests). Since it passed these tests at the time it was being inspected in 2008, Mr. Faulkner opined that the test results would have been the same if they had been performed in 2006. In Mr. Faulkner's opinion, not performing these tests during the 2006 minor outage was a reasonable and prudent decision.

Mr. Faulkner testified that Mr. Dauphinais placed too much reliance on the Company's incident report in concluding that the likely cause of the 2008 failure was an undetected stator bar water leak. This was a preliminary incident report circulated only two days after the failure, with the final incident report circulated only five days after the failure. This was well in advance of any investigation or testing by GE or Company personnel as to the cause of the failure.

Mr. Faulkner testified that Mr. Dauphinais' suggestion that the Company should have acted more aggressively in purchasing and installing the SLMS on its Gibson units was unfounded because the industry was well aware of the problems with the data generated by the SLMS technology; GE was continuing to refine the system to produce more consistent, dependable data; and it was not until 2005 that Gibson Station experienced its first stator leak. After the second stator bar leak was detected on Gibson Unit 3 in 2006, Mr. Faulkner noted that the Company decided to begin installing SLMS on all of its Gibson units. It was not until 2007 that the Company was advised that GE had a new, more sensitive, SLMS model available for purchase. The SLMS was installed and in service for Gibson Units 1 and 3 by December 2007 and completed on Unit 5 in March 2008. Mr. Faulkner also testified that the SLMS will be installed on the remaining two Gibson units during planned outages in 2009.

Mr. Faulkner disagreed with Mr. Dauphinais' position that the Company should have strictly adhered to a thirty month and sixty month maintenance schedule for Gibson Unit 4. Mr. Faulkner explained that this maintenance standard for generator leak testing ignores the technology that has become available to the electric industry and ignores the fact that the utility industry has extended maintenance beyond the timeframes recommended by GE forty years ago. With the evolution of technology, Mr. Faulkner testified, the industry has evolved from a strictly preventative maintenance standard predicated solely on the calendar to a condition-based or predictive maintenance standard that utilizes equipment performance data, operating condition data, vibration data, and test analyses to determine whether there has been a degradation of equipment inside a generating station and the need for maintenance. In Mr. Faulkner's opinion, Mr. Dauphinais ignores this industry evolution. Mr. Faulkner testified that the six year period between the Gibson Unit 4 spring 2003 major outage and the planned 2009 major outage is well within industry standards. Mr. Faulkner used the on-line flux probe test as an example of conditioned based maintenance that has evolved due to technology.

Mr. Faulkner also provided an example of another GE recommended maintenance procedure that the Company does not strictly follow. The example given was the GE daily turbine main steam stop valve test, which, if performed on all five of the Gibson units as recommended by GE, would result in a daily 250 megawatt derate at Gibson Station. Therefore, after an engineering review of this procedure, the Company changed the frequency for this test from daily to weekly. As a result, this change has given the Company the same reliability in the operation of the stop valves and has reduced the derates taken weekly by 1500 megawatt-hours per week, thereby producing significant savings for customers.

A second example provided by Mr. Faulkner involved the 1986 GE recommendation for replacing large steam turbine generator retaining rings. Although GE recommended the rings be tested and replaced no later than six years after the recommendation letter was issued, Mr. Faulkner explained that the Company, after reviewing the cost and duration required for performing inspection and/or replacement of the retaining rings as recommended by GE, chose to stock the retaining rings and replace them over a period from 2001 to 2008 in conjunction with other planned work for the generator field. In Mr. Faulkner's opinion, this reduced the expense of removing the rings, purchasing new insulating materials, and refurbishing components reused when reinstalling the retaining rings.

Mr. Faulkner dismissed the issue raised by Mr. Dauphinais of oil found in the generator during the 2003 Unit 4 major outage inspection. He responded that there is oil in every machine to varying degrees and it is not an issue unless it is excessive. Mr. Faulkner explained that the Company did not file testimony on this issue in its case in chief because the stator winding oil leak mentioned in the GE report referenced by Mr. Dauphinais was actually resolved during the same outage in 2003. In addition, he testified that this issue had nothing to do with the stator bar failure because oil cannot cause a stator coolant leak.

Mr. Faulkner testified that Mr. Dauphinais overlooked the actual testing history of the Gibson Station units in his conclusion that the Company should have performed the vacuum and pressure decay tests during the 2006 Unit 4 boiler outage. Mr. Faulkner testified that all stator tests conducted on the Gibson units have historically passed these tests, even those units which actually had leaks. Further, Mr. Dauphinais did not acknowledge that in-service failures of GE water-cooled generators are extremely rare. The Gibson forced outage was the first domestic unit to trip off-line due to a stator bar failure.

Mr. Faulkner testified that he is convinced that even had the vacuum and pressure decay tests been conducted in 2006 during the minor outage, Gibson Unit 4 would have passed these tests. In his opinion, Mr. Dauphinais' erroneous conclusion that the Company was imprudent by failing to perform these tests is of no consequence with respect to whether or not the January 2008 forced outage would have occurred.

In his rebuttal testimony, Mr. Pulskamp testified that when an OEM makes a recommendation regarding repair, maintenance or replacement, the Company must evaluate that recommendation against many factors, including: (1) the fact that Gibson Unit 4 is a very large and complex generating unit that has thousands of pieces of equipment and components and therefore a corresponding amount of OEM recommendations; (2) maintaining high availability of its units at the lowest reasonable cost, consistent with good utility practice; and (3) taking into

consideration the operating history of the unit and the expertise and judgment of the Company's personnel and other experts. In Mr. Pulskamp's opinion, Mr. Dauphinais ignored these balancing factors.

Mr. Pulskamp testified that the Company's maintenance practices have resulted not only in Gibson Unit 4 being a low cost unit with a high rate of availability, but also have resulted in the overall low cost and high availability of all the Gibson Station units.

Mr. Pulskamp also testified that Mr. Dauphinais ignored the evolution of maintenance practices, and that strict adherence to GE's recommended thirty and sixty month outage interval is unreasonable because it would mean lower overall availability of the Gibson units due to planned outages, with no overall improvement in the amount of time the Gibson units are off-line due to unplanned outages. Mr. Pulskamp stated that due to new technology and increased experience of station personnel with the equipment, the electric utility industry has begun utilizing predictive maintenance procedures rather than strictly preventive maintenance. By utilizing increased intervals between outages, the units have increased availability with lower costs to the customers. Mr. Pulskamp opined that all maintenance procedures utilized by the Company on Gibson Unit 4 were reasonable, appropriate, timely and consistent with good utility practice. Therefore, he believed no imprudence on the Company's part was demonstrated by Mr. Dauphinais.

Mr. Pulskamp generally agreed with Mr. Dauphinais' comments about what constitutes imprudence, but believes that a fact must be "reasonably knowable" as opposed to just "knowable" before the failure to discover the fact could be viewed as imprudent. He further opined that Mr. Dauphinais was employing a "hindsight" review by claiming that the Company was imprudent by not performing the pressure and vacuum decay test on Unit 4 during the minor outage in 2006. He stated that after a particular part on a particular generating unit fails, one can second guess maintenance decisions. His team is responsible for thousands of maintenance decisions on a yearly basis and is charged with making those decisions by balancing the risks of failure, the cost of maintenance, and the length of the required outage. Based upon the information the Company had at the time the decision was made not to conduct the vacuum and pressure decay tests on Unit 4 in 2006, Mr. Pulskamp believed the Company was prudent not to take the time and spend the funds required for performing those tests, but instead to rely on the more sensitive and accurate tests that were performed during the previous Unit 4 major outage.

Even if the Company was imprudent (which he testified that it was not), Mr. Pulskamp testified that Mr. Dauphinais' recommendation that customers be credited with the Company's estimated increased fuel costs related to the Unit 4 outage ignored the costs the Company has saved customers by not strictly following OEM recommendations that would have increased outages, extended outages, and resulted in increased costs for customers. Mr. Pulskamp testified that the predictive maintenance practices over the past five years have saved customers significant dollars through higher availability of the Company's lowest cost generating units. Mr. Pulskamp said the Gibson units have proven extremely reliable and low cost in comparison to other generating units due to the Company's maintenance practices at the station, and that these benefits have been passed on to customers and should not be ignored.

Mr. Halpern, a generator expert and former GE Generator Product Line Manager responsible for GE generators, submitted expert testimony regarding the Unit 4 generator failure. He testified that the GE generators of the type operated at Gibson Station have experienced stator bar water leaks and the most potentially damaging is the clip to strand leak that occurs over time and saturates the insulation on the stator bar causing it to lose its electrical insulating properties. He noted that Gibson has not had such a history of leaks. Mr. Halpern explained that the following types of testing are done to detect stator bar leaks: (1) the most sensitive tests which can only be performed during major outages, are the helium tracer gas test and capacitance mapping test; and (2) other, not as sensitive, tests used to detect gross or major leaks are the pressure and vacuum decay tests.

Mr. Halpern testified that the Unit 4 2008 failure occurred at the connections and not at the end of the stator core, which is very unusual and, in his opinion, is not a typical clip to strand leak. He testified that it was also atypical because the unit tripped electrically due to a phase to phase fault, rather than a stator ground fault which occurs at the end of the core. Mr. Halpern testified that the stator ground fault was present in the case of the only other known in-service failure of a water-cooled generator.

Mr. Halpern explained that generally the first indication of a stator bar leak is increased hydrogen consumption. He noted the Company monitored its hydrogen consumption daily, and there was no indication that Gibson Unit 4 was experiencing a leak.

Mr. Halpern disagreed with Mr. Dauphinais' opinion that based upon the Company's incident report and the insurance adjuster's report, the Unit 4 failure was "very likely" due to a typical stator bar leak. Mr. Halpern testified there was simply not enough factual evidence to support that conclusion. In his opinion, the GE Report issued in the summer of 2008, after the repairs were made to Unit 4, is a better source for forming an opinion as to potential causes of the outage. Mr. Halpern noted that Mr. Dauphinais did not even discuss this report, but instead relied upon the Company's incident report which was completed within five days of the failure and before GE had an opportunity to do any testing. Likewise, Mr. Dauphinais relied upon the Insurance Adjuster's Report that does not provide any indication as to the thoroughness of the investigation before it was written.

Mr. Halpern testified that although the GE Report indicated that no formal root cause analysis was performed, it did state that when GE temporarily plugged only the two open nipples on the stator pipes after removing the damaged hose, the remaining stator winding passed all HIT skid tests (vacuum decay, pressure decay, capacitance mapping, wet insulation detection and helium tracer gas tests). Mr. Halpern concluded that if the stator winding passed all of these tests, then the failure was not a clip to strand leak, and the only components that could have caused the failure were the teflon hose and stainless elbow – which is very unusual. In addition to reviewing the GE Report, Mr. Halpern testified that he also talked directly to the GE Generator Specialist in charge of the Unit 4 repair and most knowledgeable regarding the failure. Mr. Halpern testified that the GE Generator Specialist stated that he did not see any indication of wet insulation at or near the point of failure and the insulation and putty was not soft – indicating no evidence of long-term exposure to water.

Mr. Halpern concluded that the failure was not due to a water leak. Since the failure was not due to a water leak, he further concluded that even if the Company had performed the stator tests recommended by GE for a minor outage, such tests would not have found any leaks.

Mr. Halpern testified that during his prior employment with GE, he was responsible for articulating the OEM's recommended maintenance practices and inspection schedules to utilities. He also frequently consulted with utilities on both the scope of inspections and monitoring and how frequently to schedule these activities. In Mr. Halpern's opinion, Mr. Dauphinais' strict adherence to a thirty month (minor) and sixty month (major) maintenance interval standard developed forty years ago is misplaced and not consistent with current industry practice. Mr. Halpern testified that the GE inspection interval recommendations are a conservative estimate and guideline, and not based on any empirical data. Mr. Halpern testified that the frequency of generator maintenance is unit specific and based on many variables, with the most important being previous inspections, maintenance history, and current monitored conditions. He further testified that with more sophisticated and better technology having become available, minor and major maintenance outage intervals for generators have been extended, consistent with good utility maintenance practices and electric industry standards. He stated that fossil fuel generating units are extending their minor maintenance intervals to 4-5 years and major maintenance intervals to 8-10 years and in some cases longer. He explained that one major reason for this generator maintenance interval extension is that generators are one of the most reliable pieces of equipment in a power plant.

Mr. Halpern concluded that, in his opinion, Duke Energy Indiana's extension of the GE recommended maintenance intervals is not imprudent. In his opinion, blind adherence to an OEM's generator maintenance recommendations, without consideration of actual operating history, current monitored conditions and informed engineering judgment, is not consistent with good utility practice or electric industry standards.

6. **Commission Discussion and Findings**. The Commission granted the Industrial Group's and Nucor's Motion for a subdocket to allow additional time to examine the prudence of Duke Energy Indiana's maintenance practices in relationship to the sixty-six day forced outage of Gibson Unit 4. The Industrial Group asserts that Duke Energy Indiana was imprudent in its maintenance of Gibson Unit 4 because it failed to conduct the vacuum decay and pressure decay tests at the time of the Unit 4 minor outage in 2006. The Industrial Group claims such tests may have prevented the 2008 forced outage and the Company should be held responsible for the increased fuel costs incurred during that outage. Duke Energy Indiana asserts that its decision to forego the recommended manufacturer maintenance tests until the next major outage of Gibson Unit 4 was justified and reasonable. Duke Energy Indiana also claims that its failure to perform the minor maintenance tests was neither the cause of the Unit 4 outage, nor would have prevented the outage from occurring.

While most of the relevant facts are undisputed, the parties dispute whether these facts demonstrate prudent and reasonable maintenance practices by Duke Energy Indiana. An Indiana public utility is required to provide reasonably adequate service and facilities. Ind. Code § 8-1-2-4. Duke Energy Indiana also has the burden of demonstrating its fuel costs are reasonable prior to recovering those costs from customers. Ind. Code § 8-1-2-42(d). Consequently, the Commission must determine whether, based on the facts of this case, Duke Energy Indiana's

decision to forego the vacuum and pressure decay tests during the minor outage of Gibson Unit 4 in 2006 was a reasonable and prudent decision. In determining whether the utility acted prudently we must review the circumstances as they existed considering what was known or should reasonably have been known at the time of the actions. We should not engage in a hindsight analysis.

The parties agree that GE's recommendations for maintenance of the Gibson generating units call for the performance of both a vacuum and pressure decay test every thirty months during a minor outage of a generating unit. GE also recommends that the vacuum and pressure decay tests, along with the more sensitive capacitance mapping and helium tracer gas tests, be performed every sixty months during a major outage. Gibson Unit 4's last major planned outage occurred during January and February 2003 at which time it passed all of those tests. In February, 2005, a leak was discovered in Gibson Unit 1 by performing the helium tracer gas test during a major outage of that unit. Unit 1 had passed both the vacuum and pressure decay tests.

Gibson Unit 4 underwent a minor planned outage in March and April 2006. At the time of this planned outage, Duke Energy Indiana personnel determined not to perform the vacuum and pressure decay tests, and to wait until the next planned major outage, which was scheduled for 2009 to perform all of the recommended tests. According to Duke Energy Indiana, performing the vacuum and pressure decay tests during the minor outage of Gibson Unit 4 would not have extended the length of the outage (assuming no complications) and would have cost approximately $150,000 to perform. The length of time between Gibson Unit 4's major outage in 2003 and the next planned major outage in 2009 was approximately 71 months.

It is also undisputed that Duke Energy Indiana performed daily on-line monitoring. In addition, it is undisputed that while GE recommended that SLMS be installed on each of the units, there were problems with the GE models such that GE was continuing to refine the system. The new more sensitive SLMS model became available in 2007. The SLMS is essentially an automatic monitoring of the daily on-line monitoring. Tr. B29-30. Neither the daily on-line monitoring nor the vacuum and pressure decay tests discovered the 2003 Unit 1, the 2005 Unit 3 or the 2008 Unit 5 leaks.

It is further undisputed that on January 20, 2008, Gibson Unit 4 experienced a stator bar failure that resulted in catastrophic damage to the unit resulting in a sixty-six day outage. As a result of this unplanned outage, Duke Energy Indiana incurred an additional $25.5 million in replacement power costs, which it has sought to recover from customers through its FAC proceedings. Although incident reports were prepared, no formal root cause analysis of the outage was performed.

The Industrial Group generally asserts that given the serious consequences of a stator bar leak, the TIL's statements concerning the complementary nature of the recommended testing and the increased risk of leaks with age, Duke Energy Indiana was imprudent for not conducting the pressure and vacuum decay testing during the 2006 minor outage. They also noted that conducting the tests most likely would not have extended the outage, and would have only added $150,000 in costs.

Duke Energy Indiana, however, provided several reasons for not conducting the GE recommended pressure and vacuum decay tests during the 2006 Gibson Unit 4 minor outage. First, Gibson Unit 4 had successfully completed the pressure decay and vacuum decay tests during a major outage in March, 2003, as well as the more sensitive capacitance mapping test and the helium gas tracer test. Second, the daily monitoring activities which monitored the hydrogen content within the generator gave no indication that there was a stator bar water leak in the unit at the time of the minor outage. Also, the actual operation of Gibson Unit 4 between 2003 and 2006 gave no indication of a stator bar problem. Third, the Company knew that although GE's TIL 1447-2 recommended a visual inspection and the vacuum decay and pressure decay tests during minor outages, such tests are not as sensitive as the other tests recommended by GE and can miss small leaks.

In addition, at the time of the 2006 Unit 4 minor outage, the Company had detected only one stator bar leak. A stator bar leak had been detected on Gibson Unit 1 in the spring of 2005 during a major outage. At that time, the Gibson Unit 1 stator bars had passed the visual inspection, the pressure decay and the vacuum decay tests. The leak was discovered only by utilizing the more sensitive capacitance mapping test, which was recommended by GE to be performed during major planned outages. Based on this information, Mr. Faulkner approved the recommendation to forego the pressure and vacuum decay tests during the April, 2006 minor boiler outage.

Duke Energy Indiana has extensive operating experience with the Gibson Station fleet totaling over 130 years. Mr. Pulskamp testified that the objective of the Company's maintenance plan is to maintain the availability, reliability and efficiency of its units at the lowest reasonable cost, consistent with good utility practice. He also testified that adhering to all OEM recommendations for each piece of equipment at the plant would result in increased maintenance costs and loss of availability of the generation units. The record reflects that Duke Energy Indiana utilizes sophisticated maintenance procedures to maintain the operating availability of these units. The record also reflects that the Company considers OEM recommendations and evaluates these recommendations based upon a variety of factors, including the expertise and experience of its plant operating personnel, to determine the maintenance to be performed during an outage. In terms of operating costs, reliability and availability, all of the Gibson Station units compared favorably to units in their peer group.

We further note that Mr. Halpern also testified that the GE inspection intervals are a conservative estimate and general guideline. He indicated that the frequency of generator maintenance is unit specific and based on a variety of factors, such as previous inspection results, maintenance history and current monitored conditions.

Prior to the Unit 4 outage, no water cooled generator had tripped off-line in the United States due to a stator bar water leak and only one had tripped off-line in the history of GE's global water cooled generators. Tr. at A-74, B-96. In addition, Mr. Faulkner testified that the Company believes the daily and weekly monitoring activities are sufficient to identify a large leak or a leak of the quantity that a pressure decay and vacuum decay test would identify. Tr. at A-65. This would appear to be supported by the fact that upon installation of a SLMS, which essentially monitors the same information as the Company's daily monitoring, GE no longer recommends the performance of the pressure and vacuum decay tests during a minor outage. Tr.

at A-95, B-28. Consequently, given the information available to Duke Energy Indiana's management in April of 2006, we cannot find that the Company acted in an imprudent manner by not conducting the GE recommended pressure and vacuum decay tests. The maintenance review procedures outlined by Mr. Faulkner in prefiled testimony and during cross examination reflect a reasoned process for determining whether to follow OEM recommendations based on the multiple goals of achieving reliable plant operations with a high availability of the units at a reasonable cost.

Furthermore, and perhaps most significantly, we lack evidence confirming the underlying cause of the Gibson Unit 4 outage. Based upon the evidence presented, we are unable to conclude that the failure to perform the vacuum and pressure decay testing resulted in, or contributed to, the Gibson Unit 4 failure. As noted by the parties, no root cause analysis was ever performed to determine the cause of the failure. Mr. Steinmetz testified that such an analysis could not be performed due to the amount of collateral damage. While the parties offered expert testimony concerning the cause of the failure, such evidence was conflicting.

Mr. Dauphinais, relying primarily upon the information contained in the station incident report referencing a stator bar clip failure and the insurance adjuster's report referencing a clip leak, testified that it was "very likely" that the cause of the failure was a water leak. However, Mr. Halpern, a former GE manager with extensive experience and knowledge of GE water cooled generators, testified that the failure was not due to a water leak based on his review of the available information and interviews with personnel involved in the investigation of the Unit 4 failure. Mr. Halpern testified that the Gibson Unit 4 failure occurred at the end of the stator bar connections, whereas the typical water leak occurs at the clip to strand braze joint. He also pointed out during the hearing that considerable insulation still existed around the failed area, which was tested by GE electrically and indicated no wetness; the lack of wetness signifying there was no leak. Tr. at B97. He also pointed out several other indicia supportive of his conclusion that the failure was not caused by a water leak. Tr. at B99-100. Mr. Halpern's direct experience and expert testimony are afforded considerable weight.

In conclusion, we cannot find that the incremental fuel cost related to the Gibson Unit 4 outage in question resulted from Duke Energy Indiana acting imprudently or unreasonably with respect to the inspection and maintenance of the Gibson Unit 4 stator bars prior to the January 20, 2008 failure. Accordingly, we find that no refunds are due the Company's retail customers and this subdocket should be closed.

7. **Interim Rates**. As set forth above, we find that no refunds are appropriate as a result of this subdocket. Accordingly, the potential refund obligations imposed by the Commission's Orders in Cause Nos. 38707 FAC 76 through FAC 81 related to this subdocket proceeding are removed.

8. **Confidential Information**. On July 25, 2008 and September 4, 2008, the Presiding Officers made preliminary findings that certain designated information marked "Confidential" as requested in Duke Energy Indiana's motions for protection of confidential and proprietary information should be treated as confidential in accordance with Ind. Code § 5-14-3-4 and that confidential procedures should be followed with respect to this confidential information. Upon review of the confidential information submitted pursuant to the Presiding

Officers' preliminary determinations, the Commission confirms the prior preliminary findings that the confidential information contains confidential, proprietary and competitively sensitive trade secret information that has economic value to Duke Energy Indiana and GE; neither being known to or ascertainable by, its competitors and other persons who could obtain economic value from the knowledge and the use of such information; that the public disclosure of such information would have a substantial detrimental effect on Duke Energy Indiana and GE; and that the information is subject to efforts of Duke Energy Indiana and GE that are reasonable to maintain its secrecy. Accordingly, the confidential information contained in the exhibits submitted in this proceeding are exempt from the public access requirements of Ind. Code §§ 5-14-3-3 and 8-1-2-29 and shall continue to be held as confidential by the Commission.

IT IS THEREFORE ORDERED BY THE INDIANA UTILITY REGULATORY COMMISSION that:

1. This subdocket should be, and hereby is, closed.

2. The "subject to refund" obligations imposed in Cause Nos. 38707 FAC 76 through 38707 FAC 81 related to this subdocket proceeding are hereby removed.

3. The information described in the Confidential Information submitted in this Cause are hereby exempt from the public access requirements of Ind. Code § 5-14-3-3 and shall continue to be held as confidential by the Commission.

4. This Order shall be effective on and after the date of its approval.

HARDY, GOLC, LANDIS AND ZIEGNER CONCUR; ATTERHOLT ABSENT:

APPROVED: OCT 21 2009

I hereby certify that the above is a true and correct copy of the Order as approved.

Brenda A. Howe

Brenda A. Howe
Secretary to the Commission