

BEFORE THE IDAHO PUBLIC UTILITIES COMMISSION

ALLEN LAKE,

)

COMPLAINANT,

)

CASE NO. ATL-E-09-01

)

v.

)

ORDER NO. 31086

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ATLANTA POWER COMPANY,

)

)

RESPONDENT.

)

In April 2009, Allen Lake filed an informal complaint against Atlanta Power Company alleging that the electric power he was receiving would not properly operate his new dishwasher. Atlanta Power serves the rural community of Atlanta with a small hydroelectric facility on the Middle Fork of the Boise River. Attempts at resolving the complaint informally were unsuccessful. On November 6, 2009, Mr. Lake filed a formal complaint against Atlanta Power. Rules 23-24, IDAPA 31.01.01.023 and .024. On November 27, 2009, the Commission issued a Summons to Atlanta Power.

On December 15, 2009, the Company submitted a timely response to the complaint. On February 17, 2010, the Commission Staff filed comments. Mr. Lake filed a response to Staff's comments on February 23, 2010. Having fully developed the record in this matter, the Commission issues this Order.

THE COMPLAINT

Mr. Lake asserted he had the appliance supplier go through the dishwasher and replace the controls and when that did not improve the situation, the supplier completely replaced the dishwasher. The problem persisted. At that point he and the supplier determined that the problem was associated with the quality of power being provided by Atlanta Power Company. Staff had several conversations with the customer and Israel Ray, the President of Atlanta Power, to determine a course of action to address the problem. The Staff determined that a power quality analysis would be required to more specifically define the problem. In the process of determining who could do such a review and what the cost would be, two Idaho Power Company power quality engineers volunteered to do the study on their own time. The study was conducted on August 28, 2009, and a brief report was provided to the parties.

A. The Power Quality Report

The report addressed several safety and power quality issues. One of the findings identified in the report was that the “frequency” of the alternating current in the Atlanta Power system varied approximately 10 cycles per second (cps) around an ideal 60 cps. Also, when the frequency dropped below 59 cps, the voltage dropped off significantly. Based upon these results, Staff believed that this frequency fluctuation and accompanying voltage drop was the power quality problem that was causing the dishwasher to malfunction.

The utility’s system controls operate based on system frequency measured in cycles per second (cps). A perfect system operates at 60 cps. The system voltage and current output is at 60 cps only when the turbine and generator turn at a constant speed – their design speed. Increases or decreases in system electrical load tend to speed up or slow down the turbine and generator unless water flow into the turbine is proportionally adjusted simultaneously to compensate for the load change. Water flow into the turbine is controlled by incrementally opening or closing the turbine’s wicket gates. The timing difference between load change and wicket gate operation causes increases or decreases in turbine and generator speed and frequency fluctuation.

The existing control system allows the operator to set high and low frequencies (above and below 60 cps) which cause a motor to open or close the wicket gates incrementally. The chain that connected the motor shaft to the wicket gate shaft had some play in it that was slowing the machine’s response to these frequency variations. Mr. Ray proposed to have a “tensioner” built to tighten the chain and reduce the response time to frequency changes. The process of designing, building and installing the tensioner took a few months.

Two things happened before the tensioner was installed. First, Atlanta Power provided Mr. Lake with a plug-in meter that allowed him to monitor frequency at his home. He quickly determined that it was high frequency, not low frequency, that was turning off his dishwasher. But it was still a frequency-related problem and reducing system response time to frequency fluctuations still seemed like the correct thing to do. Second, Mr. Lake became concerned that Atlanta Power might not do anything about his dishwasher problem.

After the tensioner was built and installed, the initial tests of the dishwasher showed or seemed to show some improvement. However, after a short period of time, Mr. Lake asserted that there had been little change.

ATLANTA POWER'S ANSWER

Atlanta Power filed its Answer on December 15, 2009. In its Answer, Atlanta Power noted that the installation of the tensioner did improve the response time of the governor. Although the new tensioner seemed to stabilize the Company's voltage changes, Mr. Ray stated that the Company needs more time to fine-tune the governor.

Given Atlanta Power's small system, large electric motors may cause a significant fluctuation in the load. Mr. Ray related that during a recent 15-minute period, he watched the ampere gauge fluctuate from 29 amps to more than 39 amps. He calculated that this increase represents a 25% load change within 15 minutes. *Id.* The Company committed to continue to work on the problem. On December 28, 2009, Mr. Lake responded to Atlanta Power's Answer saying that the frequency problem still existed.

STAFF COMMENTS

Staff filed comments on February 17, 2010. Staff noted that Mr. Ray said that he plans to continue to work on the problem. One of the things that he may do next is to heat the chain drive system previously discussed. The chain drive is exposed to outside air temperatures. It seems that after the tensioner was installed and before the weather turned cold, there were fewer dishwasher problems. Possibly the lubricants thickened on the chain drive in colder weather and offset the gains in response time the new tensioner provided.

1. Individual Solution. The Staff also identified two other solutions and discussed them with Mr. Lake and Mr. Ray. First, a double conversion uninterruptible power supply (UPS) could be purchased and installed on the dishwasher circuit in Mr. Lake's home. A double conversion UPS would convert Atlanta Power's AC electricity to DC, store it in batteries, then convert it back to perfect wave form 60 cps AC power using an inverter. The UPS system costs approximately \$2,000. This solution would solve power quality concerns on one circuit for one customer. Although Mr. Lake is the only complainant in this case, Staff believes all Atlanta Power customers may be experiencing the same fluctuations even though their electrical equipment continues to function. The Staff is aware of one other customer who has experienced problems similar to Mr. Lake.

Staff stated that it does not believe Atlanta Power should invest in a double conversion UPS for Mr. Lake's dishwasher circuit. Such an investment would establish a precedent that may require Atlanta Power to make other such purchases to meet the needs of

other customers who may be experiencing power quality problems. It would not take very many \$2,000 investments before the Company's total investment would equal or exceed the cost of solving the power quality concern for all customers.

2. System Solution. The other solution – replacing the turbine/generator control system – would be more expensive but would improve power quality for all customers on the entire system. As previously discussed, the current control system does not begin to respond until a high or low frequency set point is exceeded. A more accurate control system would detect when the frequency was beginning to change and adjust the wicket gates more quickly and in smaller increments instead of waiting to respond until the system is substantially above or below 60 cps. The Staff's rough estimate of the cost of replacing the control system is \$15,000 to \$25,000.

The second solution is costly. Atlanta Power's electric rates are very high relative to other electric rates in Idaho. Atlanta Power customers currently pay an average of 44.3¢/kWh. Other Idaho customers pay less than 10¢/kWh. The Commission established the rates in Order No. 30704 (Case No. ATL-E-08-02) to provide the Company with the revenue necessary to operate the system. Some customers have disconnected from the system as a direct result of the last rate increase, including Atlanta Power's single largest customer. The Staff is very concerned that further increases in Atlanta Power's electric rates could result in other customers leaving the system. Staff's hope throughout this investigation has been that a no-cost or very low-cost solution could be found. In Staff's view the cost of replacing the turbine/generator controls does not qualify as low cost.

The Staff acknowledged that the power quality problem that Mr. Lake is experiencing is real. The Staff further understands that all other Atlanta Power customers are being exposed to the same fluctuating power quality and that some electrical appliances may experience shortened lives as a result. It is likely that this has been the situation on Atlanta Power's system since its inception in the early 1980s. While this is not a desirable situation, an investment requiring a rate increase is less desirable. In Staff's opinion, the loss of more customers, which may occur with even a small rate increase, could jeopardize the financial viability of the Company and potentially end central system power service in Atlanta.

3. Staff Recommendations. For the reasons stated above, the Staff proposed the following approach to resolve the power quality problem in Atlanta. First, the Commission

should take Mr. Ray up on his expressed willingness to continue to pursue very low-cost solutions to system and customer specific power quality concerns. Second, in November of 2011 the Company is scheduled to extinguish a loan that is costing the Company approximately \$1,460 per month. If there have been no significant changes in the Company's financial position as of November 2011, \$1,460 per month could be available to address any remaining power quality issues on the system without increasing rates. Staff proposed that when the next maturing loan is paid off, the financial position of Atlanta Power be evaluated. Following such an evaluation, the Staff recommended the Commission implement a plan to resolve any remaining system power quality concerns without increasing rates above present levels, if possible.

MR. LAKE'S REPLY

On February 23, 2010, Mr. Lake replied to Staff's comments. While he appreciated the efforts of Staff and the "financial challenges" of finding a solution, he believes Atlanta Power has an obligation to provide good service. He "can support" the Staff's recommendation if the Commission maintains oversight of the utility when the loan is paid off in late 2011. If service has not improved by then, he expects "the PUC to once again become involved to enforce the recommended updates to the [utility] equipment in question."

DISCUSSION AND FINDINGS

Having reviewed the comments of the parties, we find there is sufficient evidence in the record for the Commission to decide this complaint. The Commission has jurisdiction to hear and decide this dispute pursuant to *Idaho Code* §§61-503, 61-507, and 61-612.

Atlanta Power's delivery of services and its rates present a regulatory challenge. Requiring the Company to implement costly measures to address the frequency problems in this complaint would increase the Company's expenses. This, in turn, would put upward pressure on rates and might cause customers to leave the system. Order No. 30704 at 27. As we indicated in the Company's last rate case, "As rates increase to recover . . . costs, more customers may drop off the system and the viability of the utility is compromised." *Id.*

While not completely satisfied with the interim corrections that the Company has made to date, Mr. Lake indicated that he "can support" Staff's recommendation. Consequently, we find it reasonable to adopt Staff's two recommendations. First, the Company shall continue to monitor and evaluate the power quality problem and implement low-cost solutions where

appropriate. Second, when the Company extinguishes its loan in November 2011 and if the power quality problem persists, then the Company and Staff will evaluate whether the “system” solution should be implemented and advise the Commission accordingly. The Commission also directs the Staff to periodically contact Mr. Lake and the Company to monitor the power quality. Given the agreement among the parties, we find it reasonable to adopt Staff’s recommendation and to dismiss this complaint at this time without prejudice.

ORDER

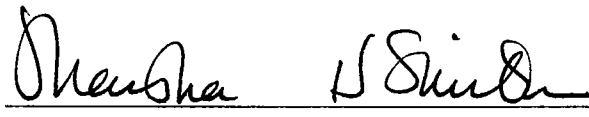
IT IS HEREBY ORDERED that this complaint against Atlanta Power Company be dismissed without prejudice.

IT IS FURTHER ORDERED that Atlanta Power and Commission Staff continue to monitor the power quality concerns. If the power quality issues are not satisfactorily mitigated by November 1, 2011, then Staff and the Company will advise the Commission on an appropriate course of action.

THIS IS A FINAL ORDER. Any person interested in this Order (or in issues finally decided by this Order) or in interlocutory Orders previously issued in this case may petition for reconsideration within twenty-one (21) days of the service date of this Order with regard to any matter decided in this Order or in interlocutory Orders previously issued in this case. Within seven (7) days after any person has petitioned for reconsideration, any other person may cross-petition for reconsideration. See *Idaho Code* § 61-626.

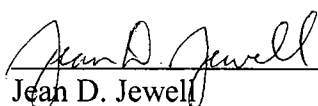
DONE by Order of the Idaho Public Utilities Commission at Boise, Idaho this 13th
day of May 2010 .


JIM D. KEMPTON, PRESIDENT


MARSHA H. SMITH, COMMISSIONER


MACK A. REDFORD, COMMISSIONER

ATTEST:


Jean D. Jewell
Commission Secretary

bls/O:ATL-E-09-01_dh