- BEFORE THE PUBLIC SERVICE COMMISSION OF UTAH -

In the Matter of the Formal Complaint of Tim Vetere against Rocky Mountain Power	)	DOCKET NO. 06-035-148
	)	REPORT AND ORDER

ISSUED: October 20, 2008

SYNOPSIS

The Commission determines Complainant failed to demonstrate a violation by Rocky Mountain Power ("RMP") of any statute, Commission rule, or tariff provision relating to the quality of power supplied by RMP to Complainant. RMP's determination of and offer of available additional capacity to Complainant resolved his complaint for additional power. However, the Commission concludes RMP's refusal to provide additional power to Complainant while approving, or acquiescing to, the addition of load by similarly situated customers requires an informational report from RMP explaining how it plans for and prepares to provide adequate service.

By The Commission:

PROCEDURAL HISTORY

On November 21, 2006, Complainant Tim Vetere filed a formal complaint against Respondent Rocky Mountain Power ("RMP" or "Company") claiming RMP wrongly permitted other customers on the electric service line serving the Complainant's agricultural operation to take additional power from RMP while telling Complainant that no additional power was available for his use. Complainant also alleged that during the summer of 2006 RMP failed to provide adequate voltage on this line, causing damage to his irrigation pumping

equipment. Complainant sought reimbursement for his damaged equipment and asked that RMP be required to provide adequate voltage to operate his irrigation equipment.

On December 21, 2006, the Division of Public Utilities ("Division") filed a memorandum recommending the Commission convene a technical conference to discuss the subject complaint. Also on December 21, 2006, RMP filed its response to the complaint, stating it had not violated any provision of law, Commission order or rule, or Company tariff, and requesting dismissal of the complaint.

Following a duly-noticed technical conference held on February 22, 2007, the Company, on March 12, 2007, filed a memorandum detailing its plan to install a three-phase, 200 ampere voltage regulator bank on the feeder line serving Complainant in an attempt to improve voltage levels experienced by the Complainant. The Company also stated it would be monitoring voltage on its line upstream of Complainant's equipment.

On April 25, 2007, Complainant filed a list of several questions to be answered by RMP regarding his complaint. On May 8, 2007, RMP filed its response to said questions.

On May 11, 2007, a technical conference convened in Green River, Utah, to discuss the status of the complaint and RMP's ongoing efforts to investigate and respond, as well as to tour Complainant's irrigation operation and observe the pumping equipment that is the subject of the complaint.

On May 30, 2007, the Company filed a memorandum informing the Commission and parties that RMP and Complainant had agreed to engage, at RMP's expense, the services of

independent engineering firm Hansen, Allen & Luce Engineering ("HAL Engineering") to review the design and operation of the Complainant's operations.

Throughout the summer of 2007, Complainant informed the Commission of various times when his pumps shut down due to, according to Complainant, low voltage. In addition, the Company filed results of its voltage monitoring efforts which showed no evidence of sustained low voltage in violation of applicable standards. Finally, on July 27, 2007, the Company filed HAL Engineering's preliminary report of investigation detailing its investigative efforts as well as its conclusion that Complainant's booster pump was operating below its rated efficiency, calling into question the physical condition of the pump's components.

On August 21, 2007, another technical conference convened in Green River, Utah, to discuss the results of HAL Engineering's investigation, to receive an update from RMP concerning its ongoing power quality monitoring efforts, and to provide a forum for additional discussion among the parties regarding the complaint.

On September 20, 2007, RMP filed a memorandum detailing additional investigative steps taken by the Company and HAL Engineering and renewing its request that the subject complaint be dismissed for lack of evidence showing any violation by RMP of applicable standards.

On October 31, 2007, RMP filed the final report of HAL Engineering stating further testing of Complainant's pump in mid-September 2007 indicated higher efficiency operation than had previously been measured, though still well below the pump's rated efficiency.

In April 2008, Complainant telephoned and sent an email to the Division again complaining about RMP providing additional power to other customers on his line while telling him no additional power is available for his use. On April 25, 2008, the Commission requested the Division conduct additional inquiry regarding these claims. On June 3, 2008, the Division filed a memorandum detailing its inquiry and recommending the Commission schedule a hearing in this matter.

On July 8, 2008, a duly-noticed hearing convened before the Administrative Law Judge ("ALJ"). Complainant appeared and testified on his own behalf. Ted Smith of Stoel Rives appeared for Rocky Mountain Power. Dennis Hansen, RMP power quality engineer; Greg Bean, RMP field engineer; and Jesse Barker, RMP Operations Manager for the Green River area, testified on behalf of Rocky Mountain Power.

BACKGROUND

Complainant's agricultural operation is located in the vicinity of Green River, Utah, and employs a system of pipes and pumps to irrigate crops. Complainant takes water from a canal via a "lower pump" with a 200 horsepower ("HP") motor which, among other things, pumps water a distance of approximately 2,359 feet with a vertical rise of approximately 148 feet to a 50 HP booster pump feeding an additional diesel pump and a total of four center irrigation pivots. This system is located approximately seven miles from RMP's existing substation on RMP's Green River #12 Circuit.

In March 1999, Complainant contracted with RMP to upgrade the single phase line serving the 200 HP pump and to extend the line up the hill to operate the booster pump.

This line extension involved changing several spans of single-phase line to three-phase primary line and adding several new spans of three-phase line, as well as three 75 kilovolt-ampere ("kVA") transformers near the booster pump. Rocky Mountain Power paid the $50,000 cost of this line extension; Complainant paid none of the cost since his line extension allowance exceeded this cost.

Complainant alleges that his irrigation system thereafter existed in its current configuration for several years with no operating problems but that, after RMP permitted approximately 490 HP of additional load to connect "upstream" of Complainant's equipment during 2005 and 2006, Complainant's pump motors began to shut down, and in some cases were damaged. While the lower pump has experienced only minor disruptions, the 50 HP booster pump, which is intended to run continuously during the growing season, regularly shuts down in the late morning and early evening during the hottest days of the summer. Complainant attributes this to other customers on his line returning home for lunch or at the end of the day and switching on appliances which add too much load to his feeder line.

In August 2006, Complainant contacted RMP to complain about low voltage levels which he believed caused his 50 HP motor to "burn up" twice in July 2006. As a result of this motor damage, Complainant incurred thousands of dollars in motor repair costs and lost crops since the motor was not available to operate his irrigation system. In response to his concerns, RMP installed a recording volt meter, which compiles data at thirty-second intervals, at Complainant's 50 HP pump. According to RMP, the data obtained from this volt meter disclosed no voltage problem on Complainant's line. However, in August 2006, due to

Complainant's concerns, RMP increased the voltage at the Green River #12 circuit regulator feeding Complainant's equipment from 121 volts to 123 volts. In response to the Division's first set of data requests, dated January 29. 2007, the Company stated that although Circuit 12 does not operate close to its thermal capacity, it does operate close to its voltage limited capactiy during peak load times in the summer. On September 20, 2007, the Company filed data plots of its monitoring of the voltage at Complainant's 50 HP pump during the summer of 2007. The Company indicates that for all times for which there is a recording, the root mean square voltage is within ANSI C84.1 Range A with the exception of a few times when the voltage exceeds the range very slightly. The Company further indicates that Company equipment was set to allow the slight occasional overvoltage in order to safely accommodate Mr. Vetere's request for higher voltage. At hearing the Company testified in had not reconductored any part of the line in question.

In May 2007, following the filing of the subject complaint, and subsequent to technical conference discussions, Rocky Mountain Power also installed a three-phase 200 ampere voltage regulator bank on the feeder line serving Complainant in order to help stabilize Complainant's observed voltage. Rocky Mountain Power also began a voltage monitoring program, much as it had done in 2006, whereby it installed a SLM-8 recording voltmeter at the 50 HP motor and, throughout the summer of 2007, recorded the voltage levels provided to the 50 HP motor. In addition, per agreement with Complainant, RMP contracted with HAL Engineering of Midvale, Utah, to provide an independent assessment of the design and operation of Complainant's pumping facilities. Having undertaken site visits, pump efficiency testing,

discussions with the pump manufacturer and the designer of Complainant's irrigation system, HAL Engineering concluded Complainant's booster pump was generally operating below its rated efficiency which appeared to cause the 50 HP motor to work harder than it should.

With respect to his requests for additional service, Complainant testified he and his wife repeatedly telephoned RMP in 2005 and 2006 to attempt to find out how much power remained available to them on their feeder line and to request at least 50 HP of said power. However, according to Complainant, these attempts were rebuffed by RMP which told Complainant no additional power remained available on the line and eventually told Complainant not to contact RMP again to request additional power. RMP provided no evidence or testimony to refute Complainant's testimony on this point, except that the RMP field engineer responsible for determining the amount of available voltage remaining on the line testified that, to the best of his knowledge, RMP never denied Complainant's request for a specific amount of power but then provided a similar amount of power to another customer on Complainant's line. Furthermore, the RMP field engineer was not aware of any instance where RMP told Complainant no power was available, only that the amount of power being requested was not available. Rocky Mountain Power testified its normal practice when a specific load addition is requested is to inform the customer whether, and under what circumstances, RMP can provide the requested power. If the requested amount of power is not available, RMP informs the customer accordingly but does not routinely tell the customer how much power is available.

DISCUSSION, FINDINGS, AND CONCLUSIONS

Commission Rule 746-310-4B(1) states

> Unless otherwise directed by the Commission, the requirements contained in the 1995 edition of the American National Standard for Electrical Power Systems and Equipment–Voltage Ratings (60 Hz), ANSI C84.1-1995 (R2001), incorporated by this reference, shall be the minimum requirements relative to utility voltages.

ANSI C84.1-1995 (the "Standard") requires most service voltages supplied at the service meter to fall within a range ("Range A") of plus or minus five percent. The "occurrence of service voltages outside of these limits should be infrequent." ANSI C84.1-1995, section. 2.4.1. The Standard also recognizes a wider permissible voltage range ("Range B") of plus six to minus eight percent which results from practical design and operating conditions on supply systems. According to the Standard, voltage excursions into Range B are to be limited in extent, frequency, and duration, and corrective measures are to be undertaken when such excursions occur. Beyond the voltages permitted by these ranges, section 2.4.3 of the Standard states

> It should be recognized that because of conditions beyond the control of the supplier or user, or both, there will be infrequent and limited periods when sustained voltages outside Range B limits will occur. Utilization equipment may not operate satisfactorily under these conditions, and protective devices may operate to protect the equipment
>
> When voltages occur outside the limits of Range B, prompt, corrective action shall be taken.

The Standard also provides that the limits contained in Ranges A and B "shall apply to sustained voltage levels and not to momentary voltage excursions that may remit from such causes as

switching operations, motor starting currents, and the like." Finally, Annex D to the Standard states electric supply systems "should be designed and operated to limit the maximum voltage unbalance to 3 percent when measured" at the service meter under no-load conditions.

Regarding customer equipment protection, Commission Rule 746-310-2(C) states:

> Utility's Responsibility–Nothing in these rules shall be construed as placing upon the utility a responsibility for the condition or maintenance of the customer's wiring, appliances, current consuming devices or other equipment, and the utility shall not be held liable for loss or damage resulting from defects in the customer's installation and shall not be held liable for damage to persons or property arising from the use of the service on the premises of the customer.

Utah Power's Electric Service Regulation No. 5, paragraph 5.2(a) likewise provides:

> The Customer shall furnish, install, inspect and keep in good and safe condition all electrical wires and lines on the Customer's side of the point of delivery. The Customer shall provide devices to protect his/her equipment from high and low voltage, overload, single phasing, phase reversal or other abnormal conditions.

With respect to Complainant's claim that RMP has refused to provide additional power to him while continuing to provide additional power to other customers on his line, *Utah Code Annotated* §54-3-1, provides, in relevant part,

> Every public utility shall furnish, provide and maintain such service, instrumentalities, equipment and facilities as will promote the safety, health, comfort and convenience of its patrons, employees and the public, and as will be in all respects adequate, efficient, just and reasonable.

Further, *Utah Code Annotated* §54-4-8 provides, in relevant part,

> Whenever the commission shall find that additional, extensions, repairs, or improvements to or changes in the existing plant, equipment, apparatus, facilities, or other physical property of any public utility or of any two or more public utilities ought reasonably to be made, or that a new structure or structures ought to be erected to promote the security or convenience of its employees or the public or in any way to secure adequate service or facilities, the commission shall make and serve an order directing that such additions, extensions, repairs, improvements, or changes be made or such structure or structures be erected in the manner and withing the time specified in the order.

For Complainant's three-phase, 480Y/277 volt service, the ANSI-specified utilization voltage Range A at normal loading for phase to neutral voltage is 254 to 291 volts. Range B at the service meter extends from 245 to 293 volts. For unloaded phase to phase voltage, Range A is 440 to 504 volts while Range B extends from 424 to 508 volts. These voltage ranges, along with the Standard's three percent phase imbalance requirement, constitute the standard by which the Company's delivered voltage quality is judged in this docket.

As complainant in this matter, Mr. Vetere bears the burden of proving Utah Power has acted in violation of statute, rule, or tariff. To satisfy this burden, Mr. Vetere notes that his pump "burned up" twice in July 2006 and that no other cause, other than suspected inadequate voltage, has been found for this motor damage. He disputes the findings of HAL Engineering and notes that since installation of the additional voltage regulator bank he has not burned up a motor and the frequency of his motor shut downs has decreased.

Rocky Mountain Power, on the other hand, points out that its extensive voltage monitoring disclosed limited instances of voltage supplied outside of the applicable limits, attributes most of these to disturbances which are outside of the purview of ANSI C84.1 and the independent engineer's assessment concluded design or operational problems with Complainant's irrigation system may have caused the motor failures.

Boiling nearly two years of investigation, allegation, technical discussion, and hearings down to a few lines, the facts that confront this Commission are as follows:

Complainant's 50 HP motor failed twice in July 2006. Throughout the summer of 2006, 2007, and, to a lesser extent, 2008, Complainant's 50 HP motor has repeatedly shut down. Complainant has observed these motor shut downs tend to occur at times of day when other customers on his electrical circuit are returning home and adding load to the circuit, and when other farmers on the line switch on their own irrigation equipment. Complainant has repeatedly measured voltage levels at his 50 HP pump and has observed levels approaching 470 volts when his pump was operating but closer to 460 volts or below when his equipment shut down.

At various times from September 2006 through September 2007, RMP monitored and recorded the voltage levels at Complainant's 50 HP motor and found no steady-state voltage supplied outside of applicable limits. In addition, the independent engineer hired to evaluate Complainant's irrigation system concluded Complainant's 50 HP pump is operating below its rated efficiency which may cause the motor to work harder than it should and thus heat up and shut down. Finally, accounting for all of the load currently on Complainant's line, said line appears to be near but has not exceeded its voltage carrying capacity.

Regarding Complainant's claim of unfair treatment, since at least 2005, Complainant has repeatedly requested more power from RMP in order to add more pumps to his irrigation system but has either been told no additional power was available or the amount of power he was requesting was not available. In 2005 and 2006, Complainant repeatedly telephoned RMP to request 50 HP of additional electric service and was told no additional power was available on his line. Throughout this period, Complainant observed neighbors "upstream" of his equipment adding new load to the power line. The record does not establish whether RMP was aware of, or approved, the addition of these new loads. Since filing of this complaint, RMP has discussed the availability of power with Complainant and has informed him that certain amounts of power are available to him should he request it. At present, Complainant is working with RMP to obtain said power.

In applying these facts to the Commission's power quality standards outlined above, the ALJ notes the allowable voltage ranges of ANSI 84.1-1995 apply only to steady-state voltage, not to the transient voltage events that are a routine component of the electrical supply system. The Standard itself recognizes that, because of conditions beyond RMP's control, limited and infrequent voltage excursions outside of Range B will occur. Therefore, in order to prevail in his complaint of sub-standard power quality, Complainant must provide evidence leading to the reasonable conclusion that RMP has supplied steady-state voltage in violation of the Standard. Complainant in this matter has failed to do so and, absent such evidence, the ALJ cannot conclude that RMP has supplied voltage to Complainant in violation of Commission standards. While the ALJ does not doubt that Complainant's 50 HP has experienced repeated

shut down and damage since 2006, there is insufficient evidence to conclude a steady-state voltage supplied by RMP is the cause of these motor problems. Furthermore, even if RMP were found to have provided improper power, the complaint seeks relief, in the form of monetary damages for equipment and crop loss, that the Commission has no authority to grant. The Commission, however, seeks additional information on whether there are other power quality standards, such as voltage fluctuation and voltage disturbance standards, which the Company applies to its operation and which could be adopted by the Commission. The Commission also seeks information on how the Company obtains measurements and conducts billing for power factors as contained in commercial, industrial and irrigation schedules. These issues will be addressed through a Commission technical conference.

With respect to Complainant's claim of unfair treatment, Complainant's testimony indicates RMP failed to provide Complainant with additional power when requested in 2005 and 2006. While no records were offered concerning the substance of Complainant's conversations with RMP or how much power Complainant requested, the ALJ concludes that Complainant made said requests and that RMP failed, for whatever reason, to act upon them. Meanwhile, other customers on the line serving Complainant were adding load. Whether these customers requested, as required by RMP's tariff, and received additional power from RMP or were adding load without informing RMP is unclear. However, what is clear is that RMP repeatedly told Complainant it could not provide him an additional 50 HP of power while other customers were adding significantly more load than that to the same line. Furthermore, it is clear that the requested 50 HP was available on Complainant's line since, despite the addition of

as much as 490 HP of load on said line by other customers since 2005, in August 2007 RMP informed Complainant, and reaffirmed at hearing, that 250 HP of additional capacity remains available on the line should Complainant request it. This raises substantial concerns of RMP's conduct relative to the responsibilities found in *Utah Code Annotated* §54-3-1. Complainant's repeated requests clearly evidenced customer demand for service which RMP repeatedly rebuffed, erroneously, as not being available. It also raises concerns about RMP's processes to have adequate facilities for present and future customer service.

While the ALJ recognizes that, apparently as a result of this complaint proceeding, RMP is now properly responding to Complainant's requests for additional power, the Company's conduct leads the Commission to seek further information. In other proceedings and presentations, RMP represents that it is spending significant sums for new and upgraded distribution plant to meet customer service demands. Yet in this case, years passed before recognition of or response to an actual customer request and need for service and, seemingly, mainly in response to a customer complaint lodged with the Commission. The Commission directs the Company to provide a report on quality assurance efforts undertaken by the Company to determine whether its facility records are correct, how it assesses the need for new or upgraded plant, how that information is used to plan for plant construction, how plans are transformed into actual construction, how the Company assures itself that existing plant is adequate for service loads present and future (those of which it is informed and those for which no notice is given), and how the Company communicates with customers and prospective customers concerning the Company's facilities, service capabilities and changes thereto.

Complainant's case provides an appropriate case study and factual basis upon which the report is to be based. Further, the Commission seeks a detailed report using the most updated information on Green River Circuit 12 indicating the amount of remaining capacity on the circuit at Mr. Vetere's meter location.

Wherefore, based upon the foregoing information, and for good cause appearing, the Administrative Law Judge enters the following proposed

ORDER

NOW, THEREFORE, IT IS HEREBY ORDERED, that:

1. Rocky Mountain Power will provide a status report, in this docket, on a bi-monthly basis, reporting its dealings with Mr. Vetere to provide the additional service offered to him.

2. Rocky Mountain Power will provide the informational reports described in our discussion above. The reports may be filed in this docket and are to be filed on or before January 19, 2009.

Pursuant to *Utah Code Annotated* §§ 63-46b-12 and 54-7-15, agency review or rehearing of this order may be obtained by filing a request for review or rehearing with the Commission within 30 days after the issuance of the order. Responses to a request for agency review or rehearing must be filed within 15 days of the filing of the request for review or rehearing. If the Commission fails to grant a request for review or rehearing within 20 days after the filing of a request for review or rehearing, it is deemed denied. Judicial review of the Commission's final agency action may be obtained by filing a Petition for Review with the Utah

Supreme Court within 30 days after final agency action. Any Petition for Review must comply with the requirements of *Utah Code Annotated* §§ 63-46b-14, 63-46b-16 and the Utah Rules of Appellate Procedure.

DATED at Salt Lake City, Utah, this 20th day of October, 2008.

/s/ Sander J. Mooy
Administrative Law Judge

Approved and Confirmed this 20th day of October, 2008, as the Report and Order of the Public Service Commission of Utah.

/s/ Ted Boyer, Chairman

/s/ Ric Campbell, Commissioner

/s/ Ron Allen, Commissioner

Attest:

/s/ Julie Orchard
Commission Secretary
G#59545