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Decision 91-11-041 November 20, 1991 NOV 2 0 1991

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Mountain Gate Quarry, Inc., Complainant, vs. Pacific Gas and Electric Company, Defendant.	Case 90-11-040 (Filed November 26, 1990)

ORIGINAL

O P I N I O N

Summary

This decision finds that Pacific Gas and Electric Company (PG&E) has properly applied its tariffs for new electric service to Mountain Gate Quarry, Inc. (MGQ) in Redding. The large load from MGQ's rock crushing operation will likely create flicker problems on the distribution circuit serving MGQ and affect other customers. Since the improvements to the circuit to alleviate the flicker problem are not otherwise needed, MGQ should be required to pay for them.

Background

MGQ contends that PG&E is unreasonable and is not in compliance with its tariffs because it requires MGQ to upgrade a portion of PG&E's distribution system in order to obtain service to its rock quarry operation. MGQ maintains that since the upgrade will improve the service to other customers and allow additional load to be added, and since it has not requested the improvements, it should not be required to pay for them. MGQ is willing to install starting equipment to reduce the starting flicker problem caused by the heavy starting loads of its motors, which it believes will alleviate the problem. The motors are rated at a total of 600 horsepower (hp).

PG&E analyzed the impact of MGQ's motors on the system and found two problems related to flicker. First is starting of the motors which can be alleviated by starter controls which reduce the starting load. The second problem is caused by the running conditions of the motors, because they operate under varying load. This flicker condition can be alleviated by reconductoring a portion of PG&E's existing distribution lines in the area. The reconductoring is not needed to serve increased load or to correct voltage drop problems; it is needed only to correct the flicker problem.

PG&E maintains that the reconductoring is not a system upgrade, that it will not improve service to other customers, and that it is not needed for future growth; rather, it is needed solely to maintain current acceptable service when MGQ's load is connected. Because other customers receive no benefits, PG&E asserts that they should not be required to pay for the reconductoring. PG&E believes it is in full compliance with its tariffs for service.

At the hearing on May 30, 1991, MGQ presented the testimony of consultant Larry F. Lourenco and Marshall Worley, an owner of MGQ. PG&E presented three witnesses: Ronald L. Welch, Kerry E. Hartung, and Marshall C. Brown.

Lourenco's testimony may be summarized as follows:

1. Industry practice for electric utility 15 thousand-volt (kV) overhead distribution lines is to increase conductor size from 397 thousand circular mils (mcm) to 795 mcm for the first mile from a substation, according to a survey reported in a trade magazine, the January 1991 issue of "Transmission & Distribution." On the other hand, the circuit that would serve MGQ has 830 feet of 397 mcm which is rated at 550 amperes (amps) and 3,895 feet of number 2 wire with a rating of 100 amps. While both sizes are substandard, the small number 2 wire causes an especially large voltage drop.

2. The reconductoring PG&E requires is a system upgrade, and should not be the responsibility of MGQ; future load such as an asphalt batch plant expected soon will require these upgrades.

3. PG&E will quickly recapture the cost of upgrades based on an annual revenue from MGQ of about $105,000.

4. The nature of the area served is more rural than residential; PG&E should apply the less stringent flicker standards it uses for industrial areas, rather than the residential flicker standards.

5. PG&E's actions in this case adversely affect the local economy and development.

6. PG&E would likely serve the same load from a large residential subdivision without requiring the developer to pay for system improvements.

7. If MGQ is required to finance any improvements, they should be put out to competitive bid to minimize costs.

Worley explained the nature of the rock quarry operation.

Welch, who handles large industrial accounts for PG&E, testified as follows:

1. It would cost about $91,000 to reduce the flicker problem to acceptable levels. Because of the large nonindustrial (residential and commercial) load served, PG&E would likely receive complaints about flicker due to MGQ's load, and would need to alleviate the problem.

2. PG&E could probably serve the same load from a subdivision without the special equipment needed for the MGQ flicker problem. Subdivisions would not normally cause flicker problems.

Distribution Engineer Hartung testified as follows:

1. PG&E would install, at no charge to MGQ, compensation equipment necessary to

maintain steady state voltage across the circuit, consisting of a capacitor and a voltage regulator.

2. In order to compensate for flicker, PG&E would have to reconductor approximately 9,141 feet of the circuit.

3. The flicker problem is not a voltage drop problem, which could be alleviated by compensation equipment. Flicker results due to nearly instantaneous changes in voltage from load variation, which cannot be handled by compensation equipment.

4. The existing circuit has adequate capacity to serve an additional 1,683 kilowatts (kW) of load without reconductoring.

5. Since the circuit in question currently serves 853 residential and 88 commercial customers, it is properly considered a residential circuit.

6. Residential circuits have stricter requirements relative to voltage drop and flicker than do rural or industrial circuits. These stricter requirements reflect PG&E's experience in receiving customer complaints.

Brown, a Special Project Manager for PG&E, testified as follows:

1. PG&E's criteria for flicker do not guarantee that no complaints will be made, but the criteria usually keep complaints to a manageable level.

2. PG&E allows a customer to install new equipment required by PG&E or to have the equipment installed by someone other than PG&E's employees. However, no outside party is allowed to work on existing or energized circuits.

3. If MGQ increased its load or if new customers came on line to the extent that the added capacity of the reconductoring were needed, adjustments to the customer

charges would be made in accordance with the contract.

4. MGQ does not have to select reconductoring as a solution to the flicker problem; a 60 kV substation is another solution. However, the reconductoring solution would probably be less expensive.

5. The $91,000 figure is only an estimate, subject to change.

6. The annual base revenue from MGQ would be about $28,450, based on MGQ's estimate of operating hours.

Discussion

At issue is whether MGQ would cause a flicker problem and if so, who should be responsible for alleviating the problem.

Lourenco questions whether a problem exists, arguing that PG&E did not use accurate data in its analyses. PG&E explains that its earlier analyses were based on data furnished by MGQ, and that MGQ refused to provide an advance payment requested by PG&E to pay for a more detailed engineering study. It is normal practice to charge for the study and credit the charge against the service cost to the customer. PG&E nevertheless did measure load at MGQ prior to the hearing and furnished the updated information at the hearing.

We address MGQ's other contentions in the order listed above.

First, Lourenco argues that based on the trade magazine survey referenced above, a portion of the circuit in question is undersized. Hartung responds that the circuit has the capability to serve an additional 1,683 kW of load without reconductoring. The circuit is presently operating at 61% of capacity, and addition of MGQ's load would use only a portion of the unused capacity. Therefore the reconductoring would not be considered a system improvement by PG&E. As Hartung points out, and Lourenco concedes,

the magazine survey does not recommend design standards or practices; rather it has compiled data furnished by electric utilities. We note that the purpose of the article was apparently to determine the preferred voltage for distribution, rather than the appropriate size of conductor. The title of the article is "15 kV is Still the Preferred Distribution Voltage for Larger Utilities." We believe that the article is not persuasive evidence of design inadequacy of PG&E's circuit. With regard to the demands of the MGQ operation, it may be difficult or impractical to design a circuit to adequately anticipate all possible types of future load. If it were so designed without a firm commitment from customers that such loads will materialize, the design could be uneconomical for other ratepayers.

We conclude that PG&E has fairly assessed the impact of the MGQ load on the circuit. MGQ has not proven that the circuit is inadequately designed for normal loads. We note that PG&E presented the testimony of Hartung, a distribution engineer who is a registered electrical engineer in California. Lourenco challenges PG&E's design, yet he is not similarly qualified. Although he has had utility experience, he is neither a registered electrical engineer nor an engineer of any discipline. Lourenco has not provided convincing evidence that PG&E has used improper or inadequate design on this circuit or on its system in general. We conclude that the circuit is not deficient for normal service.

Next we consider the question of whether the reconductoring would be a system upgrade. Certainly the reconductoring would increase the circuit capacity, yet substantial unused capacity currently exists. MGQ argues that large additional loads are imminent in the area, especially from an asphalt batch plant. However, no detailed information, estimated schedules, or testimony by anyone associated with this potential operation was offered. MGQ also argues that it may expand its operation substantially. Here too, no details are offered, only speculation.

We conclude that it is not in other ratepayers' interests for us to order PG&E to invest in improvements based on speculative new loads. We will not do so.

MGQ's third argument is that PG&E will quickly recover the costs of improvements in revenues from MGQ. However, MGQ apparently bases this conclusion on the assumption that PG&E earns a return on all rates; in fact, the Commission allows a return only on base rates. All other rate components include no return; they merely allow PG&E dollar-for-dollar recovery of expenses, such as fuel cost. PG&E calculates annual base revenues from MGQ at $28,450, from a total revenue estimate of nearly $100,000. When the installation cost exceeds the annual base revenue, under PG&E's tariffs the customer must agree to either pay the difference or pay a monthly facility charge to PG&E, in addition to the normal rates. The annual base revenues are substantially less than the $91,000 estimated cost of reconductoring. We conclude that it is appropriate to impose these charges on MGQ; not to do so would place the burden on other ratepayers who would receive no benefit.

Next MGQ argues that the area served is really not a typical residential area owing to the large lot or rancho sizes, and low density of housing. Therefore, it believes that the less stringent flicker standards applied to industrial areas are appropriate in this case. PG&E responds that the area must be considered residential due to the 853 homes served. PG&E explains that the reason for the more stringent standards for residential areas is the increased likelihood of customer complaints due to flicker and the potential for damage to computers and similar equipment. The stricter standards merely give reasonable assurance that there will not be an inordinate number of complaints, and that major system upgrades will not be needed to alleviate the flicker problem. We conclude that PG&E is correct in applying residential flicker standards in this case.

MGQ further argues that the local economy and development would benefit from the installation. Even if this argument had been shown to be true, it would not justify burdening other ratepayers with the costs.

MGQ also argues that PG&E would serve a large residential subdivision that imposes the same load on PG&E without cost to the developer. PG&E agrees, and explains that the problem is the load's characteristics, not the size of MGQ's load. Serving the 600 hp motors would not likely be a problem if the load were in a relatively steady state. In that case PG&E could provide adequate compensation for the load characteristics. However, the nature of MGQ's load is such that the motor will fluctuate between nearly no load and full load, as rocks are introduced and crushed. The fluctuations in demand on the circuit occur so rapidly that the compensation equipment cannot alleviate the voltage fluctuations and the resulting flicker problem. We conclude that a subdivision would not create the same problems as MGQ and therefore would not require reconductoring. This different requirement for service is due to load characteristics and does not represent discrimination between customers.

Finally, MGQ argues that if it is required to finance any improvements, it should be allowed to obtain competitive bids and use an outside contractor if that is less costly than using PG&E's forces. PG&E states that it does not allow other parties to work on existing lines or on energized circuits. PG&E does allow a customer to use others to install new facilities that are required by PG&E to serve the customer. We will not require PG&E to change this policy for MGQ. Outside contractors, even if experienced with distribution systems, can cause problems, including outages. Allowing outside parties to work on its system could jeopardize PG&E's ability to insure reliable service.

In conclusion, we deny each contention of MGQ. If MGQ desires PG&E service, it must be willing to pay the costs necessary

for reconductoring or otherwise alleviating the flicker problem to reasonably acceptable levels for the circuit's other customers. Such upgrade is necessary solely to maintain acceptable service levels when MGQ's load is connected to the system; therefore PG&E's other customers and future customers receive no benefit from the upgrade and they should not be required to pay for its cost.

The complaint is denied.

Findings of Fact

1. MGQ has requested electric service from PG&E to its rock quarry in Redding.

2. The operation of the motors at MGQ will cause a flicker problem on the circuit.

3. The reconductoring, estimated to cost about $91,000, or other modifications to alleviate the flicker problem on the circuit, are not necessary for, and do not improve service to, other customers.

4. The circuit is currently operating at 61% of capacity. Adding MGQ's load would not use all the unused capacity.

5. The circuit currently serves 853 residential and 88 commercial customers.

6. PG&E has stricter criteria for allowable flicker in residential than in industrial or rural areas.

7. The annual base revenue from MGQ is estimated at about $28,450.

8. Under PG&E's Facilities Charge Agreement, the customer must either pay the difference between the cost of additional facilities required to serve it and the base annual revenue, or pay a monthly facilities charge.

9. A large residential subdivision would not impose the same load-related problems on PG&E as MGQ does by virtue of its unique load characteristics; therefore PG&E's differing treatment of MGQ is not discriminatory.

10. PG&E does not allow outside parties to work on its existing or energized circuits.

Conclusions of Law

1. The flicker problem from MGQ's load should be alleviated.

2. MGQ has not demonstrated that PG&E has been unreasonable or that it has not complied with its tariffs for new electric service.

3. The complaint should be denied.

O R D E R

IT IS ORDERED that the complaint in Case 90-11-040 is denied.

This order becomes effective 30 days from today.

Dated November 20, 1991, at San Francisco, California.

PATRICIA M. ECKERT
President
DANIEL Wm. FESSLER
NORMAN D. SHUMWAY
Commissioners

Commissioner John B. Ohanian, being necessarily absent, did not participate.

I CERTIFY THAT THIS DECISION WAS APPROVED BY THE ABOVE COMMISSIONERS TODAY

NEAL J. SHULMAN, Executive Director