

Decision No. _____

ORIGINAL

BEFORE THE RAILROAD COMMISSION OF THE
STATE OF CALIFORNIA.

Decision No. 5130

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CITY OF CALEXICO,
Complainant,

vs.

HOLTON LIGHT AND POWER
COMPANY and SOUTHERN
SIERRAS POWER COMPANY,

Defendants.

Case No. 1160

CITY OF BRAWLEY,
Complainant,

vs.

HOLTON LIGHT & POWER
COMPANY and SOUTHERN
SIERRAS POWER COMPANY,

Defendants.

Case No. 1163

Wm. P. Butcher, City Attorney for City
of Calexico;

Guy L. Rockwell, City Attorney for City
of Brawley;

I. B. Potter for Southern Sierras Power
Company, Coachella Valley Ice and
Electric Company, and Holton Light
and Power Company.

GORDON, Commissioner.

O P I N I O N

Complainant, City of Calexico, in Case No. 1160, alleges in effect that the City of Calexico and its inhabitants have suffered from frequent and damaging interruptions of electric service, which interruptions have caused considerable inconvenience and loss to consumers of the company; that defendant, Holton Light & Power Company, hereinafter designated as Holton Power Company, does not adequately maintain sufficient auxiliary power plants in Imperial Valley to supply continuous service. Complainant requests that the Commission make the necessary investigation to determine what should be done by defendants to relieve the present situation and order defendants to make such improvements in plant and operation as are necessary to render adequate service.

City of Brawley makes similar allegations to those of City of Calexico regarding the service of Holton Power Company, and requests that defendant, Holton Power Company, be required to install a plant or plants sufficient to insure continuity of service to its consumers in the future.

The Southern Sierras Power Company was made a defendant in both cases as that Company is supplying a large portion of the power distributed by the Holton Power Company.

A hearing in Case No. 1160 was held in Calexico on November 6, 1917, and a hearing in Case No. 1163 in Brawley on November 7, 1917. Defendants, not having time to file their answer to the complaint in Case 1163 before the hearing, stipulated that their answer in Case 1160 should be considered as an answer in Case 1163.

Defendants, in their answer admit that interruptions have occurred to the electric service, but allege that said interruptions were not due to failure or neglect on the part of defendants, but were due to causes which could not, with reasonable diligence, be seen or averted; that it is impossible and impracticable to maintain a continuous supply of electric energy to the City of Calexico and Imperial Valley; that a certain number of interruptions will always result from failure of different parts of the systems supplying power to the Valley.

Defendants stipulated that the service had not been satisfactory and was not what they, defendants, desired it to be. They alleged, however, that they had under way improvements to the transmission line and system which would materially benefit the service.

Mr. I. B. Potter, attorney for defendants, and also attorney for Coachella Valley Ice & Electric Company, requested that the Coachella Valley Ice and Electric Company be made a co-defendant in these matters as the Coachella Valley Ice & Electric Company's electric system is an integral part of the general transmission system supplying the Holton Power Company with energy for distribution in Imperial Valley.

Defendant, Holton Power Company, alleges that it has heretofore installed certain electric plants in Imperial Valley with a total installed capacity of 1,700 kilowatts, but, due to failure of water supply for its hydro-electric plant at Holtville, its available maximum capacity in Imperial Valley is approximately 800 kilowatts, and it further alleges that it has been and is now exercising diligent effort and believes

that the Southern Sierras Power Company and Coachella Valley Ice & Electric Company, who are supplying it with a large portion of the power it sells in Imperial Valley, are also exerting diligent effort to fulfill its duty to the public.

Defendants invite the fullest investigation by the Railroad Commission and pledge their co-operation and best effort to comply with any reasonable order and requirements which the Railroad Commission may see fit to propose.

It was understood that evidence in either of the cases should be considered in the other case in so far as the same is applicable, and it was agreed also that further data should be submitted by the defendants and a further investigation made by the Commission's engineers as to the entire question of service in the Imperial Valley. It was stipulated that any such additional data submitted by the companies, or report made by the Commission's engineers, should be considered in evidence in the matters before the Commission.

The Cities of Calexico and Brawley, which have brought complaints in this matter, as well as the other cities of El Centro, Imperial and Holtville, are served by Holton Power Company, and an interruption in the main source of power to the Holton Power Company will in most cases affect each city equally, the order which the Commission makes in these cases will apply to the general situation. These two cases have, therefore, been combined for decision.

Electric service was first introduced in Imperial Valley in 1905 when the Holton Power Company constructed a hydro-electric plant of 200 kilowatts capacity near Holtville, utilizing the spillway water of the irrigation canal in a drop of 30 feet. Later a steam plant of 300 kilowatts capacity was installed at El Centro and is still in operation although due to it having been burned out its present capacity is only 150 kilowatts. The demand for electric service in the Valley

increased rapidly and the Holton Power Company later installed a 750 kilowatt gas engine electric plant at El Centro which at present is capable of producing approximately 500 kilowatts. Shortly after the first hydro-electric plant was installed the Colorado River broke its embankments, in 1906, and a deeper channel was cut in the Nemo River. Later the company constructed a second hydro-electric plant of 900 kilowatts installed capacity below the first one.

The demand for power, however, soon exceeded the capacity of the existing plants and especially as the hydro-electric plants were not to be depended upon during the summer period due to lack of water, the Holton Power Company negotiated with the Southern Sierras Power Company for a supply of power from that company's system. In 1914 there was constructed by Coachella Valley Ice and Electric Company, a company closely allied with the Southern Sierras Power Company, a transmission line 166 miles in length extending from Banning to El Centro, operating at a voltage of 55,000 volts with a total capacity of 5,000 kilowatts. Southern Sierras Power Company constructed a similar line from San Bernardino to Banning.

The service in the Valley was materially bettered by the inter-connection with the Southern Sierras Power Company and the business of the Holton Power Company very rapidly increased thereafter until at the present time the Holton Power Company's system requires over 3,000 kilowatts demand and this demand is still rapidly growing.

The Holton Power Company's service is limited almost entirely to service within the incorporated cities of Imperial Valley, namely: El Centro, Brawley, Calexico, Holtville and Imperial. This is largely due to the fact that no pumping irrigation exists in the Valley, all irrigation being from gravity

systems. The Company has considerable lighting load and also a very large power load in the fall and winter months due to the service of cotton gins and cottonseed oil mills which operate continuously for about six months of the year.

The present local plant capacity available to supply the demands of the company in case of failure of the transmission system is approximately 650 kilowatts in gas electric and steam electric plants and during a portion of the year an additional capacity of about 600 kilowatts from the hydro plants, from which it is apparent that the local plants are not capable of meeting the company's demands in case of transmission interruptions.

The complaint of the cities against the Holton Power Company's service was on account of the frequency and length of interruptions to service. It was alleged that in case of failure of the supply from Southern Sierras Power Company the local supply was not always evenly divided between the cities and that certain cities were given preference.

Testimony of complainants was in general confined to the large number of interruptions which had occurred and the inconvenience and loss to consumers resulting therefrom. Few definite records were obtained by complainants, but it appears that during the last year the service interruptions have materially increased and the consumers of the company have suffered inconvenience and more or less pecuniary loss. During the hearing at Calexico the lighting service at Calexico was off eight minutes and power service was interrupted on the same day for a period of approximately nine hours, due to failure on the main transmission line.

Mr. W. J. Hartman of the Imperial Oil Mills testified that his company's record showed that thirty-four interruptions

to service at their mills had occurred during the operating season of September 1916 to April 1917 and as a result the plant was shut down for a total of approximately one hundred and thirty-five hours. This report does not exactly coincide with the company's records, as it does not include certain interruptions on days when the plant was closed for overhauling. On certain days the mill was closed down much longer than the power interruption reported. It appears, however, that the interruption in power resulted in longer shut-downs of the consumer's operations than the actual time power was off. The Oil Mills Company, as well as other industries, in general, have to pay employees during interruptions and a considerable loss of efficiency, therefore, resulted from the power failure.

Following the hearing in these cases the Commission's Electrical Engineering Department obtained from the company a complete record of power interruptions occurring on the Imperial Valley system and made a study of these records and an investigation of the causes of service troubles and the entire matter and has made its report with certain recommendations.

The larger part of the power supplied to consumers of Holton Power Company is generated by Southern Sierras Power Company in its hydro-electric plant in Inyo County and transmitted to San Bernardino over a 240 mile steel tower transmission line where an auxiliary steam plant of 8,000 kilowatts capacity is installed and where Southern Sierras Power Company distributes energy. Near San Bernardino an interconnection is made with Southern California Edison Company whereby an added supply of 5,000 kilowatts is obtained in case of emergency. From San Bernardino a 55,000 volt

transmission pole line extends via Banning through the Coachella Valley to El Centro approximately 200 miles to serve the Imperial Valley. That part of the line from San Bernardino to Banning is owned by Southern Sierras Power Company and from Banning to El Centro by Coachella Valley Ice & Electric Company, which, in addition to serving Imperial Valley and Yuma, Arizona, distributes in the main Coachella Valley for irrigation and industrial purposes.

The local plants are only capable of supplying the main portion of the lighting service in the Valley and in case of transmission line interruption the power service^{has} to be discontinued. In case the local plants cannot supply the total lighting load the service to the various cities is rotated and the company tries to treat all communities alike.

The records of the three companies involved in the service to Imperial Valley show that in 1916 there were a total of 132 interruptions to the electric service at Calexico which caused interruption to all service aggregating approximately 54 hours. During the same year there were 89 interruptions of service on the transmission line, aggregating 273 hours. This latter represents more nearly the total interruptions to power service owing to the small capacity of the local plants. There were only 76 interruptions lasting more than two minutes.

During the first ten months of 1917 the interruptions to all service in Calexico totalled 161 in number and 104 hours in aggregate duration. Transmission line interruptions numbered 85 with 118 hours duration.

The records of interruptions in Brawley show that the service interruptions were practically the same in number and extent. This is readily expected as most of the causes of interruption were on the transmission line.

The longer period of transmission line interruptions in 1916 was due to one interruption of 119 hours and 52 minutes caused by storm and washing out of the line.

The following summary of causes of the interruptions in 1917 shows in general the divisions of causes and their importance.

INTERRUPTION TO ALL SERVICE IN CALEXICO

First 10 Months 1917

	No.	Duration	
		Hrs.	Minutes
(a) Voluntary Interruptions for Repairs	19	19	30
(b) Lightning Storms	8	0	9½
(c) Failure of Insulators and Pole Tops	47	57	23
(d) Interruption due to Edison Company system	7	1	10½
(e) Wind and rain storms	25	6	14½
(f) Not Segregated	55	19	54
	<u>161</u>	<u>104</u>	<u>21½</u>

Interruptions to Service on Transmission Line:

(a) Caused by local distribution system	11	0	11
(b) Caused by transmission line	36	108	40
(c) Caused by interruptions on Southern Sierras Power Company and Edison Company's Systems	<u>38</u>	<u>9</u>	<u>21</u>
	85	118	12

From the above table it will appear that approximately 50% of the number of interruptions to electric service at Calexico are due to failure of the transmission line from

San Bernardino to El Centro and that these interruptions caused in 1917 over 95% of the total interruption to power service and 50% of the interruption to all service in Calexico.

The conclusion of the Commission's engineers is that the main cause of interruptions is due to insulator failure and the burning of pole tops on the transmission line. The transmission line extends through desert country almost throughout its entire length and due to the severe climatic conditions and the dryness of poles this trouble has been very serious. Interruptions from pole top burning or insulator failure on the transmission line have generally caused interruptions of the power service for several hours due to difficulty of locating the trouble and getting men and material so that repairs can be made.

The report of the Commission's Electrical Engineering Department sets forth four methods by which the service in the Valley can be materially improved and lists them as follows:

- (1) Complete overhauling of the 55 kilovolt transmission line with a view to eliminating all of the present sources of trouble.
- (2) The building of a duplicate transmission line, preferably following a different route to the Valley.
- (3) Installation of a steam plant at El Centro of a sufficient capacity to handle peak load.
- (4) Installation of a hydro-electric plant near the Imperial Valley.

The report states that the last three methods would, undoubtedly, very materially improve the service, as they would furnish a complete duplicate source of power sufficient to supply the demands of the Valley. Any one of

these methods, however, would require a very large investment on the part of the utilities. To extend a second transmission line to the Valley would require an expenditure of from \$400,000 to \$500,000. To install a steam plant to insure continuity of service would require at least a 4,000 kilowatt plant, costing approximately \$400,000 under present price conditions, and in addition, would result in increased operating expenses. It is reported also that it is difficult to operate steam plants satisfactorily in the Valley due to the water supply. The reports state that there is little possibility of any economical hydro-electric development near Imperial Valley.

Under the present war conditions the utilities are having great difficulty in obtaining money for new developments and especially for construction which will not result in material increase in revenue. It is also very difficult to obtain material and equipment and this condition would prevent any immediate relief from these methods. Any one of the methods would increase the cost of serving the Valley a minimum of \$75,000 per year. I question even under normal conditions whether this would be justified at the present time or until a material increase in business has resulted. The rates in the Valley are apparently about as high as the consumers, questioned at the hearing, believed they would be willing to pay. If possible, therefore, less expensive means should be sought at this time to reduce the interruptions to service as far as possible.

As regards improvement in the present transmission line, the defendants, Southern Sierras Power Company and Coachella Valley Ice & Electric Company, report that they are at present short-circuiting the insulator pins on each pole of the 55,000 volt transmission line. It is the opinion of the companies and the Commission's engineers that this, when

completed, will greatly reduce the number and extent of service interruption.

The Commission's Engineering Department reports also that the defendants are having inspections of and adjustments made to their various automatic switches and that plans are now in progress and equipment ordered for the installation of transformers at San Bernardino and changes in the operation of the present transmission line, which will further benefit the service conditions in Imperial Valley.

It is the opinion of the engineers of the Commission that with the completion of the short-circuiting of the insulator pins above referred to, which should be made in 90 days, more than 60% of the interruptions will be eliminated.

The evidence shows that only one electric power line extends from El Centro to Brawley and that this one line has resulted in some additional interruptions to service in Brawley in excess of those occurring at Calexico where at present two separate circuits have been constructed from the main substation at El Centro, thus making interruption of service at Calexico, due to the failure of the local distribution lines very improbable.

The Commission's engineers report that defendants have a substation installed at Calapatria, approximately 12 miles north of Brawley, and that it would be advisable to construct a secondary transmission line from Calapatria to Brawley thus supplying duplicate power circuits into Brawley, which would reduce the number of interruptions to service at Brawley and also reduce the effect in the entire Valley of failures upon the main transmission line from El Centro to

Calapatria and would make possible the repairing of the main transmission line south of Calapatria without completely interrupting the service in Imperial Valley.

A 300 Kw. generator in the lower hydro-electric plant at Holtville is not of use there and could be installed in the present steam plant at small expense, and would increase that plant's capacity 150 Kw. Holton Light & Power Company should transfer its 300 kilowatt electric generator at the hydro-electric plant at Holtville to the steam plant at El Centro thus increasing the local standby plants to at least 800 kilowatts maximum capacity.

I believe that under the conditions existing defendants should not be required to install duplicate facilities for serving Imperial Valley although they should make necessary investigation and plans for future developments in order to be prepared to take care of the rapidly growing demands for power.

ORDER

Cities of Calexico and Brawley, having filed their complaints against the Southern Sierras Power Company and Holton Light & Power Company, alleging that the electric service of the Holton Light & Power Company is subject to numerous and extended interruptions and Coachella Valley Ice & Electric Company having requested to be made a defendant in the complaint, and hearings having been held and the requested reports having been submitted and the matter now being ready for decision,

THE RAILROAD COMMISSION HEREBY FINDS as a fact:

- (1) That the service heretofore rendered by defendants has not been satisfactory

owing to many interruptions to said service.

- (2) That certain improvements should be made by defendants in the systems serving Calexico and Brawley.

Basing its order on the above finding of fact and each finding of fact set forth in the opinion preceding this order,

IT IS HEREBY ORDERED that

- (1) Southern Sierras Power Company shall complete within 90 days from the date of this order the short circuiting, in the manner now being followed, of insulator pins on the main transmission line from San Bernardino to Banning.

- (2) Coachella Valley Ice & Electric Company shall complete within 90 days from the date of this order the short circuiting, in the manner now being followed, of insulator pins on the main transmission line from Banning to El Centro.

- (3) Holton Light & Power Company shall, within 90 days of the date of this order, increase its El Centro steam plant capacity to at least 300 kilowatts.

- (4) Holton Light & Power Company shall, by July 1, 1918, complete the constructing of a secondary transmission line from its substation at Calapatria to the City of Brawley.

- (5) Southern Sierras Power Company, Coachella Valley Ice & Electric Company and Holton Light & Power Company shall keep and submit to the Commission monthly records for the year 1918 of the interruption to electric service in the Imperial Valley.

The foregoing Opinion and Order are hereby approved

and ordered filed as the Opinion and Order of the Railroad
Commission of the State of California.

Dated at San Francisco, California, this
7th day of February, 1918.

Max Thelen

H. D. Rowland

Alv. G. Ford

Commissioners.