ORIGINAL

Decision No. 5409

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BEFORE THE RAILROAD COMMISSION OF THE STATE OF CALIFORNIA.

EL DORADO COUNTY WATER USERS' ASSOCIATION, Complainant,	)	
vs.	)	Case No. 1107.
WESTERN STATES GAS AND ELECTRIC COMPANY, Defendant.	)	

B. D. M. Greene for Complainant.
Chickering and Gregory, by Allen L. Chickering, and George H. Thompson for Defendant.
Percy A. Wood for Placerville Water Works, Intervenor.

THELEN, Commissioner.

O P I N I O N.

The complaint herein alleges, in effect, that El Dorado County Water Users' Association is a co-operative association, formed for the purpose, among other matters, of securing united efforts upon the part of all water users in El Dorado County to obtain for its members an adequate supply of water for irrigation and domestic use and for the purpose of conducting such legal proceedings before the Railroad Commission as may be necessary to protect the rights and interests of the water users of said county; that at the time of the filing of the complaint said association had at least 235 members; that defendant is a public utility corporation engaged in the business of selling gas, electricity and water; that in defendant's Stockton Division it sells gas in and about the City of Stockton and electricity in the counties of El Dorado, Sacramento, Amador, Calaveras and San Joaquin; that in the month of December, 1916, defendant purchased from

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Placerville Gold Mining Company, a public utility, its water system in El Dorado County used for the purpose of supplying water for the public use, namely, for domestic consumption, to a portion of the City of Placerville and for irrigation purposes to agricultural consumers in the country districts of El Dorado County; that said purchase was made by defendant for the purpose of increasing the water supply of this system and of using the same to develop additional electric energy through existing and additional electric equipment; that in purchasing said water system, defendant assumed all the duties and obligations of Placerville Gold Mining Company to supply water for irrigation purposes in El Dorado County; that subsequent to its purchase of the system, defendant has made public announcement that it intends to devote to the development of electric energy all water developed or to be developed in this system and not required for the purpose of supplying the needs of the existing consumers to the extent to which they have in the past been supplied; that many consumers of water in El Dorado County have lands with growing orchards and other agricultural products for which it is now necessary to secure more water than has heretofore been used; that many present consumers of water in this county will in the future plant additional acreage to crops for which irrigation will be necessary and that for this purpose they must necessarily purchase water from the defendant's system for the reason that no other irrigation water is available; that other farmers who are not now irrigating their lands will in the future require water from this system; that it is necessary to obtain a complete adjudication of the rights of the consumers of water and of the defendant; and that this proceeding is brought in behalf of all water consumers in the County of El Dorado, present and prospective, who are now purchasing or will in the future desire to purchase water from the defendant for lands which can be irrigated from the defendant's water system. The complainant asks

the Railroad Commission to make its order declaring that said water system is dedicated to the service of supplying water to the residents of El Dorado County for irrigation purposes; directing defendant to furnish to residents of El Dorado County such water as is now necessary or may hereafter be necessary for irrigation purposes; and directing defendant to extend and enlarge its system to furnish water for irrigation as the future needs of the irrigationists may require. Complainant also asks that the Railroad Commission make rules and regulations governing the present and future use of water under this system.

The answer, in effect, alleges that defendant is supplying water tc individuals in El Dorado County, in and about the City of Placerville but to the extent only that the same were supplied by Placerville Gold Mining Company; that said water system is located in the counties of Alpine, Amador and El Dorado; that in purchasing said water system from Placerville Gold Mining Company defendant assumed all of the duties and obligations of said Placerville Gold Mining Company to supply water for irrigation purposes in the County of El Dorado; that it is necessary to secure a complete adjudication of the rights of defendant's consumers of water and of defendant; that it purchased said water system for the purpose of increasing the development and storage of water in connection with the system and of using said increased water and storage solely for the purpose of generating electricity and thereafter for resale; that for many years defendant and its predecessors have maintained and now maintain on the American River, near Placerville, a power plant for the generation of electric energy by the use of water power; that large quantities of electric energy generated in said power house have been and are now being supplied to agricultural communities below said power house for the purpose of operating pumps and irrigation systems as well as for domestic purposes;

that the use of electric energy for agricultural purposes is rapidly increasing and that the capacity of defendant's present hydroelectric plant is not sufficient to take care of the requirements of defendant's Stockton Division; that defendant has at all times refused to extend the use of water from this system beyond the limits existing at the time of its said purchase and that it desires to use all water now developed or to be developed in this system, other than to the extent heretofore utilized by existing consumers, for the purpose of developing electric energy and of thereafter selling the same for irrigation below its power house; that it is desirable and necessary, not merely from the point of view of the complainant but also from the point of view of the defendant, that the Railroad Commission determine the rights of the complainant and its members to the use of the water developed and to be developed in said system; that the use of the water from this system has been uneconomical and that large quantities of said water have been wasted; and that the rates paid are wholly inadequate and are sufficient only to pay the operating expenses of the system. Defendant asks that the Railroad Commission determine the extent to which said water system is obligated to supply water to residents of El Dorado County for irrigation and other purposes, either now or in the future; that the Railroad Commission make its order fixing the rates, rules and regulations to govern the present and future supply of water by defendant in El Dorado County; and that the Railroad Commission give such further relief as may be meet and proper in the premises.

Defendant thereafter filed an amendment to its answer alleging, in effect, that neither the defendant nor its predecessors in interest have ever dedicated to the public use of irrigation any water developed or to be developed by said system other than such as was supplied to irrigation consumers prior to the

purchase of said water system by defendant; that defendant has prepared a plan for additional storage development of water under this system by impounding the flood waters and that it has publicly announced its intention to use the water which it may be able to thus impound, as well as the water already developed and not heretofore dedicated to public use, for the sole purpose of developing electric energy, first, through the use of a new power house to be constructed by the defendant on the South Fork of the American River, second, through the use of the same water in the present power house of defendant, situated on the same stream at a point below the proposed new power house, near the City of Placerville; and that the making and enforcement by the Railroad Commission of any order compelling defendant to supply to any member of complainant association any water so to be developed by the defendant or hitherto developed and not dedicated to public use, except such as may be used below said two power houses, will violate rights of defendant under the Constitution of the United States and the Constitution of California.

The pleadings filed herein contain other allegations to which it is not necessary here to refer.

Public hearings herein were held in Placerville on December 4 and 5, 1917, and in San Francisco on January 21 and 22, 1918. Notice of the hearing was mailed by defendant, as directed by the Railroad Commission, to each of defendant's consumers. Briefs have been filed and the case is now ready for decision.

The various documents which were to be filed subsequent to the hearings herein have all been filed and given exhibit numbers as indicated at the hearings. In addition thereto, the following two documents, in accordance with stipulation of the parties, have been filed and given the exhibit numbers indicated:

Railroad Commission's Exhibit No. 2- Report on capacity of defendant's Main Canal from its intake to 14 Mile House Tunnel.

Defendant's Exhibit No. 47- Letters from Chickering and Gregory to Railroad Commission, dated April 26, 1918 and April 30, 1918, with enclosures, commenting on Railroad Commission's Exhibit No. 2

The principal issue in this proceeding is the right of the respective parties to the water developed and to be developed in this system. To this issue I shall first address myself. I shall then consider the second issue presented, which is the question of the rates, rules and regulations for the sale of water under this system.

I shall consider the subject matter of this opinion under the following heads:

1. History of water system.
2. Description of water system.
3. Appropriations of water.
4. Use of Water.
5. Defendant's hydro-electric plans.
6. Cosumnes water supply.
7. Right of parties.
8. Rates, rules and regulations.

1. HISTORY OF WATER SYSTEM.

The water system herein under consideration was constructed and for many years operated by El Dorado Water and Deep Gravel Mining Company, a California corporation, incorporated in September, 1873. This corporation succeeded to the rights of J. Kirk and F. A. Bishop (Osgood vs. El Dorado Water and Deep Gravel Mining Company, 56 Cal. 571).

The construction of the Main Canal, also known as El Dorado Canal, was begun in 1873 and completed in 1876.

The system was constructed primarily for hydraulic mining purposes. From the first, water has also been continuously sold for domestic use in the City of Placerville.

With the decadence of hydraulic mining in this district, the system was more and more used for irrigation, until in 1916 and 1917 this use became, in quantity of water used, the predominating use under this system. There has also been a gradual increase in domestic use, until in 1916 and 1917 the water used for domestic purposes in the City of Placerville alone, not considering the water used for domestic purposes outside of the City of Placerville, amounted to an amount substantially one-half the water used for mining and between one-quarter and one-sixth of the water used for irrigation. The most recent additional use of water under this system has been for the generation of electric energy, at the times and under the circumstances hereinafter indicated.

By deed dated June 15, 1907, this water system was conveyed by El Dorado Water and Deep Gravel Mining Company to C. E. Beal, who gave his promissory notes, secured by a purchase money mortgage.

By deed dated February 3, 1908, Mr. Beal conveyed the property to Sierra Water Supply Company.

On July 3, 1911, El Dorado Water and Deep Gravel Mining Company assigned the indebtedness and the mortgage to secure the same to Placerville Gold Mining Company.

On March 12, 1912, Sierra Water Supply Company deeded the property to San Francisco-Oakland Terminal Power Company.

On June 14, 1912, Placerville Gold Mining Company filed suit to foreclose the mortgage.

On February 23, 1915, a sheriff's certificate of sale issued to Placerville Gold Mining Company, the purchaser at the foreclosure sale.

On February 24, 1916, a sheriff's deed to the property was delivered to Placerville Gold Mining Company.

Finally, in the month of December, 1916, the property was conveyed by Placerville Gold Mining Company and C. N. Beal to Western States Gas and Electric Company, the sale by Placerville Gold Mining Company having theretofore been authorized by the Railroad Commission in Decision No. 3943, made on December 21,1916, in Application No. 2657, Placerville Gold Mining Company (Vol.12, Opinions and Orders of the Railroad Commission of California,p.84).

2. DESCRIPTION OF WATER SYSTEM.

The water system herein under consideration consists, in general, of storage lakes in the counties of Alpine, Amador and El Dorado; the Main Canal, extending from the point of diversion on the South Fork of the American River just below the junction of that river with the Silver Fork, a distance of approximately 41 miles, to Smith's Flat; and a number of distributing ditches and small reservoirs connected therewith.

The storage lakes which are tributary to this system

and which have heretofore been used in connection therewith are Echo Lake and Medley Lake, in El Dorado County, and Silver Lake, in Amador County. Many years before defendant acquired the system, small dams were constructed to impound water in each of these lakes. At the time of defendant's purchase, the developed capacity of these storage lakes was as follows:

Silver Lake .....5400 acre feet.

Echo Lake,.....1910 acre feet
Medley Lake,..... 300-400 acre feet

At the time of defendant's purchase, no dam had been constructed to store water in the Twin Lakes, in Alpine County.

In addition to the water stored in said storage lakes, defendant and its predecessors have from the beginning availed themselves of the natural flow of the South Fork of the American River at the point of intake of the Main Canal. Defendant's Exhibit No. 37 shows the discharge of the South Fork of the American River and of the Silver Fork near the junction of the two streams from March 1906 to December 1907, inclusive. The addition of these discharges gives the total discharge of the South Fork of the American River at the intake of the Main Canal. The discharges given in Exhibit No. 37 are as follows:

DISCHARGE OF SOUTH FORK OF AMERICAN RIVER

AND OF

SILVER FORK NEAR JUNCTION OF THE TWO STREAMS

Year	Month	Discharge of South Fork, 80.7 Sq. Mi. Drainage	Discharge of Silver Fork .114 Sq. Mi. Drainage	Total Discharge at Intake of Main Canal.
		x		
1906	March	12 870 Acre Ft.	10 630 Acre Ft.	23 500 Acre ft.
"	April	x 12 500	*35 700	48 200
"	May	38 600	73 900	112 500
"	June	74 400	95 400	169 800
"	July	47 600	43 000	90 600
"	August	11 030	10 470	21 500
"	September	2 080	3 920	6 000
"	October	1 110	1 030	2 140
"	November	1 310	2 130	3 440
"	December	2 580	3 620	6 200
1907	January	2 940	4 790	7 730
"	February	11 370	16 230	27 600
"	March	18 450	43 350	61 800
"	April	31 200	63 900	95 100
"	May	53 400	81 300	134 700
"	June	74 700	71 300	146 000
"	July	59 100	34 000	93 100
"	August	11 400	10 200	21 600
"	September	2 490	3 930	6 420
"	October	2 020	3 440	5 460
"	November	1 370	4 090	5 460
"	December	#1 070	# 2 020	3 090

* Probably much too high as this quantity was obtained by deducting estimated discharge of South Fork from measured flow below junction.
x Flow estimated not measured. Estimate for April is probably much too low.
15 days only.

The foregoing figures undoubtedly include such waters as may have been let down from storage during the later months of the year.

In defendant's Exhibit No. 39, Mr. Edwin Duryea refers to the years 1905-6 and 1906-7 as having been very wet years and draws attention to the fact that the total stream flow at the intake of the Main Canal was 46 times the 7560 acre feet of stored waters from May 16 to October 15, 1906, and 44 times the stored waters for the period from May 16 to August 31, 1907. Mr. Duryea states that in normal years the stream flow at the intake of the Main Canal may be taken as approximately one-half the stream flow in the years 1906 and 1907 and that in a few dry years the total flow may not be more than that corresponding to the released stored waters.

Mr. Duryea draws the conclusion that except in a few of the dry years, the water supply for this system is limited not by the volume of water stored in the storage lakes nor by the natural flow of the South Fork of the American River at the intake of the Main Canal, but by the flowage capacity of the Main Canal itself. It appears clearly that under the system as heretofore developed, the limiting factor in the system's capacity has been the capacity of the Main Canal.

In addition to the water rights under this system growing out of the storage of water in the storage lakes and the diversion of this water, when released, and of the natural flow of the South Fork of the American River and tributary streams at the point of intake of the Main Canal, this system owns further water rights due to the fact that water from quite a number of creeks and small feeders has heretofore been taken into the Main Canal at points below the intake. The capacity of the various flumes in connection with these creeks and feeders, as well as

the amount of water which was being discharged therefrom into the Main Canal during specified days in the month of May, 1912, appear in letter dated September 11, 1916, from Mr. H. L. Haehl, a member of the engineering firm of Duryea, Haehl & Gilman, to Mr. George H. Whipple, heretofore a member of the firm of Chickering & Gregory, which letter is attached as Exhibit "B" to the report on the title of the property of this system, made by Chickering & Gregory on November 14, 1916, and by stipulation of the parties considered in evidence in this proceeding. The same data appears in Defendant's Exhibit No. 45, being the report of Hydraulic Engineer J. W. Link. It appears from Mr. Haehl's letter that the amount of water which was being discharged from these creeks and feeders into the Main Canal in May, 1912, varied from a fraction of a cubic foot per second to a discharge of 10.76 cubic feet per second from Plum Creek and 45 cubic feet per second from Alder Creek.

While the discharge from these various creeks and feeders during other portions of the year does not appear in the record, Mr. Haehl reports that it is frequently the practice to take all the water required by the Main Canal from these creeks and feeders and to divert no water at all at the head works. He reports further that these feeders, during a portion of the year, are able to supply the entire amount of water required and that during a somewhat longer period of the year they are able to supply a material portion of the water taken into the canal.

As appears from Mr. Edwin Duryea's report in Defendant's Exhibit No. 39, and other testimony, the natural stream flow of the South Fork of the American River and its tributaries at the intake of the Main Canal has usually been sufficient, without reference to any other water, to fill the canal until toward the end of July. Thereafter, until the end of the irrigating season (about October 15th) the decreasing natural stream flow has been

supplemented by the release of the stored waters from Silver and Echo Lakes. The storage in Medley Lake has been very small. The waters from Silver and Echo Lakes have been sufficient, according to Mr. Duryea, to supply 65 cubic feet of water per second, without any aid from natural stream flow, at the intake of the Main Canal, for about 56 days and can be depended upon to supplement the waning natural stream flow during the latter half of July, during August and September, and during the first half of October. Attention should here be directed, however, to the fact that during the months of October and November in at least the years 1913 to 1915, inclusive, with the exception of November, 1914, large quantities of water were sold from this system to Western States Gas and Electric Company. I assume that this water was in part stored water. Hence, it by no means follows that under this system as heretofore developed, the natural stream flow, augmented by stored waters, will normally suffice to yield water only until October 15th.

The Main Canal of this system consists in part of ditch and in part of flume and extends from the head works in Section 19, Township 11 North, Range 15 East, at a point a short distance west of Slippery Ford, a distance of approximately 41 miles, to a point in Section 11, Township 10 North, Range 11 East, near a place now or formerly known as the village of Smith's Flat.

As already indicated, this canal, together with its appurtenances, has been used continuously since its completion in 1876 for public use. For many years prior to the acquisition of this system by the defendant, it was devoted to the sale of water for the public uses of mining, domestic and irrigation. The Main Canal has never been used for the sale of water for the generation of electricity. Such water as has been sold for this purpose, has flowed in the South Fork of the American River, past the intake of the Main Canal, being thereafter diverted for use in the power

house of American Electric Company, located below Placerville.

The testimony shows that the Main Canal was designed and constructed to a capacity of approximately 100 cubic feet per second, or 4000 miner's inches. The record shows a number of measurements of water flowing into the Main Canal at different points and at different times.

In the letter of Mr. Haehl dated September 11, 1916, hereinbefore referred to, Mr. Haehl reports the following measurements of water taken in at the main head works and also of the water flowing in other portions of the Main Canal at the times indicated:

September 20, 1904 -	At Intake	74.5	cu.ft.per second
September 21, "	In Plum Creek	59.8	" " " "
September 22, "	In Plum Creek	54	" " " "
March 1, 1906 -	In Alder Creek	51.67	" " " "
April 21, "	In Alder Creek	42.9	" " " "
May 11, "	In Alder Creek	39.6	" " " "
August 16, "	At Intake	88.2	" " " "
September 7, "	In Alder Creek	55.95	" " " "
February 1, 1907- to			
March 13, 1907	At Intake	41	" " " "
May 26, "	" "	48	" " " "
June "	" "	45.8	" " " "
July "	" "	53	" " " "
August "	" "	55	" " " "
May 11, 1912 -	" "	74	" " " "
June 1, "	" "	84	" " " "
June 19, "	" "	84	" " " "
October 9, 1915	" "	110	" " " "

Mr. Haehl reports that whether the full amounts of water taken into the Main Canal at the intake were carried the entire length of the canal is not shown by the records. He states that there are times when some of the water is returned to the stream, when it is not required for use. Mr. Haehl does not indicate that the measurements taken just below the intake represent the capacity merely of a small portion of the Main Canal near the head works and that the water taken into the Main Canal was shortly thereafter returned to the river. I desire to draw particular attention to the fact that on August

16, 1906, the Main Canal actually carried 88.2 cubic feet of water per second below the intake and that on October 9, 1915, the canal at this point carried 110 cubic feet per second.

Plum Creek, referred to in the foregoing table, is located about half way between the intake of the Main Canal and the 14 Mile House Tunnel, hereinafter referred to.

Mr. C. E. Gilman, also a member of the firm of Duryea, Haehl & Gilman, presented herein a record of the measurement of the Main Canal on September 11, 12 and 13, 1917. He reported that on these days the Main Canal carried 64.48 cubic feet of water per second at the head works and 47.37 cubic feet of water per second at the 14 Mile House Tunnel, a distance of approximately 20 miles below the intake. He also testified that some of the sand traps were out of adjustment and some of the flume sides were a little low and that 4.02 cubic feet of water per second could have been saved "with a little repair work". If this had been done, 51.39 cubic feet of water per second would have been delivered at the 14 Mile House Tunnel, making a loss in transmission of 13.09 cubic feet per second, which loss amounts to 20 per cent in 20 miles, or one per cent per mile. Mr. Gilman further testified that at the time the gaugings were made, approximately 100 cubic feet of water per second was turned into the Main Canal but that approximately 36 cubic feet per second were turned out again just below the head works for the reason that it was not considered safe to carry the entire flow down the Main Canal past the first point of low berm.

1918

On April 5th and 6th, Mr. R. W. Hawley, the Railroad Commission's Hydraulic Engineer, in company with representatives of the parties herein, made measurements on the Main Canal to ascertain its capacity. Mr. Hawley, in Railroad Commission's Exhibit No. 2, reports his conclusions as follows:

"It is my belief that not over $10,000 need be expended to put the ditch in such condition that it would carry 100 cubic feet per second as safely as it recently carried 64 cubic feet per second at the head of the canal. This expenditure should cover both the work of preparation and the employment of additional ditch tenders during the time the water is being gradually raised over the new area of bank. After this amount of water is in the canal, it is probable that at least one additional ditch tender should be regularly employed. A part of the flume section will necessarily have the sides increased by the addition of a board six inches wide. This I do not consider an expense that should properly be chargeable to preparation of the canal for the carrying of the additional head but rather a completion of construction work."

In Defendant's Exhibit No. 47, defendant takes issue with Mr. Hawley's conclusion that an expenditure of $10,000 would be sufficient to bring the capacity of the Main Canal back to the original capacity of 100 cubic feet of water per second. It is not necessary herein to pass upon the exact amount of money which would be required for this purpose.

The testimony clearly shows that there is considerable deferred maintenance on the Main Canal and that the amount of water which can at the present time be safely carried is considerably less than would be the case if the canal had been kept in condition of proper repair. Mr. Gilman, after testifying that the original capacity of the Main Canal was approximately 100 second feet, stated that the berm has been allowed to run down, that cattle have run on the berm, that there has been settlement along the canal, and that the flumes are in very poor condition. Mr. Gilman further testified that in order to bring the canal back to its original carrying capacity, it will be necessary to clear out the sand and silt at points, and at other points to reconstruct flumes and trestles and to put an additional board on the flume. He also testified that the reason why the canal is not up to capacity is because it has not been properly maintained.

Mr. Samuel Kahn, defendant's General Manager, testified that in 1917 approximately 40/64ths of the capacity of the Main

Canal was necessary to serve the consumers under the system and that if irrigation increases as estimated by complainant, the total capacity of the Main Canal in its present condition will be utilized in 1922. Mr. Kahn's testimony in this regard, as appears in Defendant's Exhibit No. 35, is as follows:

> "The results for 1917 indicate that it required on an average peak 40.7 second feet to supply the consumers. The capacity of the ditch, according to measurements made by Mr. Gilman, of Duryea, Haehl & Gilman, was found to be 64.7 feet; therefor, in round numbers, 40/64 of the ditch capacity was necessary to supply the consumers in 1917. To make the same estimate for the year 1922 we used quantities of water to be delivered to consumers from information given in the questionnaire compiled by the El Dorado County Water Users' Association, with the exception of that water used by the Placerville Water Company, domestic use of our own system and special uses. It will be noted that the mining water has been eliminated altogether. The results for 1922 show that it will require 60.2 second feet to supply the various users, which for all practical purposes is the total capacity of the main ditch."

The total mileage of the Main Canal and of the various distributing canals under this system is reported to be approximately 200 miles. The principal canals, other than the Main Canal, are shown by the report of Chickering & Gregory to be: South Fork Canal, Iowa Canal, Webber Canal, Higgins Ditch, Poverty Point Ditch and South Fork Extension, with their respective tributaries.

The report of Chickering & Gregory also refers to a number of small reservoirs, including Nigger Hill Reservoir, Placerville Reservoir, Webber Reservoir and El Dorado Reservoir.

3. APPROPRIATIONS OF WATER.

The report of Chickering & Gregory shows notices of appropriation of water for distribution through this water system as follows:

(1) South Fork of American River.

Nine appropriations, of which two are for 8,000 M.I. each, four for 10,000 M.I. each, one for 20,000 M.I. and two for 30,000 M.I. each. A number of the larger appropriations specifically include all the waters of the tributaries of the South Fork of the American River.

(2) Silver Lake.

Two appropriations of 4,000 M.I. each.

(3) Andrain Lake.

One appropriation of 4,000 M.I.

(4) Medley Lakes.

One appropriation of 12,000 M.I. and one appropriation of 10,000 M.I.

(5) Lake Henry or Lake George.

One appropriation of 10,000 M.I.

(6) Echo Lake.

One appropriation of 10,000 M.I. and one appropriation of 5,000 M.I.

(7) Alder Creek.

One appropriation of 10,000 M.I.

(8) Alpine Creek (including Twin Lakes).

One appropriation of 10,000 M.I.

(9) Mill Creek.

One appropriation of 500 M.I.

(10) Plum Creek.

One appropriation of 5,000 M.I.

(11) Silver Creek.

Three appropriations of 10,000 M.I. each and one appropriation of 4,000 M.I.

(12) Wolf Creek.

One appropriation of 500 M.I.

(13) Brush Canyon.

One appropriation of 1,000 M.I.

(14) Long Canyon.

One appropriation of 1,000 M.I.

(15) Big Iowa Canyon.

One appropriation of 1,000 M.I.

(16) Little Iowa Canyon.

One appropriation of 1,000 M.I.

The report of Chickering & Gregory also shows notices of appropriation of the bed and banks of streams, including lakes and ponds in connection therewith, as follows:

Reservoir	Date of Notice of Appropriation.
Silver Lake	May 16 and May 22, 1873
Andrain Lake	May 17, 1873
Echo Lake	May 23, 1873
Plum Creek	Sept. 28, 1874
Medley Lake	Oct. 25, 1875
Twin Lakes	Nov. 23, 1875
South Fork of American River	Oct. 22, 1876

The notices of appropriation, other than those for reservoirs, seem to have specified that the water was to be used for mining, manufacturing, agricultural, and other purposes.

The reservoir appropriations specify that the water is to be used for mining, manufacturing, irrigating, domestic and

other purposes, and most of these appropriations state that the water is to be used in connection with the Main Trunk Canal of El Dorado Water and Deep Gravel Mining Company.

The exact amount of water developed and the amount of water used under this system are, of course, questions of fact which cannot be determined from the notices of appropriation. I have heretofore referred to the amount of water developed under this system. I shall now refer to the amount of water heretofore used thereunder, in so far as shown by the record.

4. USE OF WATER.

Water has been used from this system primarily for (a) mining, (b) domestic, (c) irrigation and (d) generation of electricity.

(a) Mining.

Although the use of water from this system for hydraulic mining has been discontinued, water is still used for propelling machinery in a number of mines in the district.

Defendant's Exhibit No. 31 shows water sold for mining during each month of the year from 1912 to 1916, inclusive, for both operative and non-operative properties, in miner's inches for 24 hours, as follows:

Month

	1912	1913	1914	1915	1916	Total
January	*	1041	6322	3486	1036	11885
February	*	156	5591	3902	1914	11563
March	*	6122	6747	4962	2422	20253
April	1972	9166	5516	4752	2366	23772
May	6748	8749	6219	4492	2284	28492
June	7213	8580	6219	5097	2154	29263
July	7041	8133	6064	3047	2163	26448
August	7608	8589	3561	1959	2086	23803
September	6833	7336	6055	2223	2346	24793
October	6773	7333	3312	2181	2215	21814
November	6915	8358	1848	2179	1635	20935
December	8092	8291	3325	2074	1275	23057
Totals	59195	81854	60779	40354	23896	266078
Less Operative	51870	77999	53094	38235	22702	243900
Non-operative	7325	3855	7685	2119	1194	22178

Exhibit No. 32 shows the water sold to mines in 1917, in miner's inches for 24 hours, as follows:

Month	M.I. for 24 hours
January	1219
February	195
March	2376
April	3048
May	2135
June	1864
July	1629
August	1581
September	1224
October	901
November	1032
December	1179
Total,	18383

From the foregoing tables it will be observed that the water sold for mining purposes has gradually decreased from 81,854 miner's inches per 24 hours in 1913 to 18,383 miner's inches in 1917.

Defendant's Exhibit No. 31 shows that in 1916 the only mines which were still purchasing water from this system were Guilford Gold Mining Company, Rising Hope Mine, Pyramid Mine, Live Oak Mine and Stricker Mine. The Pacific Mine, which theretofore was the largest purchaser of water for mining purposes, bought no water in 1916. The record does not show the situation with reference to this mine in 1917.

Attention should also be directed to the fact that the use of water for mining under this system is continuous throughout the year and that with the exception of the relatively small use in January and February of each year, the use during the various months does not change very greatly.

In Defendant's Exhibit No. 33, defendant reports that 80 miner's inches of water are turned into Webber Ditch to serve the Rising Hope Mine and that on the basis of nine months use in 1917, the amount of water actually used by the mine is only 28.5 miner's inches per day. Defendant reports that if this mine should convert its power from water to electricity purchased from defendant, its annual bill, on the assumptions stated in the report, would be $1643.95. Estimating the water at the present mining rate of 15¢ per miner's inch per day, the annual bill is $1560.00. Defendant draws attention to the fact that if the rate for water sold to mines is materially raised, operation of this mine by electricity will be decidedly cheaper than operation by water. If this situation applies to the other mines which are now served with water by defendant, we may assume that the remaining water now sold for mining use will shortly be released and will be available for other public uses.

(b) Domestic.

As hereinbefore indicated, water has been sold by this system since 1873 for domestic use in a portion of the City of Placerville under contract with Francis A. Bishop, which contract was thereafter assigned to Placerville Water Works.

Defendant's Exhibits Nos. 31 and 32 show the water sold during each month in 1912 to 1917, inclusive, in miner's inches for 24 hours, to Placerville Water Works, as follows:

Month	1912	1913	1914	1915	1916	1917
January	661	704	532	590	558	562
February	573	536	572	502	623	604
March	544	547	617	650	614	536
April	641	560	571	597	694	620
May	678	735	794	572	848	779
June	935	984	998	1172	1183	1144
July	1168	1189	1372	1435	1388	1340
August	1173	1250	1323	1392	1350	1425
September	781	1015	911	1125	1040	1115
October	688	770	710	911	612	814
November	519	542	590	667	620	576
December	532	534	574	606	628	480
Totals,	8893	9366	9564	10219	10158	9995

The water thus sold to Placerville Water Works was, in turn, sold by that company to its consumers in the City of Placerville.

The testimony shows that defendant itself directly serves with domestic water consumers in the City of Placerville who are located above the distributing system of Placerville Water Works and also in a portion of the lower end of the City. Mr. H. R. Bennett, defendant's local manager in Placerville, estimates that defendant supplies directly approximately one-fourth of the domestic consumers in Placerville.

Defendant also supplies domestic water at flat rates to a large number of consumers located outside of the City of Placerville. In Exhibit No. 31, defendant reports that in 1916 it had 211 flat rate domestic consumers. Defendant's Exhibit No.36 gives the names of the domestic consumers and the rates charged, both for winter and summer, but the record does not show the amount of water sold to these consumers for domestic purposes.

Defendant also reports in Exhibits Nos. 31 and 32 the sale of water to the El Dorado County Hospital for both domestic and irrigation uses. The quantity of water sold seems to be increasing, year by year, amounting in 1917 to 718 miner's inches per day for domestic uses and 142 miner's inches for irrigation.

Defendant's Exhibit No. 31 also shows that water is sold by defendant directly to the City of Placerville for sprinkling, rock crushing and sewer flushing but the record does not show the amount of water thus sold.

(c) Irrigation.

In 1917, water was sold from this system to approximately 300 irrigators.

Complainant reports that 3148.5 acres of land were irrigated under this system during 1917.

Defendant reports in its Exhibit No. 2 that 3409.52 acres were irrigated in 1917 and that during this year, 48,609.5 miner's inch days were purchased for this purpose. Attention should be directed to the fact that during the last weeks in July, 1917, no water was delivered for irrigation by reason of a break in defendant's Main Canal.

Defendant's Exhibits Numbers 31 and 32 show water sold for irrigation from 1912 to 1917, inclusive, in miner's inches for 24 hours, as follows:

1912	30,328
1913	35,043
1914	28,331
1915	35,962
1916	45,772
1917	60,734

Complainant, in its Exhibits Numbers 1 and 4 shows the acreage irrigated in 1917, the acreage which the persons interviewed stated they would irrigate in 1918 to 1922, inclusive, the ultimate acreage capable of irrigation and the total acreage owned by the persons interviewed, as follows:

1917	3148 acres irrigated	
1918	3914 3/4 acres estimated to be irrigated	
1919	4296 1/4 " " " "	
1920	4858 3/4 " " " "	
1921	5118 3/4 " " " "	
1922	5355 3/4 " " " "	
Ultimate acreage capable of being irrigated,		15,643 1/2
Acreage owned by persons interviewed,		26,039 1/2

On the assumption that one miner's inch continuous flow will irrigate five acres, complainant reports that the following quantities of water will be necessary at the land for the irrigation of the acreage reported in its Exhibits Numbers 1 and 4 as irrigated and to be irrigated:

Year	M.I.	Second Feet
1917	629.6	15.74
1918	782.95	19.57
1919	859.25	21.48
1920	971.75	24.29
1921	1023.75	25.59
1922	1071.15	26.77
Ultimate	3128.70	78.22

While there is considerable conflict in the testimony with reference to the number of acres irrigated by one miner's inch of water under this system, I am satisfied that the duty of water is more nearly between six and seven acres than five acres. A corresponding change must accordingly be made in the foregoing figures.

The principal crop under this system is pears. About 50 per cent of the acreage irrigated is planted to this crop,

the other 50 per cent being planted principally to peaches, plums and potatoes. The testimony shows that pears require more water than other varieties of deciduous fruit produced under this system and also that the amount of water required by pear trees is substantially greater when the trees have matured than when they are young.

The testimony shows that the irrigation season under this system extends about 150 days, from approximately May 15th to October 15th.

Defendant in its Exhibit No. 30 reports that in 1917, the average demand on the system for irrigation was 400 miner's inches per 24 hours and that the average maximum peak was 700 miner's inches.

(d) Hydro-electric.

During the last 12 years, except 1916, water was permitted to run past the intake of the Main Canal down the river for use in the power house of the American River Electric Company, located below Placerville and now owned by the defendant. The only record of this use contained in the testimony herein appears in Defendant's Exhibit No. 31, which reports the use for 1913, 1914 and 1915, to have been, in miner's inches for 24 hours, as follows:

Month	1913	1914	1915	Total
January-	[illegible]	[illegible]	1,375	1,375
October	30,000	3,500	5,600	39,100
November	7,000	-----	4,850	11,850
December	------	-----	-----	------
Totals	37,000	3,500	11,825	52,325

The foregoing table shows that the water was used only in the months of October, November and January, being thus supplemental to the irrigation use.

No water was sold for hydro-electric purposes in 1916 and the record does not show what amount, if any, was used by defendant for this purpose in 1917.

The following table, taken from Defendant's Exhibits Nos. 31 and 32 shows the quantity of water sold, in miner's inches per 24 hours, from 1912 to 1917, inclusive, for irrigation, Placerville Water Works, mining and hydro-electric uses:

Service	1912	1913	1914	1915	1916	1917
Irrigation	30328	35043	28331	35962	45772	60734x
Placerville Water Works	8893	9366	9564	10219	10158	9,995
Mining	59195	81854	60779	40354	23896	18383
W.S.G. & E. Co.	____	37000	3500	11825	____	*
Totals	98416	163263	102174	98360	79826	89112

x To December 24, 1917.

* Not reported.

5. DEFENDANT'S HYDRO-ELECTRIC PLANS.

The object of defendant in purchasing this system is stated on page 4 of its brief as follows:

> "The object of defendant in purchasing this system was to develop an extensive hydro-electric plant, using the electricity produced in the territory served with electricity by defendant in the counties of El Dorado, Sacramento, Calaveras, Amador and San Joaquin, including the City of Stockton and many other smaller cities, and a large and intensively cultivated agricultural community in which electricity is used for irrigation pumping to a great and constantly increasing extent. Defendant's own present hydro-electric plant, situated near Placerville and which has been operating for many years past, is absolutely inadequate to supply defendant's requirements, and defendant has been constantly obliged, and is still obliged, to purchase large quantities of electricity from other electric utilities and to develop by manufacture through the use of steam additional amounts itself. The increase in the price of oil, it being almost doubled within the past year or two, has brought home with peculiar force the absolute necessity of increasing the use of water in the development of electricity as far as is possible, and thereby not only to save money in the saving

of oil, but to extend as far as possible the time when the limited oil resources of the state will be exhausted. Defendant proposes to use the water from this system, and that which can be developed and added thereto, not only for a new power house on the South Fork of the American River, but a second time in its present power house, the output of which can be greatly increased through the additional water provided."

As bearing on the demand for electric energy from this system for the purpose of pumping water for irrigation, defendant filed its Exhibit No. 28, showing that its connected load of agricultural power has increased from 582.5 h.p. on July 31, 1911, to 7863 h.p. on September 30, 1917. The larger portion of this power is used in the vicinity of Lodi and Florin, in San Joaquin and Sacramento Counties.

Defendant's plan contemplates the construction of new storage dams and increases in the size of existing storage dams in the upper portions of its system, the enlargement of the Main Canal from its intake to the 14 Mile House Tunnel and the construction of pipe line, forebay, penstock, power house and transmission lines.

Referring first to increases in storage, defendant's plans call for a development of additional storage in the lakes under this system so as to insure a continuous flow of 200 cubic feet of water per second at the head of defendant's proposed pipe line at the 14 Mile House Tunnel. As the natural flow of the river during six months of the year will supply more than this quantity of water, the amount of requisite storage is based on the deficiency between 200 cubic feet of water per second and the natural flow of the stream during the six low months.

In its Exhibit No. 45, defendant reports that the necessary increased storage capacity can be secured by providing for storage at the present day costs indicated in each of the lakes named, as follows:

	Storage in Acfe feet.	Present Day Cost per Second Ft. of Water Stored.
Silver Lake	8870	$9.45
Twin Lakes	23350	9.15
Medley Lake	9720	2.93
Echo Lake	17770	5.25
Alder Creek	10980	27.45
	70690	

The storage given in the foregoing table for Echo and Twin Lakes is reported to be exclusive of the storage already developed. Defendant reports that its contemplated work at Echo Lake was stopped by the Reclamation Service.

The cost of enlarging the Main Canal so as to deliver 200 cubic feet of water per second at the 14 Mile House Tunnel is estimated by Mr. Duryea at $532,000, without overhead, or $617,120 assuming an overhead of 16 per cent.

Referring to the enlargement of the Main Canal and the construction of the proposed new power plant, defendant reports in its Exhibit No. 45 as follows:

> "The power project contemplates the enlargement of the El Dorado Ditch for a distance of approximately 24½ to 25 miles so as to carry the water proposed to be used. At the lower end of this enlarged section and near the Fourteen-Mile House Tunnel, it is proposed to take water out of the ditch through a wooden stave pipe, approximately 7 feet in diameter, for about two miles to a forebay. This 7 foot pipe would have a capacity of 200 second feet. The forebay is planned to be located about 2400 feet from the steep drop to the power house. The penstocks leading from the forebay to the power house would consist of wooden stave pipe for about 2400 feet from the forebay and steel pipe from this point to the power house. The total gross head obtainable is somewhat more than 1900 feet, giving a net working head at the wheels of 1700 feet or more. On the basis of a 1700 foot net head, each 5,000 brake horsepower will require about 32 second feet of water. The plan, so far as perfected, contemplates an initial development of two 5,000 b.h.p. units. The penstock for this installation would consist of 42 inch wooden stave pipe at the upper end and steel pipe reducing in

size from 42 inches to 20 inches, the lower end of the line dividing into two pipes, each of which would supply one of the generating units.

"It is altogether probable that when additional installation is required, the growth of the market and the general conditions may make it desirable to increase the size of the future units to 10,000 horsepower, and it is the intention to so plan the power house that 10,000 horsepower or even larger units can be installed, if desired, and the sizes of the future penstocks would be arranged to accomodate the capacity of the units selected.

"On the basis of 200 second feet continuous discharge and the 1700 foot net head, the total capacity of the plant on the 100% load factor basis would be 30,000 h.p."

Defendant presents an estimate of the cost of the proposed work as follows:

Enlarging Main Canal	$617,120.00
Power project	984,163.00
Transmission line	105,833.00
Total	$1,707,116.00

I desire to direct attention particularly to the fact that defendant's plans assume its ability to utilize for power development the entire 200 cubic feet of water per second which it contemplates bringing to the head of its pipe line at the 14 Mile House Tunnel. In order to take care of the requirements of defendant's domestic, irrigation and other consumers, it will be necessary either to utilize a portion of said 200 cubic feet of water per second or to increase the assumed storage and the assumed size of the Main Canal so as to have available for power development at the 14 Mile House Tunnel 200 cubic feet of water per second in addition to the water needed to supply the requirements of defendant's customers.

Defendant reports that during 1917, in pursuance of its plan of hydro-electric development, it constructed a rubble masonry dam and several auxiliary dams at Medley Lake. During the same year, defendant also cleared the site of the proposed

dam at Twin Lakes, made the excavation for the core wall and outlet works, placed concrete for the foundation of the outlet culvert and made preparations for continuing the work during the next season. Defendant is also making careful surveys and estimates in connection with the proposed new power plant and appurtenances.

This Commission has heretofore authorized Western States Gas and Electric Company to issue debentures and to use the proceeds thereof in the sum of $215,000 for the purpose of paying the purchase price for this system as taken over from Placerville Gold Mining Company in December, 1916. The company has made no request and this Commission has given no authorization for the issue of securities to reimburse defendant for any expenditures subsequently made by it on this system in connection with its proposed hydro-electric development.

Defendant reports that it has filed with the State Water Commission an application for authority to appropriate waters under this system in connection with its proposed hydro-electric development. Defendant filed herein as Defendant's Exhibit No. 46, a copy of said application, filed in the office of the State Water Commission on April 26, 1917. This application, however, is for water to be used in the generation of hydro-electric energy in the existing hydro-electric plant formerly owned by American River Electric Company, and does not contemplate the transmission of water through any portion of the Main Canal or through any power house in addition to the one formerly owned by the above named company. The application states that the total amount of power to be developed is only 2500 theoretical horsepower. The estimated cost of the proposed works is given as $202,375.43. It is evident that this appropriation is not an appropriation under the plans of defendant as now formulated and presented herein to the Railroad Commission.

Such water from this system as is transmitted through defendant's proposed new power house and through the existing power house below Placerville can not be used for irrigation on the Placerville ridge.

Defendant's new hydro-electric project is proposed at a time when there is urgent need for the development in this State of additional hydro-electric energy and defendant deserves all possible encouragement, consistent with the rights of other people.

6. COSUMNES WATER SUPPLY.

In order to show that water is available from another source for the domestic and irrigation requirements of the territory here under consideration, defendant presented plans and estimates for bringing into this district from the North Fork of the Cosumnes River, water sufficient to irrigate approximately 30,000 acres of land.

In this connection, defendant presented testimony as to rainfall, runoff and reservoir sites in the water shed of the North Fork of the Cosumnes River and the construction of dams and ditches for the purpose of storing flood waters in this water shed and of transmitting them to the Placerville ridge. Defendant reports in this connection that it will be possible in this manner to irrigate all the lands now irrigated from defendant's system below Camino, as well as over 25,000 additional acres of land.

Defendant presented as its Exhibit No. 24, estimates by Mr. C. E. Gilman for the development of Sly Park Reservoir, with varying heads of dam and varying capacities of the canal to Camino. Mr. Gilman reports, based on the critical period 1911 to 1916, that this reservoir will be able to irrigate between 3335 and 12,750 acres of land, dependent upon the height of the dam and

on whether one miner's inch of water, continuous flow, is assumed to irrigate five acres or seven and one-half acres of land and that the cost of constructing the dam and canal will vary from $35.50 to $92.50, per acre irrigated dependent upon the same factors. With the dam constructed to the maximum proposed height of 160 feet, Mr. Gilman reports that the cost of dam and canal will be $46.40 per acre of land irrigated, on the assumption that one miner's inch, continuous flow, will irrigate seven and one-half acres of land and $69.70 on the assumption that it will irrigate only five acres of land.

Defendant also presented testimony with reference to the possibility and cost of developing additional reservoirs in the water shed of the North Fork of the Cosumnes River. Included in Defendant's Exhibit No. 41 is an estimate prepared by Mr. N. B. Ellery of the cost of storage and transmission for an assumed system of 30,000 acres irrigated. Assuming a payment of $350,000 to Diamond Ridge Water Company for its present water system and claimed water rights, Mr. Ellery reports that this cost would be $40.66 per acre for each of the proposed 30,000 acres. This estimate does not include any item for the distributing system of Western States Gas and Electric Company.

The testimony shows that no borings have been made in connection with proposed dams on the water shed of the North Fork of the Cosumnes River.

As showing the necessity for early consideration of the possibility of securing additional water for use on the Placerville ridge, defendant presented its Exhibit No. 39, in which exhibit Mr. Duryea reports that, on the assumptions therein contained, the ultimate irrigation capacity of the system as at present developed, is 1530 miner's inches, except in the driest years, and that while in those years during which the natural stream flow

is at or above the average, 7700 acres may be irrigated on the assumption of five acres per miner's inchand 11,500 acres on the assumption of 7.5 acres per miner's inch, there will be years of low stream flow during which the system as at present developed will not be adequate for more than the acreage now under irrigation, at the rate of five acres per miner's inch, or between 4000 and 6000 acres at the rate of 7.5 acres per miner's inch.

. Complainant took the position that its members rely on their rights under the existing system and that they are in no way obligated to give consideration to the possibility of securing additional water from another source. Defendant took the position that its obligation is limited to the amount of water actually applied to beneficial use under this system in 1916 and that it is not the duty of the defendant to look around for additional sources of water supply to meet the increasing irrigation requirements. Defendant,However, stated that it had gone to considerable, trouble and expense to develop the facts in connection with the possibilities of the North Fork of the Cosumnes River, so that the members of complainant association might have their attention directed to another source from which they might secure necessary additional water. Defendant offered, in case the land owners in this district should proceed promptly with the formation of an irrigation district and the development of water from the North Fork of the Cosumnes River to take care of the increasing requirements of this district pending the completion of the Cosumnes project. This offer was not accepted by the complainant, which took the position that any obligation to develop additional water rests on the defendant and not on the complainant.

I have gone into the matter of the Cosumnes supply at some length, not merely to indicate the position of the parties in connection therewith, but also for the reason that the development of additional water in this territory, whether for irrigation

or hydro-electric energy, is very much to be desired and all possibilities for such development are worthy of careful consideration from all parties.

While the record in this case is not such as to enable me to pass definitely on the cost or other details of the Cosummes project or on the possibility of conflicting claims to the water, the matters presented by the defendant in connection with the system are in sufficient particularity and detail to justify careful further consideration of the project by the interested parties.

7. RIGHTS OF PARTIES.

I come now to the consideration of the rights in the water developed and to be developed in this system.

Complainant's position, as expressed in the concluding paragraph of its opening brief herein, is that

> "all the water now developed on this system and hereafter capable of being developed therefrom under the original appropriations has been devoted to the public use of irrigation and domestic purposes within the watershed of the South Fork of the American River."

Defendant's position, as stated on page 2 of its brief, is that it intends to use "all water in addition to that previously supplied to irrigation and other consumers, solely for the purpose of developing electricity and for resale below the point of use for this purpose."

Defendant claims the right to refuse to deliver any additional water for public use, other than its own hydro-electric use, and to devote exclusively to the generation of electric energy in its power plants and subsequent sale in other districts lower down not merely the water hereafter to be developed by defendant, but also all water now developed in excess of the amount

of water actually applied to beneficial use in 1916. The reference to the water now developed is material for the reason that at the time defendant purchased this system and at the present time there were and are developed therein and in the possession and control of the owner of the system considerable amounts of water in excess of the water actually applied to beneficial use. Defendant further claims that it had the right in 1917, at least several years prior to any possible completion of its new hydro-electric development, to refuse to deliver any additional water for irrigation and domestic purposes.

The correct determination of the proper principles to be applied in resolving these conflicting claims is a matter of profound importance to both parties and deserves the most careful consideration from this Commission.

The testimony shows that ever since the completion of the Main Canal and the initial operation of the system in 1876, this water system and all waters controlled by it have been and are now devoted to public use. Water has been sold at established rates to whoever desired to buy. While the quantity of water sold for various uses, domestic, mining, irrigation and hydro-electric, have varied from time to time, and while the use for which the largest quantity of water was sold has likewise changed, from time to time, the fact of vital significance is that the uses for which the water from this system have been sold have always been public. In so far as the record herein shows, there has never been any refusal to sell water for any of said public uses to any member of the public in the territory lying under the canals and ditches of this system, except that in 1916, Placerville Gold Mining Company refused to sell any water for hydro-electric uses to Western States Gas and Electric Company. Placerville Gold Mining Company, defendant's predecessor in the ownership and operation of this system, was a public utility and was so represented to this Commission at

the time when authority was asked for the transfer of its system to the defendant (Vol. 12, Opinions and Orders of the Railroad Commission of California, p. 84). The situation is accurately stated by defendant in its brief, at page 17, as follows:

> "All of the water controlled by defendant and its predecessors, so far as the evidence in this case shows, has for many years been devoted to public use, namely: irrigation, City of Placerville, mining, and hydro-electric purposes."

It will be noted that defendant's statement of the situation extends to all the water "controlled" by it and its predecessors. I may add that the water sold for hydro-electric purposes was sold only during the last 12 years, excepting 1916, and was delivered almost entirely after the close of the irrigating season.

The "class" to whose use this system and the water controlled thereby were devoted consists of persons living or doing business in that portion of El Dorado County which lies below the canal and ditches of this system.

As already indicated, the testimony shows that the capacity of this system is such as to enable it to supply considerable water in excess of the quantity heretofore actually applied to beneficial use and considerable water has been developed and is now under the control of this system (apart from the 1917 development at Medley Lake) in excess of the amount heretofore applied to beneficial use. Attention has been directed to Mr. Kahn's testimony to the effect that in 1917, only 40/64 of the capacity of the Main Canal (the limiting factor under this system) was necessary to supply the needs of the existing consumers and to his further showing that the system as acquired by defendant would be able to meet all additional irrigation requirements, as reported by complainant, up to 1922, on the assumption that the mining use is converted to electricity or ceases.

From these facts and the other facts shown in the record herein, the conclusion follows irresistibly that this system is obligated to sell water, at least to the extent to which it has water developed and under its control, to all who come within the class for whose benefit the public trust was created.

As was said by the Supreme Court of California in Price vs. Riverside L. & I. Co., 56 Cal. 431, 432:

> "It is quite certain that defendant cannot escape the performance of a public duty which it assumed on its attempted incorporation as a water company by the assertion of a right, as another sort of corporation, to supply all the water to its own uses or to those of its grantees."

Continuing, at page 433, the court says:

> "Every corporation deriving its being from the act above cited (St.1862, p. 540) has imposed upon it a public trust--the duty of furnishing water, if water it has, to all those who come within the class or community for whose alleged benefit it has been created."

In Hildreth vs. Montecito Creek Water Co., 139 Cal. 22, the court, at page 30, says:

> "The right of an individual to a public use of water is in the nature of a public right possessed by reason of his status as a person of the class for whose benefit the water is appropriated or dedicated. All who enter the class may demand the use of the water, regardless of whether they have previously enjoyed it or not."

Weil, in paragraph 1280 of his work on Water Rights, Third Edition, states the rule to be that a public service water company must render service "to the extent of the capacity of its distributing system or plant." See also Fellows vs. Los Angeles, 151 Cal. 52; South Pasadena vs. Pasadena L. & W. Co., 152 Cal. 579.

Section 10 of the Act of March 12, 1885 (St.1885,p.95) provides as follows:

> "Every person, company, association and corporation, having in any county in the state (other than in any city, city and county or town, therein) appropriated waters for sale, rental or distribution, to the inhabitants of such county, upon demand therefor and tender in money, of such established water rates, shall be

> obliged to sell, rent or distribute such water to such inhabitants at the established rates regulated and fixed therefor, as in this act provided, whether so fixed by the board of supervisors, or otherwise, to the extent of the actual supply of such appropriated waters of such person, company, association or corporation, for such purposes."

This section makes it the duty of a water utility to sell water "to the extent of the actual supply" of its water appropriated for public use.

The Railroad Commission has been granted authority to compel a water company to serve additional consumers. Section 5 of the Act of April 25, 1913, (St. 1913, page 84) specifically authorizes the Commission to require any public utility water company "to allow additional consumers to be served when it shall appear that to supply such additional consumers will not injuriously withdraw the supply wholly or in part from those who theretofore had been supplied by such public utility."

Section 13 (b) of the Public Utilities Act provides as follows:

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

Section 36 of the Public Utilities Act specifically authorizes the Commission to require public utilities to give adequate service and facilities and to make necessary additions, extensions, repairs, improvements and changes.

It seems entirely clear that the defendant is obligated to continue to sell for public use additional water from its developed supply, at least up to the capacity of its system as now constituted. I shall hereinafter refer for a moment to possible enlargements of that system.

Defendant, however, contends that its obligation to sell water to the public is limited to the precise amount of water

which it sold in 1916, that is, to the amount "previously supplied for irrigation and other consumers." If defendant is correct in this contention, it can refuse to supply a single additional drop of water for drinking or other domestic purposes in the City of Placerville and elsewhere in the county. It can refuse to supply additional water for flushing sewers or for sprinkling the streets, as the City of Placerville, from time to time, increases in population. It can limit special users, such as the County Hospital, to the amount of water heretofore used. It can refuse to supply the additional water which the young orchards now planted in this district will require, as the trees grow older. It can refuse, as it announces its intention to do, to sell water for the irrigation of a single additional acre of land, even in those cases in which the land owner is gradually bringing his entire tract under cultivation but has heretofore been unable because of limited resources, to complete his development.

If defendant can do these things, by simply announcing that it will hereafter refuse to supply any additional water to its customers, every other water utility in the State, domestic as well as irrigation, can do the same thing, either with or without a new appropriation. Every such utility, if the position of defendant is correct, can take all the remaining water in its possession and either use it for its own private purposes or sell it by private contract to third parties, irrespective of the growing requirements of the communities to whose service the system has been devoted.

Defendant relies, in support of its claim, on the well established rule of law, that as against a lower riparian owner or a subsequent appropriator, the rights of a prior appropriator of water are limited to the amount of water which he has actually applied to beneficial use. This principle, in my opinion, has no

bearing on the facts of this case. We have here no adverse claimant. The members of the complainant association and all other parties desiring water from the defendant, claim through the defendant and not against the defendant. The record contains no reference to anyone who has made any adverse appropriation of water or who has or asserts any claim adverse to the defendant to any of the waters heretofore developed and now under the control of the defendant. The only relationship here under consideration, on the facts as shown in this record, is the relationship existing between a water utility, having in its possession and under its control waters which have been tendered to public use, and its customers and intending customers. If, under such circumstances, there being no adverse claimant to the water, the water utility can by its mere refusal to sell, deny to persons within the class to whose use the water has been devoted the right to receive it, there will be an end to any relief, either by mandamus or before this Commission. It will be impossible, in that event, to compel an unwilling water utility to make any extension to serve a new customer or to sell to an existing customer any amount of water in addition to that which it has heretofore sold to him. The authorities hereinbefore cited are conclusive to the effect that it is the duty of the defendant, under the circumstances herein set forth, to proceed and sell water for public use, at least up to the present capacity of its Main Canal.

I do not wish to be understood as suggesting that defendant can not be required to extend and enlarge its existing facilities. On the contrary, I am satisfied that in a proper case, where the facts show the order to be just and reasonable, a water utility can be lawfully required to enlarge its existing facilities and to develop additional water so as to carry out more fully its obligations as a public utility. The general principle is clearly expressed by Wyman in Section 797 of his work on Public

Service Corporations. Referring to water works, gas plants, electric plants and telephone systems, Wyman says, in part:

> "There are sufficient authorities to the effect that their obligation to give service is not confined to the original pipes which have been laid, or wires which have been strung. Such companies are held to undertake the service of their communities; and they must, to speak in general, be prepared to extend their system throughout their district to meet the reasonable demands of the growing community. If this involves the acquisition of new sources of supply, or a laying of pipes in new streets, or extension of wires to other streets or the construction of new exchanges, all those new facilities must be provided to meet the expansion of the business within the community to the service of which the company has committed itself."

In Capital City Water Company vs. Macdonald, 105 Ala. 406, 18 So. 62, 29 L.R.A. 743, the corporate charter of the Capital City Water Company was forfeited by reason of failure to dig additional wells to supply the needs of the City of Montgomery.

In Lukrawka vs. Spring Valley Water Company, 169 Cal. 318, the Supreme Court of California reversed the court below and directed that mandamus issue to compel Spring Valley Water Company to extend its distributing system and serve water to additional customers in the City of San Francisco. At page 336 of the Reporter, the court says:

> "The right which this acceptance (of its franchise by the corporation) legally secured to each inhabitant of the municipality was in the nature of a public right accruing to him from his status as a person of the class for whose benefit the respondent obligated itself to furnish a water supply. The right was extended to and the obligation of the respondent included each and every person who might become an inhabitant of the municipality while respondent was exercising the public use which it had assumed. By such acceptance a clear and perfect legal right was created in favor of the inhabitants of the municipality to compel a water service to them and upon the respondent to do so."

That the sale of this water system by Placerville Gold Mining Company to the defendant herein did not alter the legal rights of persons coming within the class of those to whose service the system was devoted, seems clear. The parties to such a sale cannot, by merely transferring the title, change the public obligations of the water system. Hence, when demand for additional water for irrigation was made upon the defendant in 1917 by members of complainant's association, the total amount of water demanded being less than the additional water then under defendant's control and capable of being conveyed to the applicants through defendant's Main Canal, it was the defendant's duty to supply the water thus demanded. While defendant did supply additional water in 1917 to all persons requiring the same, defendant refused to do so unless in each instance the applicant signed an agreement to the effect that no right to the continued use of such water would arise in his favor from the use thereof in 1917. Such applicants had the right in 1917 and they have the right now, under the principles herein set forth, to receive additional water, without signing any such agreement, at least up to the extent of the existing capacity of the system. It is not necessary here to consider whether it would be just and reasonable to require the defendant to enlarge the capacity of its system for the supply of water for irrigation at the rates herein established.

While the sale of this system to defendant did not change the legal obligations of the system, the sale and defendant's plans in connection therewith have very materially changed the facts. This change in the facts will undoubtedly have a very substantial effect in determining who may use the additional waters now developed and waters hereafter to be developed under this system.

Defendant has made public announcement of its intention to use this water system for the development of hydro-electric energy and has presented to this Commission in this proceeding its plans for such development.

That the generation of electricity is a beneficial use for which an appropriation of water may be made has long been settled. Thompson Co. vs. Pennebaker, 173 Fed. 849, 854; Cascade Town Co. vs. Empire Water and Power Co., 181 Fed. 1011, 1016; United States vs. Utah Power and Light Co., 208 Fed. 821, 824; Speer vs. Stephenson, 16 Idaho 707, 102 Pac. 365; Sternberger vs. Seaton Mining Co., 45 Colo. 401, 102 Pac. 168.

Section 1410, Civil Code of California, referring to the appropriation of running water flowing in a river or stream, recognizes the use of water for generating electric energy as being a beneficial use. See also the State Water Commission Act, (St. 1913, p. 1012).

I do not agree with complainant's contention that the use of water by defendant for the generation of electric energy in its power plants would be carving "a private right out of a public use" and hence void under the doctrine established in Leavitt vs. Lassen Irrigation District, 157 Cal. 82. Defendant, in my opinion, has the same right to use water from this system for the generation of hydro-electric energy which it would have had to demand the water for this purpose from Placerville Gold Mining Company, if the latter company had retained the system. The transfer of the system to the defendant does not diminish the right which the defendant would otherwise have had to demand water from this system for a public use. Where, as here, the water is to be used by a public service electric utility which sells its electric energy to the public, the use of the water for this purpose is, in my opinion, clearly a public use.

Neither do I agree with complainant's position that "the defendant's predecessors in interest dedicated all of the available water of their system during the irrigating season to irrigating, mining and domestic use." Nor, in this same connection, do I agree with defendant's position that we have here "four separate and distinct dedications," one each for domestic, mining, irrigation and hydro-electric use, respectively. As I read this record, defendant's predecessors in interest did just one primary act--they engaged in the business of selling water for public use. There is nothing to show that they preferred one public use to another. There is absolutely nothing to show that they made a separate dedication for each of the four principal public uses for which water under this system has been sold. They sold the water, without restriction or qualification, for such public use as demanded it at the particular time. The kind of public use as to which the quantity of water predominated changed from time to time, but throughout all the years this system was doing just one thing--selling water for public use.

The use of water by defendant to generate electric energy in its power plants, under the circumstances herein set forth, will be just as much a public use as the use of water for irrigation. Although heretofore the water sold for hydro-electric purposes has been used only in the xxx months of October, November, December and January, there is nothing in this record to preclude a public use of water for this purpose during other months, consistent with the rights of other persons under this system.

While household and domestic uses are sometimes given a preference over other public uses of water, I have found no authority and know of no satisfactory reason for establishing a preference, on the question of public use, as between irrigation and hydro-electric use in this State. Each use is beneficial and

each is of great importance to the State.

In Union Mill and Mining Company vs. Dangberg, et al., 81 Fed. 73, Judge Hawley had under consideration the analogous question whether any preference should be established as between appropriators for irrigation and for mining in Nevada. He concluded that these two uses were entitled to equal consideration, saying that "the right to the water of a stream for any beneficial use should always be protected and encouraged."

Referring to appropriations of water for various beneficial uses, Wiel, in Section 378, says:

> "That all pursuits are on an equal footing, whether miners, agriculturists, manufacturers or other occupations, is a matter previously set forth. The law here again follows out the idea of 'free development' on which it is founded. The following passage from Basey v. Gallagher (87 U.S. 670, is frequently quoted: 'Water is devoted to propel machinery in flour mills and saw mills, and to irrigate land for cultivation, as well as to enable miners to work their mining claims, and in all such cases the right of the first appropriator, exercised within reasonable limits, is respected and enforced. An appropriation may be made for any beneficial purpose'".

Accordingly, when defendant completes its new storage, transmission and power developments, the public use of generating electric energy, not merely after the irrigating season but also during the irrigating season, will knock at the door of this system and will demand--and will be entitled--to equal treatment with the irrigation use. I do not mean to say that the hydro-electric use will have the right to take away any of the water necessary to serve existing customers of defendant at that time. What I do mean to say is that the hydro-electric use will be entitled to the use of the water at that time developed and not applied to other public use, to the same extent and with the same right as though application for an equal amount of water were at that time made for the purpose of irrigation. If the water at that time demanded for hydro-electric use is all the remaining water then developed

in the system, the hydro-electric use will be entitled to that water. As between public uses of equal dignity, the rule of first come first served should apply.

Until defendant completes its initial new power development and supplies additional water for hydro-electric purposes, the existing public uses have the right to demand that their requirements be fulfilled as in the past. If the irrigationists are prompt in their developments, they will probably be able to bring at least several hundred acres of additional land under irrigation before defendant itself begins the use of additional water for generating electricity. On the other hand, when defendant has completed its initial installation, it will have the right to utilize for the generation of electricity to the extent of its requirments the waters at that time in its possession and control and not then applied to beneficial use. On the facts of the case, if defendant can complete its initial installation within the next two years or so, it is reasonable to assume that defendant will be able to utilize for the generation of electric energy most if not all of the additional water which it is developing on this system.

I do not desire, by anything herein contained, to preclude the possibility of the application of a principle analogous to that established by the Supreme Court of this State in Senior vs. Anderson, 115 Cal. 496. After referring to the general rule that an appropriator's right to water is limited, as against other claimants, to the amount theretofore applied by him to beneficial use, the Supreme Court of this State, referring to a prior appropriation of water for irrigation, says, at page 503:

> "We do not hold that the Hines appropriation is limited by the quantity of water he could put to a beneficial purpose upon his land the first or second year, but to such quantity as he could put to a useful purpose upon his land within a reasonable time by the use of reasonable diligence." (Citing Cole vs. Logan, 24 Ore. 304).

In other words, when an appropriation is made for irrigation, the appropriator may continue his development even as against an intervening advance claimant, provided that he completes his development within a reasonable time. Wiel is of the opinion (Sec. 483) that such time will probably be held in California to be five years.

The case now under consideration is, of course, not one of two rival appropriators but of two rival public uses claiming as beneficiaries of a public trust under the same public utility water company. I have no means of knowing whether the courts would apply the principle of Senior vs. Anderson to this somewhat analogous situation and am merely drawing attention to the point without in any way passing thereon.

The result of the application of the principles herein set forth to the facts of this case cannot now be determined by me with exact precision. We cannot know now when defendant will complete its initial new hydro-electric development and will start using additional water in connection therewith. We do not know how rapidly, in the meantime, the land owners under this system will plant their lands and demand additional water. The resulting uncertainty as to the exact quantity of water ~~xx~~ which will be available to the various parties is not desirable, although in the very nature of things, it seems unavoidable unless the parties reach a definite agreement defining, for the purpose of the agreement, their respective rights.

It occurs to me that, in view of the facts of this case and the principles of law applicable thereto, the parties may desire to confer and see whether they can not reach a definite agreement as to the extent of their future rights. If, as may well be, the additional requirements of this district for irrigation, after a number of years, must be met from some other source,

the sooner the irrigationists know the exact extent of what they may expect from this system the better it will be for all parties concerned. Defendant, very naturally, has a similar desire to know the exact quantity of water on which it may hereafter rely. A definite arrangement of this character entered into in the case of Montague, et al., vs. Pacific Gas and Electric Company, is working out very satisfactorily in Placer County. (Vol. 8, Opinions and Orders of the Railroad Commission of California, p. 820.)

The record herein does not show any formal demand for additional water made by complainant or its members on defendant. Both parties have stated that they desire to have the Railroad Commission establish the principles applicable to the facts of this case, so that each party may look to the future with more assurance and certainty than has heretofore been the case. Accordingly, the order herein will not direct the defendant to deliver any specific amount of water to the members of the complainant association but defendant will be directed to be guided by the principles herein announced.

If the parties hereafter enter into a definite agreement and desire to have it incorporated herein as a supplemental order, that course may be pursued. Or if, for any reason, either party desires to have ~~xxxxx~~ further or supplemental proceedings taken herein, this may be done. The case will be held open for these purposes

8. RATES, RULES AND REGULATIONS.

The rates in effect under this system are as follows:

For irrigation,	20¢ per M.I. per 24 hours
For mining,	15¢ " " " "
For water sold to Placerville Water Works for distribution in Placerville,	12¢ " " " "

For domestic and special sales, various flat rates.

From these rates this system has had earnings and maintenance and operating expenses in 1915, 1916 and 1917, as follows:

1915.

Earnings,	$19,018.99
Maintenance and operating expenses,	19,589.21
Deficit,	$ 570.22

1916.

Earnings,	$17,618.28
Maintenance and operating expenses,	22,329.85
Deficit,	$ 4,711.57

1917.

Earnings,	$20,842.45
Maintenance and operating expenses,	18,189.48
Net earnings,	$ 2,652.97

The foregoing statements include under maintenance and operating expenses, all replacements, but no allowance is made for any return on the investment.

Defendant asks the Commission to establish a rate of 40¢ per miner's inch per 24 hours for both irrigation and mining use, but makes no suggestion with reference to any change in any of its other rates.

In Exhibit No. 35, defendant presents data in substantiation of its request for an increase in its rates for irrigation and mining. The suggested rate base is the sum of $215,000, representing the purchase price of the property to

defendant. This sum includes a number of items such as engineering and fee for filing for appropriation of water with the State Water Commission, which are clearly chargeable exclusively to defendant's hydro-electric development. The property purchased also includes valuable engineering data which should be chargeable to the same account. In estimating earnings for 1918, defendant assumes an increase of 8000 miner's inch days for irrigation and a decrease of 13,000 miner's inch days for mining. No increased rates are applied to defendant's remaining business. Attention should be directed to the fact that the rate paid by Placerville Water Works for water sold by it principally for domestic purposes in the City of Placerville is only 12¢ per miner's inch day. We have here the rather anomalous situation of having water sold for domestic use at a rate less than one-third of the rate asked to be made applicable to irrigation use. The amount claimed by defendant for maintenance and operating expenses includes between $500 and $600 which should properly be chargeable to capital account and presumably includes some deferred maintenance.

Defendant makes no estimate of gross earnings from water to be used by it for hydro-electric purposes. In certain of its computations, however, a portion of the capital and of the maintenance and operating expenses is charged to that portion of the system which is above the 14 Mile House Tunnel.

Defendant concedes that the rates to be charged by it can not be based on the estimated cost to reproduce the property for the reason that the property was originally constructed for mining purposes and would not now be constructed to serve the needs of its present day customers.

The Railroad Commission introduced as Railroad Commission's Exhibit No. 1, a statement of rates ~~for~~ ~~xx~~ charged for irrigation by other public utility water systems in the Sierra Nevada foothill district, as reported by Hydraulic Engineer, Mr. R. W. Hawley. These rates appear in the following table:

OWNER	COUNTIES	RATE	1.5 CU. FT. PER MINUTE	REMARKS
Cottonwood Irrigation & Mfg. Co.,	Siskiyou	$0.05 per M. I. Day	.05	
Pacific Gas & Electric Co.,	Butte	0.10 " " "	.10	Thermalito also $5 per acre
Pacific Gas & Electric Co.,	Nevada	0.25 " " "	.25	
Pacific Gas & Electric Co.,	Placer	45 .00 " " Season	.30	For 150 days.
Northern Water & Power Co.,	Nevada	.15 " " Day	.15	
Excelsior Water & Mining Co.,	Nev-Yuba	.10 " " "	.10	Reduced from higher Commission rate by agreement
South Feather Land & Water Co.,	Butte-Yuba	36 .50 " " Season	.24-1/3	Assume 150 days
Palermo Land & Water Co.,	Butte	.22 " " Day	.27-1/2	Established by Commission, M. I. is 1/50 Second Feet.
Mokelumne Power & Water Co.,	Calaveras	.50 " " "	.50	
Hobart Estate Co.,	Amador,	.10	.12-1/2	1/50 Second foot
North Fork Ditch Co.,	Placer,	30 .00 " " Season	.24	1/50 Second foot. Assumed 150 days
Truckee River General Elec. Co.	El Dorado,	.20 " " 20 Day	.20	
Happy Valley Land & Water Co.,	Shasta	.20 " " " "	.20	Fixed by Commission
Sierra & San Francisco Power Co.,	Tuolumne	.12½ " " " "	.12-1/2	
Foothill Ditch Co.	Tulare	.12 " " " "	.15	1/50 Second Foot. Fixed by R.C.C.- raise
Diamond Ridge Ditch Co.,	El Dorado,	.20 " " " "	.20	
Western States G. & E. Co.,	" "	.20 " " " "	.20	
	Average of 17 cases		.20-1/20	

*-It is assumed that the miner's inch as measured is the statute measure of flow 1/40 second foot, producing 1.5 cubic feet per minute except where it, theoretically, is 1/50 second foot producing 1.2 cubic foot per minute. Practically the amounts produced in different places with the different methods of measurement used produce greatly varying results.

-oOo-

After careful consideration, I recommend that the rate for irrigation and mining under this system be established at 24¢ per miner's inch per day of 24 hours.

Mining companies have at times required that a considerable head of water be available at all times for their use even though the amount actually used by them is considerably less than the amount which they have asked to be held for them. In such cases, the mining companiesshould pay for the amount of water held for them, provided that if they become part of a rotation schedule, the water being made available for other uses during the time it is not needed for mining, so that a single run of water may be less than 24 hours, the rate shall be 1¢ per inch hour. This situation may be covered by rules and regulations to be submitted by the defendant.

A miner's inch, as referred to in the rate herein established, shall be the equivalent of 1½ cubic feet per minute or 1/40 cubic feet per second.

There is not sufficient evidence in this proceeding for the establishment of rates to be charged to any class of service other than irrigation and mining. If the defendant desires hereafter to have rates established for its other classes of customers, it may make application for a supplemental proceeding herein for that purpose.

The Commission will entertain suggested rules and regulations from the defendant providing for rotation of water under this system, if defendant considers such procedure desirable.

I submit the following form of order:

O R D E R.

Public hearings having been held in the above entitled proceeding, testimony having been presented, briefs having been filed and the case having been submitted for decision,

IT IS HEREBY ORDERED that in passing on applications for water from its system in El Dorado County, California, Western States Gas and Electric Company shall be guided by the principles set forth in the opinion which precedes this order.

THE RAILROAD COMMISSION HEREBY DECLARES that the rates charged by Western States Gas and Electric Company for water sold for irrigation and mining purposes from its water system in El Dorado County, California, are unjust and unreasonable and that the rates herein established are just and reasonable rates.

BASING ITS ORDER ON THE FOREGOING FINDING OF FACT and the other applicable findings of fact contained in the opinion which precedes this order,

WESTERN STATES GAS AND ELECTRIC COMPANY is hereby authorized to charge, effective twenty (20) days from the date of this order, a rate of twenty-four (24) cents per miner's inch per twenty-four (24) hours for all water sold by it for irrigation and mining purposes in El Dorado County, California; provided, that Western States Gas and Electric Company shall have filed with the Railroad Commission prior

to said date said rate and also rules and regulations, as indicated in the opinion which precedes this order.

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 25th day of May, 1918.

Max Thelen

H. Broderick

Alex Gordon

Edwin O. Edgett

Frank R. Willis

Commissioners.