

ORIGINALDecision No. 52179

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

In the Matter of the Application of)
 PACIFIC GAS AND ELECTRIC COMPANY, a)
 corporation, for a certificate)
 declaring that the present and future)
 public convenience and necessity)
 require the construction, operation,)
 maintenance and use of its proposed)
 Butt Valley, Caribou No. 2, and)
 Belden hydroelectric power projects)
 on North Fork Feather River and its)
 tributaries in the County of Plumas,)
 California, as herein set forth.)

Application No. 37005

F. T. Searls and John C. Morrissey, for applicant;
 City and County of San Francisco by Dion R. Holm
 and Paul L. Beck; A. D. Edmondston, State Engi-
 neer by Fred J. Groat, interested parties;
John J. Doran, Jr., and Charles W. Mors, for the
 Commission staff.

O P I N I O NNature of Request

Pacific Gas and Electric Company, operating public utility electric and gas systems and relatively minor water and steam heat systems in northern and central California, on June 2, 1955, filed this application requesting a certificate of public convenience and necessity to construct and to thereafter operate, maintain and use three hydroelectric power projects on the North Fork Feather River and its tributaries in Plumas County as follows:

<u>Project</u>	<u>Prime Mover</u>		<u>Generator</u>	
	<u>No.</u>	<u>Size</u>	<u>No.</u>	<u>Size</u>
Butt Valley	1	55,000 hp	1	48,000 kva
Caribou No. 2	2	75,000	2	63,000
Belden	2	78,000	2	65,000
	<u>5</u>	<u>361,000</u>	<u>5</u>	<u>304,000</u>

In addition applicant requests permission to install new 220,000 volt transmission lines, together with necessary terminal facilities, as follows:

<u>No. of Circuits</u>	<u>From</u>	<u>To</u>	<u>Approximate Length</u>
1	Butt Valley P.H.	Caribou No. 2 P.H.	8 miles
1	Caribou No. 2 P.H.	Belden P.H.	9
2	Belden P.H.	Sw.Cent.near Oroville	41
1	Oroville	Substation at Rio Oso	43
2	Rio Oso	Bellota Substation	37

The above transmission lines will deliver electric energy into applicant's existing 220,000 volt transmission network at Rio Oso and at Bellota Substation.

Applicant's principal source of water to drive the proposed powerhouses is Lake Almanor. For reasons of economy applicant plans to make maximum use of its existing dams and reservoirs in the area. Only one new dam will be required on the North Fork Feather River below Caribou No. 2 powerhouse which will provide afterbay regulation for the Caribou powerhouses and provide an intake reservoir for the Belden powerhouse with a capacity of about 2500-acre feet. The proposed new construction is shown on Exhibits Nos. 1 and 2 in this proceeding.

Public Hearing

After due notice public hearing was held upon this application before Commissioner Justus F. Craemer and Examiner M. W. Edwards, on September 14, 1955, at San Francisco. At the hearing applicant presented four exhibits and testimony by four witnesses. Prior to the hearing the Commission staff had investigated the applicant's proposal and at the hearing placed pertinent information into the record.

No one entered any objection to the granting of applicant's request; however, subsequent to the hearing, the Commission received

letters from two persons living in the construction area seeking delay of the start of this project until the Poe plant is completed because of the economic effect upon the area.

Additional Capacity Requirement and Program

Applicant anticipates future load growth at the rate of approximately 6 per cent per year or roughly 250,000 kw per year. During the past 18 years the experienced rate of growth has been about 8 per cent per year on the average. Applicant estimates that the Butt Valley and Caribou No. 2 plants can be completed in the spring of 1959 and the Belden plant in the spring of 1961. These plants represent but a little more than one year's load growth and it is obvious that other new plants will be necessary before these are available. Applicant's proposed new capacity program for the next six years is as follows:

<u>Name and Type of Plant</u>	<u>Available Capacity</u>	<u>Date Available</u>
Morro Bay - Steam (2nd Unit)	165,000 kw	Spring 1956
Humboldt Bay - Steam (1st Unit)	50,000	Fall 1956
Poe - Hydro	106,000	Spring 1958
Steam - Unnamed	165,000	Spring 1958
Humboldt Bay - Steam (2nd Unit)	50,000	Fall 1958
Butt Valley - Hydro	33,000	Spring 1959
Caribou No. 2 - Hydro	109,000	Spring 1959
Balch Addition - Hydro	92,000	Spring 1959
Steam - Unnamed	165,000	Spring 1960
Haas - Hydro	126,000	Spring 1960
Steam - Unnamed	165,000	Spring 1961
Kings River - Hydro	42,000	Spring 1961
Belden - Hydro	113,000	Spring 1961
Total	<u>1,381,000</u>	

In addition to the above proposed capacity applicant anticipates that it will be able to purchase additional capacity from the Central Valley Project to the extent of 103,000 kw starting in 1957 and from the Tri-Dam Project to the extent of 64,000 kw starting in 1959. The above ratings are for average year water conditions and are nearly as great during dry years, the dry year drop being estimated at only 3,000 kw on Butt Valley, 3,000 kw on Haas and 6,000 kw from the Tri-Dam Project.

Resource Margin

Applicant's estimates of the margins of available generating capacity over maximum loads for the next six years, based on dry year and average year hydro conditions, are summarized in the following tabulation:

<u>Year and Type</u>	<u>Available Capacity (1,000 kw)</u>	<u>Estimated Peak Load (1,000 kw)</u>	<u>Estimated Margin (1,000 kw)</u>	<u>Ratio Margin to Load</u>
1956 Dry	4,756	4,325	431	10.0%
1956 Avg.	5,059	4,205	854	20.3
1957 Dry	4,909	4,435	474	10.7
1957 Avg.	5,109	4,315	794	18.4
1958 Dry	5,203	4,685	518	11.1
1958 Avg.	5,380	4,565	815	17.9
1959 Dry	5,542	4,935	607	12.3
1959 Avg.	5,728	4,815	913	19.0
1960 Dry	5,830	5,190	640	12.3
1960 Avg.	6,019	5,070	949	18.7
1961 Dry	6,150	5,445	705	12.9
1961 Avg.	6,339	5,325	1,014	19.0

Similar estimates of margins of available energy over annual load requirements are:

<u>Year and Type</u>	<u>Available Energy (Million Kwhr)</u>	<u>Estimated Average Load (Million Kwhr)</u>	<u>Estimated Margin (Million Kwhr)</u>	<u>Ratio Margin to Load</u>
1956 Dry	29,680	23,655	6,025	25.5%
1956 Avg.	32,962	22,527	10,435	46.3
1957 Dry	30,629	24,677	5,952	24.1
1957 Avg.	33,692	23,874	9,818	41.1
1958 Dry	31,828	25,983	5,845	22.5
1958 Avg.	34,787	25,226	9,561	37.9
1959 Dry	33,347	27,383	5,964	21.8
1959 Avg.	36,547	26,626	9,921	37.3
1960 Dry	34,521	28,883	5,638	19.5
1960 Avg.	37,865	28,126	9,739	34.6
1961 Dry	36,049	30,283	5,764	19.0
1961 Avg.	39,449	29,526	9,923	33.6

Estimated Plant Cost

Increases in production and transmission capital which will result from the proposed new Feather River plants and transmission lines covered by this application are estimated at \$70,100,000. A segregation of this sum to the principal categories of equipment,

as set forth in Exhibit No. 3, and unit costs computed for a 252,000 kw rating follows:

<u>Item</u>	<u>Total Cost</u>	<u>Unit Cost per Kw</u>
Hydraulic Production		
Land, Structures and Improvements	\$ 3,127,000	\$ 12.41
Dams and Reservoirs	2,492,000	9.89
Tunnels, Penstocks, etc.	25,437,000	100.94
Waterwheels, turbines and generators	11,596,000	46.02
Accessory and Misc. Equipment	1,966,000	7.80
Roads and Communication Facilities	550,000	2.18
Engr. Supt. Acctg. and Overhead	9,732,000	38.62
Subtotal Production	<u>54,900,000</u>	<u>217.86</u>
Transmission Substations	5,800,000	23.01
Transmission Lines	9,400,000	37.30
Total Cost	<u>70,100,000</u>	<u>278.17</u>

Applicant plans to finance the cost of the project involved from treasury funds presently on hand, the cash available from internal sources, such as the provisions made for depreciation and amortization and unappropriated earnings, from short-term bank loans, when, as, and if required and from the sale of additional securities as the Commission shall hereafter, upon proper application, authorize for that purpose.

Cost of Production

In a hydro project the major items of cost of production are so-called "fixed charges", that is: return or interest on the capital invested, depreciation and taxes. For estimating purposes applicant assumed annual fixed charges at the rate of approximately 11.4 per cent on hydro production and 11.5 per cent on transmission capital and derived a figure of \$8,007,000. To this sum it added \$261,000 to cover annual operation, maintenance and F. P. C. license expenses and arrived at a total annual cost of \$8,268,000. On the basis of an average of 665,000,000 kwhr of energy delivered annually at the terminus of the transmission lines it computed a unit cost of 1.26 cents per kwhr from this proposed construction.

Applicant went to considerable length to show that its system needs hydro peaking capacity and that when this power is combined

with steam power to meet the system load factor of approximately 63 per cent, the resulting combined cost is approximately 7.8 mills per kwhr for energy. Another method it used to show the reasonableness of the cost of this hydro power was to compute the cost of steam power at a capacity factor of 31.9 per cent equivalent to the capacity factor at which these projects will operate. Its Exhibit No. 4 showed that under such conditions comparable energy from Pittsburg Steam Plant would cost approximately 1.20 cents per kwhr with fuel oil at \$1.85 per barrel and 1.25 cents per kwhr with fuel oil at \$2.10 per barrel.

A witness, with extensive experience in the design and construction of hydro and steam plants, predicted that by the time these plants are completed the system maximum load will approach 5,500,000 kw, but that the swing in load from day to day and season to season will require a wide variation in the capacity factor of operation of the various plants. He testified that the requirements will be approximately as follows:

<u>Load</u>	<u>Operating Capacity Factor</u>
First 1,700,000 kw	100%
Next 1,300,000 kw	83
Next 1,000,000 kw	48
Next 1,000,000 kw	19
Top 500,000 kw	7

In his opinion it would be imprudent to design the individual plants so they could operate to supply power at anything approaching the over-all average load factor, either on an annual or on a monthly basis.

Besides the factor of assertedly favorable combined power cost for this hydro, some of the advantages listed by applicant are:

1. The high proportion of fixed charges is not affected by the long-term inflationary trend in prices.
2. Much greater operating flexibility makes these plants peculiarly suitable as governing plants.
3. Unaffected during national emergency or at other times when fuel is in short supply.
4. Certain flood control and irrigation benefits.
5. Conserves irreplaceable fuels such as gas and oil.

Licenses, Franchises and Rights

Applicant states that on or about January 24, 1955, the Federal Power Commission authorized the issuance of a license for the construction, operation, and maintenance and use of the proposed Butt Valley, Caribou No. 2 and Belden Projects. Applicant states that it has accepted the license.

Applicant owns and possesses an electric franchise authorizing it to erect facilities in Plumas County. This franchise was granted by Ordinance No. 223 of the Board of Supervisors of the County of Plumas under date of December 6, 1937. Applicant was granted authority to exercise this franchise by the Commission by Decision No. 34495, Application No. 22218, on August 12, 1941.

Applicant represents that it owns certain lands riparian to North Fork Feather River and Butt Creek and owns riparian rights appurtenant thereto, that it has the right to divert directly from, and to impound and store in and release from, Lake Almanor the waters of the North Fork Feather River and its tributaries, and in Butt Valley Reservoir the waters of Butt Creek, and to use these waters for downstream power plants. Also the right, together with other rights, to divert directly 2,250 second feet of water from the natural and/or augmented flow of North Fork Feather River for use in the operation of the Belden Project under Permit No. 5724, as amended, issued by the Division of Water Resources of the Department of Public Works of the State of California.

Conclusions

In view of the past trend in growth of demand for electric energy in northern and central California, it appears reasonable to project a 6 per cent growth trend into the future and conclude that the proposed new capacity will be needed when completed to supply the future public demands for electric energy. Applicant's

load curve is such that it should be able to fully utilize the proposed capacity and integrate it with steam power energy in such manner as not unreasonably to increase its over-all cost of energy production.

While the applicant has listed some of the advantages of its proposed hydroelectric project, such construction is not without its disadvantages. The high proportion of fixed charges tends to make total revenue requirements more rigid in times of recession; and also leads to higher cost with higher income tax rates. However, the applicant has demonstrated, in our opinion, that there is sufficient merit in its proposed development in the light of the facts existing at the present time to justify the granting of a certificate for this particular hydroelectric installation.

The total capacity proposed represents less than 7 per cent of applicant's total load. It is our opinion that the applicant has the financial means to construct the project and place it into successful operation. After considering the record in this proceeding and the statements by representatives of the public and other parties, it is our conclusion that the proposed construction is in the public interest and that an order should be issued in general granting the authority requested by applicant.

The certificate of public convenience and necessity issued herein is subject to the following provision of law:

That the Commission shall have no power to authorize the capitalization of this certificate of public convenience and necessity or the right to own, operate or enjoy such certificate of public convenience and necessity in excess of the amount (exclusive of any tax or annual charge) actually paid to the State as the consideration for the issuance of such certificate of public convenience and necessity or right.

O R D E R

The above-entitled application having been considered, a public hearing having been held, the matter having been submitted and now being ready for decision,

IT IS HEREBY FOUND AS A FACT that public convenience and necessity require the construction, operation and maintenance of the hydroelectric generation and transmission projects as shown on Exhibits Nos. 1 and 2 in this proceeding and as described in the application; therefore,

IT IS HEREBY ORDERED that Pacific Gas and Electric Company be and it is hereby granted a certificate that public convenience and necessity require the construction, operation, maintenance and use of the hydroelectric generating plants and transmission lines described in this application, the procurement of the requisite lands or land rights, permission or such additional franchises as may be necessary for the construction or operation of the projects, the production, transmission, distribution, delivery and sale of such electric energy as may be generated by the project to its present and prospective customers in accordance with its certificates of public convenience and necessity and with its rates, rules and regulations duly filed with the Commission.

IT IS HEREBY FURTHER ORDERED that Pacific Gas and Electric Company shall file with this Commission a detailed statement of capital costs of the generation and transmission projects within six months following date of completion.

The authorization herein granted will expire if not exercised within six years from the date hereof.

Dated at San Francisco, California, this 1st day of November, 1955.

John E. Mitchell

President

Robert L. ...

Matthew ...

B. ...

Commissioners

Commissioner JUSTUS F. CRAEMER, being necessarily absent, did not participate in the disposition of this proceeding.