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Annual Report

OF THE ADMINISTRATOR
OF THE BONNEVILLE POWER
ADMINISTRATION
TO THE SECRETARY OF
THE INTERIOR

*Reprinted from the Annual Report
of the Secretary of the Interior for
the Fiscal Year ended June 1942*

UNITED STATES DEPARTMENT OF THE INTERIOR

HAROLD L. ICKES, *Secretary*

BONNEVILLE POWER ADMINISTRATION, Paul J. Raver, *Administrator*



(Note.—Specific details relating to individual projects and to power production normally contained in this report have been deleted at the request of the Office of War Information and the War Department)

Bonneville Power Administration

PAUL J. RAVEN, Administrator

DURING the fifth year of its existence, the Bonneville Power Administration greatly increased its delivery of electric energy to war industries, public-owned distribution agencies, Government agencies and private utility enterprises. The energy of the two great dams on the Columbia river—Grand Coulee and Bonneville—was utilized almost continuously on a 24-hour a day basis, and served as one of the aggressive war weapons of the United States.

At the outbreak of the war in December 1941 the Administration was already far along in its war production program and through advanced planning prepared to take on even greater war loads.

With the passage of the defense appropriation bill (H. R. 1055) in June 1940 and the lend-lease bill (H. R. 1776) in March 1941, the Administration early recognized that a tremendous increase in the generating capacity of the Nation was necessary to carry out a war production program.

Early in 1941 the Administration recommended acceleration of installations of generating units at both Bonneville and Grand Coulee Dams and the speeding up of construction of necessary facilities to transmit the additional power to load centers.

As a result additional generating units were authorized at Bonneville Dam and at Grand Coulee Dam. In addition Shasta units were transferred from California for installation at Grand Coulee.

There was also appropriated to the Administration the sum of \$48,858,500 for the fiscal year 1942 for the construction of transmission and substation facilities.

The declaration of war and decisions to locate many war loads east of the Cascades made necessary certain major changes in the Administration's 1942-43 program. It nevertheless found the Administration in a position to meet the war strategy with changes only as to

location of additional lines and substation facilities, thus justifying the basic planning of the system.

The impact of the war program in the area served by the Administration was reflected by war contracts totaling \$1,259,449,000, covering the manufacture of aircraft, ships, ordnance, military and naval supplies and the construction of barracks, docks and munition depots, which had been awarded in Oregon and Washington, between June 15, 1940, and December 31, 1941. This figure does not include the purchase of raw materials such as aluminum, copper, zinc, lead and timber produced in the area.

The Columbia River projects, which had been assailed as "white elephants in the wilderness" during their building, had become an integral part of the war might of the United States.

As the year ended the Administration operated a transmission system containing 1,748 miles of transmission lines and 37 substations.

The Administration acted to integrate all of the Northwest's power resources to provide greater security of service for the growing war load. In addition to its interconnections with the public systems of Seattle, Tacoma, Centralia and Grays Harbor, Wash., and Eugene and McMinnville, Oreg., the Administration interconnected its system with those of the Washington Water Power and Pacific Power & Light Companies. An interconnection with the Portland General Electric Co. was continued through the year.

Public-owned agencies, established for the purpose of distributing Columbia River power without profit and entitled to preference in purchasing Columbia River power under the Bonneville Act, voluntarily postponed their plans for construction of new power facilities until after the war.

Those public-owned agencies which were already in business and receiving Columbia River power continued to make steady reductions in rates in the face of rising costs attendant on the war.

During the year public ownership progress was steady. Eleven public agencies in Washington and Oregon were successful in purchasing either all or part of privately owned utility systems. Two other Oregon Peoples' Utility Districts approved revenue bond issues for the purchase of existing utility properties for \$885,000. During the year, 17 public agencies executed new contracts and 9 public agencies revised existing contracts with the Bonneville Administration for the purchase of power. The Administration's power deliveries to public agencies increased in the 1942 fiscal year.

The Year's Power Sales

Both from the standpoint of actual power deliveries and from the standpoint of "demand value" of contracts executed, the Administration's power sales showed heavy gains during the fiscal year 1942.

Of power actually delivered, war industries, comprising principally aluminum and shipbuilding, purchased 81.4 percent; private utility companies, 14.7 percent; public agencies, 3.8 percent; and Federal agencies, 0.1 percent.

Twenty-six new power contracts were executed during the year, bringing the cumulative total of signed contracts to 70.

TABLE 1.—New prime power contracts executed fiscal year 1942

Class	No.	Class	No.
Districts.....	6	Industries.....	4
Cooperatives.....	11		
Federal agencies.....	5	Total ¹	26

¹ In addition to these, four public utility district contracts, four REA cooperative contracts, two contracts with municipalities, one industrial contract and one contract with a private utility were revised as to contract demand.

The War Market

By June 30, 1942, industrial power contracts and commitments dominated the Administration's marketing program and construction plans. Industrial loads, all of them for war production, accounted directly for 92 percent of current contracts and commitments for 899,920 kilowatts.

The economics of the Pacific Northwest and of the electro-process industries of the country had long indicated that industrial power sales would play a major role in the development of the Northwest region.¹

At the close of the 1941 fiscal year, the Bonneville Power Administration had reported to the Department of the Interior some 20 types of industry which, by reason of their raw material, power and market needs, were especially feasible of establishment in the Pacific Northwest.² During 1942, the Bonneville Power Administration agreed to serve 5 of these 20 types of industry.

Shipyards Added to Load

In addition to industries of the "electro" type, the war brought a new market for power in the development of a huge shipyard industry. The Administration agreed to serve three shipyards in the Portland, Oreg.-Vancouver, Wash., district. The three new yards required a total supply of power which would not have been available in the lower Columbia district had it not been for the Bonneville project. New electric welding processes which require large blocks of electricity have reduced shipbuilding time from 250 days to as low as 10 days.

¹ See improvement of Columbia River at Bonneville, Oreg., War Department, Corps of Engineers, 1935-38; Annual Report of the Federal Power Commission, Fiscal Year Ended June 30, 1938; Annual Reports of the Administrator of the Bonneville Power Administration, 1938-41.

² See Annual Report of Bonneville Power Administration, 1941.

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In detail, the Bonneville Administration's industrial power sales position on June 30, 1942, was as follows:

TABLE 2.—Industrial contracts in effect, June 30, 1942 ¹

Name	Date power contract signed
Aluminum Co. of America, unit 1.....	Dec. 20, 1939
Alcoa, unit 2.....	Apr. 16, 1940
Alcoa, units 3, 4, and 5.....	Oct. 21, 1940
Alcoa, overload units.....	Apr. 3, 1941
Do.....	Jan. 30, 1942
Pacific Carbide & Alloys Co.....	July 6, 1940
Pennsylvania Salt Manufacturing Co.....	Dec. 18, 1940
Reynolds Metals Co.....	Feb. 24, 1941
Do.....	Mar. 10, 1941
Oregon Shipbuilding Co.....	May 20, 1941
Electro Metallurgical Co.....	May 29, 1941
Do.....	do.....
Pennsylvania Salt Manufacturing Co.....	Oct. 17, 1941
Defense Plant Corporation.....	Feb. 18, 1942
Kaiser Co.....	May 8, 1942

¹ In addition, Defense Plant Corporation was being supplied with power in eastern Washington as the fiscal year ended, prior to formal signing of contract. Other commitments also had been made (see table 5).

Market Development Emphasized

In order to provide a solid foundation for the new electro industries of the region and to insure their continuous operation, technicians of the Administration assisted materially in the establishment of other industries, the products of which are critically needed in the manufacture of the materials and chemicals produced because of the availability of Columbia River electric power.

A proposal for a coke plant sponsored by a local industrial group was prepared, presented and carried through to approval by war agencies with the assistance of the Administration.

Similarly, ferro-alloys manufacturers and calcium carbide producers were assisted in obtaining suitable grades of raw materials in Oregon and Washington. Bonneville technicians also cooperated in the establishment and expansion of a plant in Utah, for the production of alumina from alunite ores and clays. This was a significant step since inexhaustible deposits of aluminum bearing clays are available on the Bonneville transmission system in the Castle Rock region of Washington. All these activities were undertaken with the firm conviction that suitable low-cost raw materials could be made available from the area's natural resources for the metallurgical and electrochemical plants in the region to insure their continuity of operation.

These activities were carried on in conformance with the policy expressed by the Secretary of the Interior that the west is not only

building for the war, but for its future and that of the Nation. Every electro industry established during the past 4 years in the Pacific Northwest is part of a pattern of industrial development providing for the complete processing of Northwest resources from raw materials to consumer goods.

The Public Power Market

At the close of the year a total of 53 contracts between the Bonneville Administration and public utility districts, municipalities, cooperatives and Federal agencies had been executed.

Seventeen contracts with public agencies were executed during the 1942 fiscal year.

By the end of the year the cumulative total of Bonneville's public agency contracts included 17 with utility districts, 12 with municipalities, 19 with cooperatives, financed in all but one case by the Rural Electrification Administration, and 5 with Federal agencies.

Twenty-six of these fifty-three public agencies were distributing Columbia River power and nine cooperatives and two public utility districts were assured of Columbia River power almost immediately through interconnection agreements between the Bonneville Administration and privately owned utilities.

As of June 30, 1942, the Administration's contracts to public distribution agencies were as follows:

TABLE 3.—Contracts with public agencies¹
PUBLIC UTILITY DISTRICTS

Name	Date executed ²	Date energized	Name	Date executed ²	Date energized
Skamania.....	Apr. 14, 1942 ³	Jan. 3, 1940	Clark.....	Apr. 17, 1941	
Pacific No. 2.....	Sept. 8, 1941 ³	Oct. 17, 1940	Cowlitz.....	Apr. 23, 1941	Aug. 11, 1941
Wahkiakum.....	Nov. 10, 1939	Nov. 12, 1940	Yakima.....	July 9, 1941	
Klickitat.....	June 18, 1942 ³	Nov. 6, 1940	Clatskanie.....	Mar. 17, 1942	
Tillamook.....	May 15, 1940		Central Lincoln.....	do	
Kittitas.....	Oct. 3, 1940	June 19, 1941	Union Co.....	do	
Lewis.....	Oct. 4, 1940	May 1, 1941	Whatcom.....	May 19, 1942	
North Wasco.....	Oct. 28, 1940		Grant Co.....	June 17, 1942	
Grays Harbor.....	Nov. 7, 1940	Nov. 9, 1940			

MUNICIPALITIES

Cascade Locks ⁴	Feb. 14, 1939	July 26, 1939	Tacoma.....	Mar. 5, 1940	Mar. 9, 1941
Forest Grove.....	Nov. 7, 1939	Nov. 27, 1939	Seattle.....	May 6, 1940	May 25, 1941
Canby.....	Dec. 22, 1939	Feb. 1, 1940	Ellensburg.....	Aug. 1, 1940	May 27, 1941
Monmouth.....	Jan. 5, 1940	Dec. 4, 1940	Eugene.....	Aug. 20, 1940	Dec. 6, 1940
McMinnville.....	Jan. 13, 1940	Oct. 18, 1940	Drain.....	Mar. 15, 1941	Apr. 1, 1941
Centralia.....	Feb. 13, 1940	Jan. 1, 1941	Grand Coulee.....	May 1, 1941	Jan. 6, 1942

¹ In addition to these, contracts have been signed with 6 war agencies. These include Army air bases, Coast Guard stations, navy yards and cantonments.

² Contracts are listed in order in which they were originally signed.

³ Revised.

⁴ Contract provides prime, secondary, and dump power.

Federal

TABLE 3.—Contracts with public agencies¹—Continued

COOPERATIVES					
Name	Date executed ²	Date energized	Name	Date executed ²	Date energized
Benton-Lincoln	June 27, 1940	Oct. 12, 1940	Blachly-Lane Co-op.	Oct. 7, 1941	-----
Columbia R. E. A.	Oct. 1, 1940	July 17, 1941	Lane Co. Co-op.	May 1, 1942	-----
Wasco Elec. Co-op.	Oct. 2, 1940	May 24, 1941	Okanogan R. E. A.	June 15, 1942	-----
Inland Empire	June 5, 1942 ³	-----	Umatilla R. E. A.	do	-----
Nehalem Valley	Oct. 7, 1940	Feb. 1, 1941	Big Bend Elec. Co-op.	-----	-----
Nespelem Valley	Feb. 19, 1941	Sept. 12, 1941	-----	June 17, 1942	-----
Salem Elec. Co-op.	Mar. 17, 1941	Mar. 29, 1941	Kootenai R. E. A.	June 18, 1942	-----
Lincoln Elec. Co-op.	May 30, 1942 ³	Apr. 3, 1942	Stevens Co.	June 5, 1942	-----
North Douglas	Mar. 18, 1942 ³	July 15, 1941	Idaho Co. L. & P. Co.	-----	-----
West Douglas	Aug. 29, 1941	Sept. 2, 1941	-----	June 8, 1942	-----
Benton R. E. A.	June 15, 1942 ³	-----	-----	-----	-----

Progress of Public Agencies

The public agency market for Columbia River power is largely dependent upon the ability of public-owned electric utilities to enter active business and become purchasers of power at wholesale.

For this reason the Administrator continued to accede to the wishes of the local utility districts, to serve as their official negotiator for the purchase of privately held utility systems.

One municipality, six cooperatives, and four public utility districts in Washington and Oregon reported success during the fiscal year in purchasing either all or part of privately owned utility systems.

The Skamania, Grant, Lewis, and Klickitat County Public Utility Districts, the city of Grand Coulee municipal system, the Orcas Light & Power Co. (REA), and the Stevens County Electric Cooperative each purchased all or part of privately owned utility systems in Washington. In Oregon the Central Electric, Coos Electric, Lane County Electric, and North Douglas Electric Cooperatives all completed purchases of all or part of utility systems.

The Clatskanie Peoples' Utility District and the West Coast Power Co. reached agreement to purchase the company's Clatskanie division for \$150,000 and the Central Lincoln District agreed to purchase the company's coast division for \$735,000. Revenue bonds were approved by voters in the two districts.

The Tillamook (Oreg.) Peoples' Utility District also reached an agreement to purchase practically all of the Mountain States Power Co. properties in Tillamook County for \$625,000.

The Public Agencies' Operating Record

On June 30, 1942, 26 public agencies had been distributing Columbia River power for periods up to 36 months. The success shown in their operations records was significant in its illustration of the possibilities which the public power market holds for the distribution of Columbia River power. Since the Federal statute under which the Bonneville

Administration operates makes public agencies and cooperatives the Administration's preferred market, the record of these first small public-owned utilities assumed double significance.

In 1939, 1940, and 1941, and the first half of 1942 the public electric systems in Oregon and Washington made rate reductions amounting to more than \$1,417,000. As a result of these reductions power consumption increased, thus permitting gross revenues to remain stable.

Substantial reductions in rates have been made by the public systems of Canby, Cascade Locks, Columbia County REA, Cowlitz County PUD, Drain, Forest Grove, Ellensburg, Eugene, Grays Harbor PUD, Kittitas County PUD, Lewis County PUD, McMinnville, Monmouth, Nehalem Valley REA, Pacific County PUD, Seattle, Skamania PUD, Tacoma, Wahkiakum PUD, Centralia, Douglas Electric Cooperative, Salem Electric Cooperative, Columbia County REA, and the City of Grand Coulee.

The Clark County Public Utility district signed contracts during the fiscal year to supply Columbia River power to a Federal Public Housing Authority project at Vancouver, Wash., and to one war industry. The housing project, which may be enlarged, included 1,000 permanent houses, 4,000 temporary houses, dormitories for 4,400 men, and 2,000 units of family apartments. These contracts gave the district a greater load than that supplied by the two private utility companies serving Vancouver.

One of the private utilities offered to supply the load for the 1,000 permanent houses for about \$84,600 a year. The district is supplying this load for approximately \$36,190. Housing Authority officials say it is the lowest power rate it has received in the United States.

During the year Monmouth, Oreg., made its second rate reduction. McMinnville, Oreg., also effected its second rate reduction since contracting for Bonneville-Grand Coulee power. The reduction brought McMinnville rates into line with the Bonneville standard resale rate and resulted in a further substantial saving to customers.

Typical of rural cooperative performance was the record of the Wasco Electric Cooperative in the mid-Columbia River valley. During the first 12 months of its operation with Columbia River power, the Wasco cooperative brought electricity to 365 Wasco County farmers who had never before had access to electricity. Nearly 340,000 kilowatt-hours were sold by the cooperative. Revenues totaled nearly \$10,000.

Cascade Locks (Oreg.) City Light, by June 1941, had reduced rates 31 percent, yet as a result of increased use of electricity by customers maintained its revenue from power sales.

Customers of this municipal system with their June 1942 bills received another reduction of 15 percent in commercial rates.

Future Industrial Sales

During the early months of the 1943 fiscal year the Administration expected to execute power sales contracts for the delivery of Bonneville and Grand Coulee energy to new war industrial plants, in addition to additional blocks of power to existing industrial customers. The Administrator had made definite commitments during 1942 to supply these plants and additions. It was expected that the full demand would be required by these plants before the middle of the 1943 fiscal year.

Contracts for these new plants were in advanced negotiation at the close of the fiscal year 1942. Several of the plants were actually under construction. The list follows:

TABLE 5.—Industrial contracts pending, fiscal year 1943

Company	Type of operation
Kaiser Shipbuilding Corporation.....	Shipbuilding.
Defense Plant Corporation.....	Reduction of aluminum oxide. ¹
Do.....	Reduction of aluminum oxide.
Do.....	Aluminum rolling mill.
Do.....	Magnesium.
Do.....	Ferro-silicon.
Oregon Electric Rolling Mill.....	Steel rolling mill.
Defense Plant Corporation.....	Reduction of aluminum oxide.
Oregon Shipbuilding Corporation.....	Shipbuilding.

¹ Energized May 1, 1942.

Prospective power sales to war and other industries in the Northwest for the fiscal years beyond 1944 were, of course, progressively more difficult to estimate. For this reason, in planning future generating and transmission capacities, the Administration endeavored to plan a power system of sufficient flexibility to supply not only normal load growth, but any fluctuations in load which might grow out of a war need extending over a number of years.³

Other Future Sales

The Bonneville Administration's estimates of power sales from its own system for the years 1943 through 1945 included four other classes of customers. These were non-Federal electric utilities, public power agencies, military establishments, and war housing projects which, among them, were estimated to require a combined peak delivery of 576,200 kilowatts by 1945.

³ For details see Six-Year Construction Program for Bonneville Power Administration, revised as of June 1942.

Service for Future Loads

In conformance with Executive Order No. 8455, the Bonneville Administration during the 1942 fiscal year revised its 6-year construction program in the light of new factors which developed during the year.

These new construction estimates of the Administration were conditioned by two fundamentals: First, the fact of the war need, and second, the fact that almost no other utility within the region has definite plans for expansion of its generating capacity.

These two factors meant that both normal growth in power consumption within the region and growth in power demand incident to a war of uncertain duration would have to be met in their entirety by the region's Federal power projects.

In planning future generation and transmission capacity, therefore, the Bonneville Administration planned to fill not only the needs of its own customers but the expanding needs of the region as well.

In the formulation of these plans three things became at once apparent: (1) that immediate material shortages would compel slight reductions in the over-all power consumption of the region in 1943 and 1944 below the Administration's estimates of June 1941, which were made contingent upon a recommended earlier installation of generators; (2) that beginning with 1945 the region's power needs would increase, in an annually expanding ratio, above the Administration's estimates of June 1941; and (3) even with the slight reduction of use in 1942 and 1943, additional generating capacity would be required in the Pacific Northwest over and above both existing and authorized capacity.

At the end of 1944, including units definitely approved for construction at the end of the 1942 fiscal year, the installed capacity of Bonneville and Grand Coulee Dams will be an insufficient total in view of the region's predictable needs.

New Generating Capacity Needed

Because of the potential power shortage in the region, the Bonneville Administrator jointly with the Bonneville Advisory Board, on February 10, 1942, urged that studies be completed on the 10 hydroelectric power projects in the Northwest which are known to be feasible of early construction. In addition the Administrator recommended immediate construction of another dam on the Columbia River accessible to the existing Bonneville-Grand Coulee transmission system and to the larger load centers of the region.

It was further recommended that new generator installations should be scheduled immediately because of the time required to complete

such installations. Only in this way could an adequate supply of power be assured for what might be the critical years of 1946 to 1949.

To carry this tremendous capacity from the power stations on the Columbia River to the power market centers of the region, extensive additions to transmission and terminal facilities of the Pacific Northwest will be required.⁴

The Year's Construction

The congressional appropriation of almost \$23,000,000 received by the Bonneville Administration at the start of the 1942 fiscal year instituted a construction program almost twice that of the previous fiscal year.

This enlarged program was again increased by an additional appropriation of \$30,000,000 in December 1941. Since the war program required the use of critical materials for the production of war goods, the Administration's program was limited after December 7 to only those extensions of its system which contribute directly to the prosecution of the war. As a result the Administration held in reserve a considerable portion of its construction funds at the end of the fiscal year pending determination of their detailed use.

New Facilities Energized

The Administration placed 586 miles of transmission line and 530,050 kva of substation capacity in service during the fiscal year. This represents an average of 2.3 miles of transmission line and 2,100 kva of substation capacity completed for each working day.

At the close of the fiscal year the Administration operated a transmission system containing 1,748 miles of transmission lines and 37 substations.

Design work was in progress on 13 substations and 19 major substation additions and on 8 transmission lines totaling 437.3 miles in length.

Construction was in progress on substations and additions and on transmission lines having a total length of 629.7 circuit miles.

The Year's Operations

As an operating utility the Bonneville Administration faced new operating problems affecting both the agency's management procedures and its electrical operations.

Until the last quarter of the fiscal year the organization was expanding to meet the immediate needs of building new transmission

⁴ For detailed discussion of estimates of generation and transmission see Bonneville Power Administration construction program revised as of June 1942.

facilities to serve war industries. During that period production increased markedly until it reached a processing peak of obligating over \$7,000,000 per month. New production records were attained and all commitments to war industries fulfilled on schedule.

When the national shortage of copper, steel, aluminum and other metals became critical, however, these production levels began to decline until, during the latter quarter of the year, previously approved construction plans had to be postponed with a resultant tapering off in personnel and production.

Some copper, aluminum, steel and other critical materials originally ordered under proper priorities of the War Production Board could not be used under the curtailed program of construction later initiated by the same agency. A complete inventory of these materials was made and submitted to the War Production Board, and arrangements made to make it available to other war agencies as needed.

Financial Statements

Studies were continued during the year for the purpose of further simplifying the Administration's accounting methods.

Financial or general ledger accounts were kept in accordance with requirements of the General Accounting Office and cost accounts were kept in conformance with the Federal Power Commission's system.

The Power Supply and the Future

Both the law and the power economics of the Pacific Northwest make it mandatory upon the Federal Government to provide sufficient generating and transmission facilities to supply the region's ever-increasing power demands, whether for war or for peace.

In terms of immediate need, competent studies ⁵ forecast a serious shortage of power for war production by 1944 unless new power sources are immediately developed throughout the Nation.

In terms of post-war requirements, the Bonneville Administration's own studies ⁶ indicate a need of nearly 5 million kilowatts for normal use in the Northwest in 1949.

The Administration does not anticipate any power surplus when the war ends. Generators now installed or being installed are worked to capacity. Even the end of the war and the possible slow-down of a number of industrial plants would permit only a normal and necessary reserve of power and withdrawal of generating units for necessary reconditioning and replacement of worn parts.

⁵ Will Electric Power Be a Bottleneck? by Louis Marlio, Brookings Institution, Washington, D. C., 1942.

⁶ See Bonneville Power Administration's 6-year construction program, revised as of June 1942.

In its consideration of the future, the Bonneville Administration has concluded:

More generating capacity must be developed.—Generator schedules for Bonneville and Grand Coulee in 1943 should be maintained and given the highest possible priority assistance. Grand Coulee units, which have been redesigned for installation in the second powerhouse at Grand Coulee because of the transfer of Shasta Dam generators to the present powerhouse, should be completed in 1944. This will require higher priorities for both the generators and the powerhouse than the A-2 priority now assigned them. In the last 6 months of the fiscal year 1942, short-term policies of the War Production Board had threatened the speed of all these generator installations. Finally, in order that the Pacific Northwest may contribute its share of new kilowatt capacity to be required for 1945, an immediate program should be adopted for development of an additional supply through the authorization of additional generators at Grand Coulee Dam and by construction of new hydro projects, such as those feasible of construction on the Columbia River.

In the allocation of new war industry to the Northwest, the Administration's seven-point industrial program might well serve as guide:

1. Columbia River power should be sold to such industries and on such terms as help the long run and best development of regional resources.
2. The establishment of basic electro-process industries should be followed by fabricating and supply industries so as to support the operations of the basic industries and to provide products for regional consumption at lower costs than obtained at present.
3. New feasible industries should be financed and managed as far as possible by business men of the region.
4. Research on new processes to use electric power and raw materials in the region must be stimulated by governmental agencies and the results of such research should be freely available for use by independent enterprise.
5. The opposition of established industry to new competition from Northwest industry and the attempts of any industrial groups to control large amounts of Columbia River power must be prevented.
6. Within the region, new industries should be encouraged to decentralize in accordance with the advantages of locational factors and of the "postage stamp" rate of the regional network.
7. Columbia River power should be sold on such terms as contribute to the conservation of other resources of the region and as prevent the destruction of scenic and recreational assets.