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IDAHO PUBLIC
UTILITIES COMMISSION

BEFORE THE IDAHO PUBLIC UTILITIES COMMISSION

IN THE MATTER OF THE APPLICATION OF IDAHO POWER COMPANY FOR AUTHORITY TO RATE BASE THE INVESTMENT REQUIRED FOR THE REBUILD OF THE SWAN FALLS HYDROELECTRIC FACILITY	CASE NO. IPC-E-90-2

IDAHO POWER COMPANY

REBUTTAL TESTIMONY

OF

JAN B. PACKWOOD

1 Q. Please state your name and business address.
2 A. My name is Jan B. Packwood and my business address
3 is 1220 W. Idaho Street, Boise, Idaho.
4 Q. Are you the same Jan B. Packwood that submitted
5 direct testimony in this proceeding?
6 A. Yes I am.
7 Q. Are you in agreement with the analysis performed
8 by Mr. Thomas Faull concerning the estimated
9 annual O&M costs for the Swan Falls Project?
10 A. No. The method used by Mr. Faull was to look at
11 only 4 years of O&M costs. Also, Mr. Faull based
12 his estimated O&M cost on a curve of $/KW for
13 plants by size of plant and ignored the importance
14 of plant age on operating costs. This fails to
15 recognize the manpower required for operation of
16 the plant, which is a primary cost. New plants
17 such as Swan Falls are built so that the O&M cost
18 is lower because they do not need to be manned 24
19 hours per day.
20 Q. Mr. Faull notes that Idaho Power made many
21 decisions and commitments relative to the Swan
22 Falls project prior to its application in this
23 case. He further suggests that "It is only as a
24 result of chance that it now appears that those
25 decisions may have turned out to be marginally

1 prudent (at least as determined by my analyses)."
2 His recommendation is that if his analyses are in
3 error, then Idaho Power "should be imputed to have
4 known that the project was not cost effective" and
5 should be penalized. Do you agree with Mr.
6 Faull's characterization?
7 A. No. Considerable planning and commitments are
8 required to bring a project to the construction
9 phase. Large hydroelectric projects involve
10 engineering design which must be customized to the
11 particular site. Idaho Power has been involved in
12 planning and analyses related to the development
13 of the Swan Falls Project for a number of years.
14 This has required and continues to require a firm
15 commitment to the project. It remains the
16 responsibility of the Company to fulfill this
17 role, but there comes a time in the planning
18 process, prior to the first major expenditure of
19 funds, when the Company must seek a Commission
20 determination that the decision to construct the
21 project is reasonable and prudent and that such
22 construction is in the public interest. It is my
23 understanding that this procedure is consistent
24 with Commission requirements.
25 Q. Do you agree with Mr. Faull's conclusion that the

1 Swan Falls project capacity is too small?
2 A. No. Mr. Faull's conclusion that the Swan Falls
3 project capacity is too small is based upon a
4 capacity factor analysis which would be used only
5 in preliminary feasibility analyses. The designed
6 capacity factor should be high for the Swan Falls
7 plant because flows are fairly uniform through
8 most of the year.
9 Q. How was the Swan Falls plant sized?
10 A. An economic analysis of possible plant and unit
11 sizes was performed for the FERC License
12 Application phase of the project. This analysis
13 maximized the project's generation per unit of
14 cost. The maximum flow of 14,700 CFS (7,350
15 CFS/unit) was selected as the project's optimum
16 size. A flow in excess of this amount occurred
17 only 17 percent of the time based on 60 years of
18 daily flow records.
19 Q. Is hydro plant sizing subject to FERC
20 requirements?
21 A. Yes. Under the Electric Consumers Protection Act
22 (ECPA), FERC's analysis of whether the resource is
23 being fully developed is a significant part of the
24 FERC process of determining whether, and to whom a
25 License should be issued. The FERC analysis of

1 plant sizing is a critical part of the licensing
2 process.
3 Q. Please comment on Mr. Faull's understanding that
4 Idaho Power did not make a rigorous comparison
5 between vertical shaft Kaplin turbines and bulb-
6 type turbines.
7 A. Idaho Power did make a study in February, 1984,
8 for turbine-type selection and found the pit-type
9 bulb turbine plant was less expensive by 18
10 percent, for the same energy generation.
11 Q. Please comment upon Mr. Faull's analysis
12 concerning the use of a request for proposals and
13 negotiation process rather than the standard firm
14 bid process.
15 A. The "Foremost" reason he gives for his preference
16 is that the "design engineer is constrained to
17 'guessing' about the best combinations of size,
18 arrangement, and timing, with minimal input from
19 suppliers". Idaho Power experience as well as
20 that of major consultants in the hydroelectric
21 design field is not only beyond "guessing" at such
22 parameters but can make a much more detailed
23 analysis than could a developer or manufacturer
24 who could not even be assured of recovering his
25 bidding design costs. Idaho Power believes that

the detailed design and bid process has many advantages over the single negotiated package procedure including:

1. Project design can be tailored to the needs of the owner rather than the developer's contract.

2. Contingencies to cover development risk are not required because the purchase and contracting is phased to the design progress.

3. Developer markups on equipment purchased from the manufacturers are eliminated.

4. The owner retains control of the combination and quality of equipment purchased by buying major equipment separately and analyzing each component based on maximizing the benefit to the project per dollar spent.

5. Changes to the project can be made based on site conditions without having to renegotiate the project development package.

6. Proposals received for the development or any part of the package are competitive proposals where bidders have eliminated contingency amounts to cover later negotiation. Negotiations with a preferred bidder do not give the bidder the competitive incentive to improve his proposal.

1 Q. Would you comment on Mr. Faull's opinion that the
2 specified speed increaser may be a sole source
3 item, and that purchase through negotiations may
4 be more cost effective for an equal or better
5 product?
6 A. Yes. Regarding the speed increaser, the current
7 state of the art is the use of double-helical
8 epicyclic-gear drives because of the compact
9 design required by the limited space in the
10 generator pit. Several companies manufacture this
11 type of gear drive. Idaho Power did considerable
12 research into the gear drives to be certain of the
13 proper selection criteria. If the speed increaser
14 had not been specified and selection had been made
15 through negotiations, my opinion is that it would
16 have been more difficult, more time consuming, and
17 more costly for a speed increaser that would
18 provide the desired performance for 50 years.
19 Considerably more coordination with the primary
20 equipment suppliers would also be required since
21 the speed increaser fits within the bulb and
22 connects directly to both turbine and generator.
23 Q. Would you comment on Mr. Faull's objection to the
24 limited number of bidders for the turbine,
25 generator, speed increaser, and governor and his

opinion that three of the four firms provided courtesy bids?

A. Yes. Idaho Power did prequalify only four bidders based on previous experience in the pit-type bulb turbine. The four prequalified companies were the only ones in the world with the experience in similar type and size equipment. Two bids were within 1.8 percent of one another, and the third and fourth bids were more than 30 percent above the low bid. Idaho Power's procedures for obtaining bids were appropriate and prudent.

Q. In summary, do you believe that the Company has complied with the Commission's directives concerning the rebuild of the Swan Falls Project?

A. Yes.

Q. Does this complete your testimony.

A. Yes it does.