Service Date: June 25, 1982

DEPARTMENT OF PUBLIC SERVICE REGULATION
BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MONTANA

* * * * *

IN THE MATTER of Avoided Cost Based Rates for Public Utility Purchases from Qualifying Cogenerators and Small Power Producers.)	UTILITY DIVISION DOCKET NO. 81.2.15 ORDER NO. 4865b

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FINDINGS OF FACT

BACKGROUND

1. Section 210 of the Public Utility Regulatory Policies Act of 1978 (PURPA) required the Federal Energy Regulatory Commission (FERC), as well as state regulatory authorities, to prescribe rules to encourage cogeneration and small power production (COG/SPP) including rules requiring electric utilities to purchase electric power from cogeneration and small power production facilities. Among other things, the rules were to insure that rates for purchases of electric energy from qualifying facilities (QF) "be just and reasonable to the electric consumers of the electric utility and in the public interest" and that the rates would not exceed the "incremental cost to the electric utility of alternative electric energy."

2. On May 4, 1981 the Commission adopted final rules governing purchases and sales between public utilities and

qualifying small power production facilities. The Commission rules are modeled after FERC regulations implementing Section 201 and 210 of PURPA. The rulemaking procedure featured a public comment period commencing with the issuance of draft rules on September 2, 1980 and extending through October 23, 1980. A second revised draft of the rules was issued on March 16, 1981 with public comment extending through April 27, 1981. The rule-making proceeding ended with adoption of final rules on May 4, 1981.

3. The Commission's rules (ARM 38.5.1901 through 38.5. 1908), pursuant to FERC regulations, provide the general obligations of the COG/SPP and the regulated electric utilities.

4. The Commission initiated Docket No. 81.2.15 on February 24, 1981 when it requested that MDU, PP&L, and MPC file testimony regarding avoided cost methodologies, avoided cost-based rates, and tariffs and standard contracts for purchases of electricity from COG/SPP. On January 4, 1982, the Commission issued Order No. 4865 setting forth the Commission's initial findings in this Docket.

5. On January 22, 1982, MDU, MPC and PP&L each filed Petitions for Reconsideration and/or Clarification and, on February 18, 1982, the Commission issued Order No. 4865a which addresses the Petitions.

6. By March 5, 1982 the utilities had submitted their original compliance tariffs. On March 12, 1982 the Commission had a working session where it (1) approved on an interim basis MPC's and MDU's tariffs (2) directed PP&L to resubmit new tariffs based on Colstrip 3 and 4 and (3) requested each utility to provide rebuttal to the Commission's concerns within 45 days.

7. The Commission has two objectives to achieve in this order regarding the avoided cost tariffs submitted by the three electric utilities.

8. First, the Commission seeks to approve, after correcting for apparent conceptual problems (detailed below) the utilities have with the avoided cost methodology, the interim tariffs for MDU and MPC and to address existing problems with PP&L's proposed tariffs; the resulting final tariffs will be updated June 1, 1983 for the contract year July 1, 1983 - June 30, 1984 (Order No. 4865, Finding of Fact No. 33).

9. Second, the Commission indicates negotiated payment options (e.g., fixed minimum payments and levelized) which it finds acceptable.

FINAL AVOIDED COST TARIFFS

10. This section reviews each Company's initial tariff filings, inherent problems the Commission perceives with these tariff filings, the Commission's corrective measures, and the final avoided cost tariffs.

Montana-Dakota Utilities.

11. In its March 17, 1982 letters to MDU and MPC the Commission illuminated a problem with each Company's analytical treatment of baseload capital costs, i.e., the annual capital cost ($/kw) of each Company's "next" baseload electric generating plant.

12. Orders 4865 and 4865a make explicit the treatment of both historic and forecasted capital cost expenditures:

> All costs are to be stated in constant contract year dollars, to be updated each June 1, for the contract year beginning July 1st ... (Order No. 4865, Finding of Fact No. 33).
>
> The Commission further finds that the proper approach entails an initial filing of costs and rates in constant contract year 1982 dollars ... (Order 4865a, Finding of Fact No. 37).

13. In its letter to MDU (March 17, 1982) the Commission stated the following:

> The primary problem involves the Company's calculations of the capital cost associated with Antelope Valley Unit #2. It is not clear from the Company's working papers how the cost stream associated with MDU's participation in the Antelope Valley project is treated. Order No. 4865 (Page 1 of Appendix B) contemplates the use of real cost and inflation indices in converting the cost stream to 1982 dollars. Evident from the Company's filing is some treatment which deviates from that practice.

14. The Company's response (April 8, 1982) to the Commission's analysis is as follows:

> MDU did not submit any cost stream information with regards to the Antelope Valley project. Montana Power had a cost stream extending almost fourteen years for their Colstrip units #3 and #4, and were directed to take a time series calculation into account in order to equate that cost stream into present day dollars. MDU is not faced with that situation with regards to Antelope Valley since our letter of intent with Basin Electric states that we will not put forth any capital until 1984 should we choose to execute our option then. As a result, MDU will have one large capital expenditure in 1984, with another expenditure coming in 1985. Since the 1985 expenditure will undoubtedly be significantly less than the 1984 expenditure, MDU chose not to make a cost stream calculation but rather lumped all expenditures into one and then brought that value back to 1982 dollars.

15. While the Company's 1985 expenditure, relative to its 1984 expenditure, is small, the Commission finds no grounds for deviating from the direction of Orders 4865 and 4865a. In Schedule A, the Commission provides a corrected baseload capital cost calculation and resulting long-term energy rate.

Montana Power Company.

16. MPC's calculation of annual capital costs for the baseload electric generating plant suffers from the same analytic problems as MDU's. However, unlike MDU, MPC not only chose to not follow the direction of Order's 4865 and 4865a but further argues that the Commission's direction (Findings of Fact No. 33, Order No. 4865, and Finding of Fact No. 37, Order No. 4865a) is theoretically flawed.

17. In its March 17, 1982 correspondence to MPC, the Commission stated the following:

> The primary problem involves the Company's calculation of the capital cost associated with Colstrip Units #3 and 4. The cost stream (Cost Calculations, Table VI, Page 7 of 7) begins with a $489,000 expenditure in 1973, and culminates with $166,000 budgeted for 1987. Order No. 4865 (page 1 of Appendix B) contemplates converting this cost stream to 1982 dollars via real cost and inflation indices. The Company, however, has chosen not to follow this procedure and instead sums the actual cost stream with an AFUDC component. My discussions with Jim Cullier indicate that the Company's position is that the Company's treatment of the cost stream results in a calculation which reflects the ratepayers cost of Colstrip Units #3 and 4. While there is merit in the argument, the proferred fact is simply false.

18. In its "rebuttal comments" the Company (Mr. Jack Haffey, April 26, 1982) had the following remarks:

> The Company disagrees with that interpretation of the Order. No where in Appendix B or anywhere else in the Order is there any mention whatsoever of "cost streams." What is requested in Appendix B are the "actual baseload capital cost estimates." Those estimates or "values" have indeed been placed in 1982 dollars in the Company's calculation of capital costs.
>
> The Staff's letter of March 17, 1982 is the first indication in Docket 81.2.15 that the appropriate manner of calculating avoided costs is to inflate or deflate a stream of capital expenditures.

Mr. Haffey's letter goes on to add:

> The Staff's assertion that Order No. 4865 "contemplated" the conversion of the "cost stream" to 1982 dollars finds no support in the Order. In fact, such a procedure would not be consistent with the Order since a fictitious number bearing no resemblance to avoided costs would be the result. What this approach would yield is the cost of Colstrip #3 and 4 if it were built entirely in 1982. Such a calculation was not suggested by any of the witnesses in Docket No. 81.2.15 nor in Order No. 4865. Furthermore, by using the word "contemplated," it appears as though the Staff is admitting that the Order did not explicitly state what was required of the utilities. [Footnote deleted].

19. As stated in Finding of Fact No. 18, the Company claims to have converted its 1973 through 1987 baseload capital cost expenditures, including AFUDC, to 1982 dollars. The Company's analytic treatment involved simply summing all expenditures -- 1973 through 1987 -- in <u>nominal</u> or current year's dollars and then discounting this sum back from 1984 to 1982 dollars by multiplying the sum by a factor of 0.8629 (this factor equals the inverse of the product of 1.079 and 1.074 from page 7 of 7 of the Company's compliance work papers dated February 25, 1982).

20. It is the Commission's finding that this methodology is logically unsound, indicating <u>only</u> the cost of Colstrip #3 and 4 to Montana ratepayers on an accounting basis. This cost does not accurately reflect the time value of money which stems from two factors 1) price inflation -- a rise in the general price level -- and 2) the real earning potential of investments; this latter

definition representing economic cost. The following example rectifies for the Company the meaning of "avoided costs."

21. In Order No. 69, issued in February of 1980, the Federal Energy Regulatory Commission defined "avoided costs" as:

> "Avoided costs" means the incremental costs to an electric utility of electric energy or capacity or both which, but for the purchase from the qualifying facility or qualifying facilities, such utility would generate itself or purchase from another source. (§292.101(b)6).

That is, avoided costs are to be based on the costs a utility would avoid incurring as a result of a QF's supplying energy and/or capacity.

22. For example, if the Company's forecasts indicate a one kw deficit in capacity in year 1990, the question could be posed as to what exactly the cost would be to the Company of obtaining an incremental kw of capacity. A literal interpretation of the Company's logic (Finding of Fact Nos. 18 and 19) would lead one to believe it would be capital costs that in part occured in year 1973 and in 1973 dollars. Clearly the Company recognizes that prices for materials, capital, labor, etc., have not remained constant since year 1973. That is, costs in 1973 dollars are not best estimates of what it would cost the Company today to install an incremental kw of capacity; a best estimate is reflected by use of constant contract year dollars.

23. Regarding the treatment of costs incurred overtime, the advocacy staff's expert witness Dr. Tom Power made the following statements:

> ... I certainly do not recommend -- and that is crystal clear in my testimomy -- that we take estimates in 1989 dollars and add them to estimates in 1986 dollars and add those to estimates in 1981 dollars. I know of nobody who would make that suggestion. (Tr. p. B-101)

24. The Commission finds the Company's baseload capital cost calculation of $1245.0 to underestimate a constant contract year estimate by $353.0. The Commission derived a constant contract year estimate of $1598.0/kw, described below, using the Company's cash flow with AFUDC and PP&L's escalation/de-escalation factors.

<u>Pacific Power and Light</u>

25. In its March 29, 1982 correspondence with PP&L, the Commission requested the following:

> In my discussions with Jerry Rust he indicated a preliminary Colstrip 3 and 4 cost of $1596/kw resulting in a modified long-term energy rate of 5.18¢/kwh. This calculation appears to properly follow the intent of Order No. 4865 (page 1 of Appendix B) in its treatment of the historical cost stream. It is requested that the Company provide, as soon as possible, two copies of signed tariff pages reflecting this calculation.

26. Evident from the Company's May 14, 1982 response is the Company's decision to deviate from its own finding regarding a

$1596/kw capital cost estimate for Colstrip #3 and 4; rather than use this estimate the Company simply adopted certain parameters including the $1245/kw estimate, from MPC. In a later finding in this Order, the Company is directed to adopt certain previously submitted values for parameters used in deriving short and long-term energy and capacity payments.

Resulting Tariffs.

27. In MDU's work papers complying with Order No. 4865, the Company did not separately discount 1984 and 1985 baseload capital cost expenditures. The Company has since corrected this problem and is reflected in the baseload $/kw estimate and the long-term energy rates in Schedule A.

28. MPC is to resubmit final avoided cost tariffs as computed by this Commission and summarized in Schedule A. These tariffs differ from the Company's in the value of the long-term energy rates, which reflects the Commission's baseload capital cost of $1598/kw. Schedule B details the assumptions used to arrive at $1598/kw for a baseload plant. As indicated below (Schedule A) this value of $1598/kw approximates PP&L's correctly computed baseload capital cost estimate of $1596/kw.

29. PP&L is to resubmit final avoided cost tariffs as summarized in Schedule A. The parameters and resulting tariffs

SCHEDULE A

Input Parameters and Resulting Avoided Cost Energy and Capacity Tariffs.

Variable/Utility		MDU	MPC	PP&L
	¢/Kwh	1.6	1.66	1.65
a	$/kw	1480	1598	1596
b	$/kw	318	367	347
c	%	19.047	20.04	18.31
d	%	19.69	21.87	19.76
e	$/kw	5.79	12.34	12.59
f	$/kw	1.4	0.66	5.0
g	%	8.3	8.3	8.3
h	$/ton	13.5	10.03	10.03
i	BTU/LB	6600	8500	8500
j	BTU/Kwh	11280	10819	10819
k	¢/Kwh	0.128	0.26	0.27
STE[1]	$/Kwh	0.0216	0.0234	0.0228
LTE[1]	$/Kwh	0.0523	0.0534	0.0518
LTC[2]	$/kw/yr	63.96	80.88	73.54

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1 Short Term Energy (STE) and Long Term Energy (LTE).

2 Long Term Capacity (LTC).

SCHEDULE B

Calculation of Variable "a" For MPC

	Cash Flow[1] W/AFUDC	Escalation De-Escalation[2] Factor	December[3] 1981 $
1973	509	2.439	1,242
1974	1,214	2.267	2,752
1975	1,354	1.806	2,445
1976	2,287	1.642	3,488
1977	13,431	1.525	20,482
1978	8,915	1.424	12,694
1979	8,003	1.291	10,332
1980	46,365	1.17	54,247
1981	108,879	1.07	116,501
1982	164,304	1.0	164,304
1983	140,427	0.9174	128,828
1984	74,859	0.8495	63,593
1985	35,094	0.7865	27,601
1986	213	0.7351	157
1987	166	0.687	114
			610,000 X (1.1)[4]
			= $671,000 (December 1982 Dollars)

671,000 ÷ 420 MW = 1,598/kw.

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1 Cash Flow with AFUDC was obtained from MPC's Order No. 4865 compliance work papers. Table IV Page 7 of 7 dated February 25, 1982.

2 Escalation and De-escalation factors are from PP&L's <u>1982 Montana Electric Long Run Incremental Cost Study</u>, Docket No. 82.4.28, (Workbook No. 8)

3 December 31, 1981 dollars.

4 The factor 1.1 indicates 10% inflation from the beginning of 1982 to year ending. (Workbook No. 8, Docket No. 82.4.28).

in this Schedule reflect PP&L's cost information for Colstrip #3 and 4 in constant contract year dollars.

30. All utilities are to resubmit their respective final avoided cost tariff pages within five days. These tariffs will become effective upon approval.

PAYMENT OPTIONS

31. With regard to payment options, Order No. 4865 allows a QF the option to adopt 1) either of the short-term or long-term standard tariffs, or 2) negotiate with their respective utility an alternate avoided cost energy and capacity rate. From recent communication with both utilities and prospective QF's, it is evident to this Commission that much concern has emerged over some sort of tariffed alternate payment option. From the QF's perspective, the concern is for more concrete information on future energy/capacity payments in order to acquire loans from financial institutions.

32. Some payment options that QF's and utilities are free to arrange via negotiation were summarized by Dr. Thomas Power:

Payment Arrangements

Q. What options for payment arrangements should be provided to QFs?

A. I would recommend that three options be provided by each of the utilities.

i. Rates based upon levelized annual payments for both energy and capacity based upon projected avoided costs. The levelized annual payments would have the same present value as the estimated avoided investment cost and operation costs over the life of the contract. All payments would be fixed in real terms for the life of the contract. An annual adjustment for the overall inflation rate in the economy would be made to protect the purchasing power of these payments.

ii. Rates which had a fixed and variable component for the life of the contract. The capacity payment would be fixed in real terms but the energy payment would be based upon the marginal energy costs actually experienced in the previous year or projected for the coming year. The capacity payment would be increased each year by the general rate of inflation to protect its value.

iii. Rates which were based entirely on current marginal energy and capacity costs. They would vary from year to year. (Exh. M, Page 47).

The first two of Dr. Power's proposed payment options (i and ii) are examples that QF's and utilities are free to negotiate and which the Commission finds acceptable. Dr. Power's third proposal is currently a standard tariff option.

33. To the above proposals which address the market failure problems QF's face in obtaining fin·ncing, the Commission offers the following elaborations.

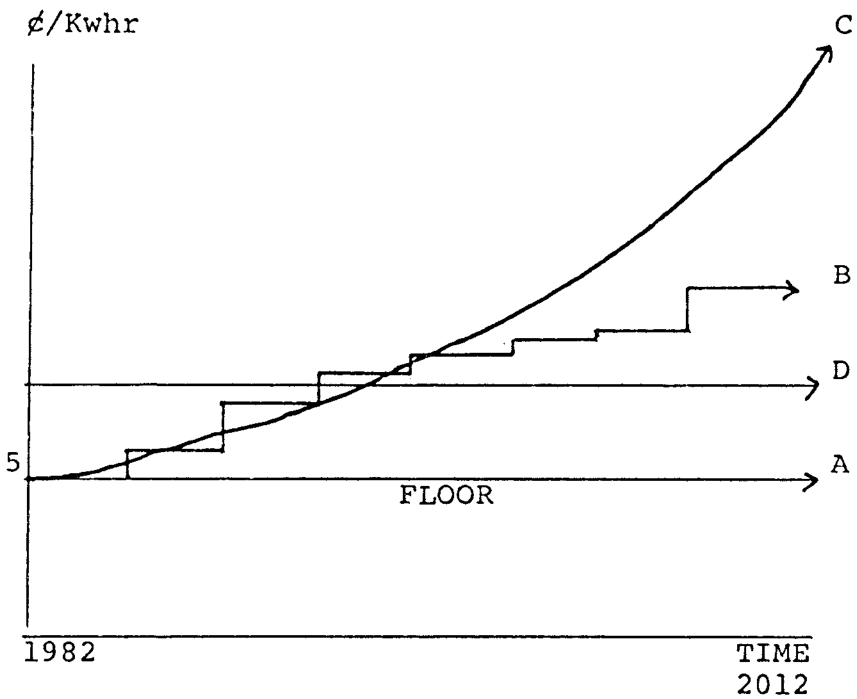
34. First, QF's may negotiate a fixed minimum rate with a utility. This proposal has two variants: (1) A fixed minimum

rate may be established that equals the initial year's standard tariff for long-term energy. Under no circumstances would the rate ever fall below the initial fixed minimum. (2) A fixed minimum rate may be negotiated that is annually adjusted for the previous years rise (fall) in the general price level, as indicated by the Consumer Price Index (CPI). As the U.S. Department of Labor's indices are initial estimates, the final or "revised" index may be used later, when published, to refine the initial estimate. As with (1) above, a latter year's avoided cost tariff may never fall below the initial floor.

35. A QF may also negotiate a levelized or front-loaded, contract with a utility. Such a contract would make use of standard capital recovery methods in levelizing capital costs. In fact this is just one procedure a utility may use to derive a fixed minimum rate. In turn, an annual inflation adjustment may be used with a levelized tariff as suggested by Dr. Power:

> I'm proposing that one estimate long-run incremental costs in current 1981 dollar terms and base the avoided cost rates on that, and I also suggest an option similar to what Pacific and Montana Power have both proposed, a levelizing arrangement that would load more the payments at the front end or something that I think has some attractive features, setting that avoided cost rate on a levelized basis in real purchasing power terms and then increasing it at whatever the actual experienced rate of inflation was each year. (Tr. p. B-139).

SCHEDULE C



36. Schedule C provides a graphical summary of payment options discussed above. In summary, the Commission has indicated five payment options which it finds acceptable:

1) The standard rate, where, over the life of the contract, the QF is paid the standard rate which varys from year to year [assuming no real inflation in the cost components used to compute standard rates, Curve B would represent this option].

2) A fixed minimum, where, over the life of the contract, the QF is paid the greater of the initial year's standard rate [Curve A] and the actual standard rate.

3) A fixed payment, where, over the life of the contract, the QF is paid the initial year standard rate plus the previous year's inflation [Curve B].

4) A fixed payment, where, over the life of the contract, the QF is paid the initial year standard rate plus a negotiated level of projected inflation [Curve C].

5) A levelized payment, where, the present value of the projected inflation [Curve C minus Curve A] is levelized over the life of the contract and added to the initial year standard rate [Curve A] resulting in Curve D.

37. Lastly, the Commission wishes to point out that the process of establishing final tariffs complying with the methodology set forth in this proceeding has been frustrating. The Commission finds the working session efforts initiated by all three utilities commendable. Further it finds that MDU has been relatively cooperative in addressing the compliance concerns of the Commission.

38. It is with PP&L's letter of May 14, 1982 and MPC's letter of April 26, 1982, that this Commission finds a possible lack of good faith. The Idaho Public Utilities Commission has taken the same problem into consideration when setting rates of return and approving issuances of security used to finance the construction of conventional thermal units.

39. The Montana Commission holds that utility failure to actively pursue QF contributions to their resource base, via negotiated terms of contract -- as discussed in Finding Nos. 33 through 36 -- to constitute failure to provide cost effective service. To the extent the evidence in future proceedings does not demonstrate that the utilities have in fact vigorously pursued such contracts, the Commission will use such evidence in considering whether utilities are providing adequate service at just and reasonable rates. Initially, it is the "conservation adder" recently granted in the equity returns of both MPC (Order No. 4775b, Finding No. 45) and PP&L (Order No. 4881a, Finding No. 33) which is at stake.

40. The Companies are reminded of their obligation to provide information to the Commission regarding their initial written response to each prospective QF [ARM 38.5.1908(1)]. In addition to reporting each contact made, the Commission directs the Companies to submit one copy of the completed contractural agreement with each QF. The Commission welcomes additional information that will aid the Commission in analyzing the individual efforts of each utility in encouraging QF contributions to a utility's resource base.

CONCLUSIONS OF LAW

1. Montana-Dakota Utilities Company, Montana Power Company and Pacific Power & Light Company are public utilities within the meaning of Montana law, Sections 69-3-101 and 69-3-601(3), MCA.

2. The Commission properly exercises jurisdiction over the rates and terms and conditions for the purchase of electricity by public utilities from qualified cogenerators and small power producers. Sections 69-3-102, 69-3-103 and 69-3-603, MCA. Section 210, Pub. L. 97-617, 92 Stat. 3119 (1978).

3. The rates the Commission has directed the utilities to file are just and reasonable to Montana ratepayers as they reflect each utility's avoided energy and capacity costs.

4. The objective of encouraging cogeneration and small power production is promoted by the rates and terms and conditions established by this order.

ORDER

Each utility is to submit their respective tariffs as listed in Schedule A within 5 days; these tariffs will become effective upon approval.

DONE IN OPEN SESSION this 21st day of June, 1982, by a vote of 3 - 0.

BY ORDER OF THE MONTANA PUBLIC SERVICE COMMISSION.

JOHN B. DRISCOLL, Commissioner

HOWARD L. ELLIS, Commissioner

THOMAS J. SCHNEIDER, Commissioner

ATTEST:

Madeline L. Cottrill
Commission Secretary

(SEAL)

NOTE: You may be entitled to judicial review of the final decision in this matter. If no Motion for Reconsideration is filed, judicial review may be obtained by filing a petition for review within thirty (30) days from the service of this order. If a Motion for Reconsideration is filed, a Commission order is final for purpose of appeal upon the entry of a ruling on that motion, or upon the passage of ten (10) days following the filing of that motion. cf. the Montana Administrative Procedure Act, esp. Sec. 2-4-702, MCA; and Commission Rules of Practice and Procedure, esp. 38.2.4806 ARM.