

JOHN R. KROGER
Attorney General



MARY H. WILLIAMS
Deputy Attorney General

DEPARTMENT OF JUSTICE
GENERAL COUNSEL DIVISION

June 4, 2010

PUBLIC UTILITY COMMISSION OF OREGON
ATTENTION: FILING CENTER
PO BOX 2148
SALEM OR 97308-2148

Re: UE 219 – In the Matter of PacifiCorp, dba Pacific Power, Application to Implement the Provision of Senate Bill 76

Enclosed for filing is Staff Direct Testimony 200 – 202.

Sincerely,

Neoma Lane
Legal Secretary
Regulated Utility & Business Section

NAL:na/#2071533
Enclosures
cc: Service List

1 **CERTIFICATE OF SERVICE**

2 I certify that on June 4, 2010, I served the foregoing Staff Testimony upon the parties in
3 this proceeding by electronic mail and by sending a true, exact and full copy by regular mail,
4 postage prepaid, or by hand-delivery/shuttle, to the parties accepting paper service.

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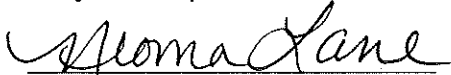
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Neoma Lane
Legal Secretary / Department of Justice
Regulated Utility & Business Section

**PUBLIC UTILITY COMMISSION
OF OREGON**

UE 219

STAFF DIRECT TESTIMONY OF

Ming Peng

**In the Matter of
PACIFICORP, dba PACIFIC POWER
Application to Implement the Provisions of
Senate Bill 76.**

June 4, 2010

CASE: UE 219
WITNESS: Ming Peng

**PUBLIC UTILITY COMMISSION
OF
OREGON**

STAFF EXHIBIT 200

June 4, 2010

1 **Q. PLEASE STATE YOUR NAME, OCCUPATION, AND BUSINESS**
2 **ADDRESS.**

3 A. My name is Ming Peng. My business address is 550 Capitol Street NE Suite
4 215, Salem, Oregon 97301-2551.

5 **Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND WORK**
6 **EXPERIENCE.**

7 A. My Witness Qualification Statement is found in Exhibit Staff/201.

8 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

9 A. Oregon Revised Statute (ORS) 757.734(1) requires the Commission to
10 determine a new depreciation schedule for the Klamath Project, based upon
11 the assumption that the dams (J. C. Boyle Dam, Copco 1 Dam, Copco 2 Dam,
12 and Iron Gate Dam) will be removed in 2020. My testimony recommends the
13 appropriate depreciation schedule for each of the four dams based on the
14 assumption that the dams will be removed in 2020.

15 **Q. DID YOU PREPARE AN EXHIBIT FOR THIS DOCKET?**

16 A. Yes. I prepared one exhibit. Exhibit Staff/202 is a copy of my recommended
17 depreciation schedule for each of the four dams by FERC account.

18 **Q. HOW IS YOUR TESTIMONY ORGANIZED?**

19 A. My testimony is organized as follows:

- 20 1. Background of the depreciation filing for the Klamath dams
21 2. Calculation of the new depreciation schedules

1 **1. BACKGROUND OF THE KLAMATH DAMS DEPRECIATION FILING**

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4 **Q. WHY DID PACIFICORP REQUEST A NEW DEPRECIATION SCHEDULE
FOR THE KLAMATH PROJECT?**

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A. ORS 757.736(2) allows PacifiCorp to collect two surcharges from its customers for the purpose of funding the costs of removal for the Klamath River dams (J. C. Boyle Dam, Copco 1 Dam, Copco 2 Dam, and Iron Gate Dam). ORS 757.734(1) requires the Commission to determine a new depreciation schedule for each of the four dams of the Klamath Project, based upon the assumption that the dams will be removed in 2020.

The Company requests that the Commission determine the depreciation schedule within six months of execution of the Klamath Hydroelectric Settlement Agreement (KHSA), or by August 18, 2010, pursuant to ORS 757.734(1). The changes in the depreciation schedules would be effective January 1, 2011, and reflected in rates resulting from the Company's current general rate case proceeding, Docket No. UE 217.

22 **2. CALCULATION OF THE NEW DEPRECIATION SCHEDULES**

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26 **Depreciation Concepts**

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28 **Q. WHAT IS DEPRECIATION AND WHAT IS A DEPRECIATION SCHEDULE?**

1 A. Depreciation is a term used to describe the reduction in the value of an asset
2 over a number of years. A Depreciation Schedule is a table that shows the
3 amount of depreciation expense for each period over the span of the asset's life.

4 **Q. WHAT ARE PLANT ADDITIONS, RETIREMENTS, AND BALANCES?**

5 A. An annual plant addition is the original cost of plant added to the account during
6 the year. An annual retirement is the original cost of a prior addition that is now
7 removed from service during the year. The plant balance at the year-end is the
8 difference between the plant additions and the retirements.

9 **Q. WHAT IS NET BOOK COST?**

10 A. The net book cost (also called the net plant balance or net book balance) is the
11 recorded cost of assets minus the accumulated depreciation of those assets.

12 **Q. WHAT IS THE ACCUMULATED DEPRECIATION?**

13 A. Accumulated depreciation (also called depreciation reserve) is a cumulative
14 amount of the previously recorded depreciation expense.

15 **Q. WHAT IS THE LIFE SPAN METHOD?**

16 A. The life span method is based on the premise that all plant within a property
17 group will retire concurrently a specific number of years after the initial
18 placement. There may be interim additions and retirements; however, all plant is
19 assumed to be subject to a final retirement.

20

21 **Depreciation Calculation**

22 **Q. WHAT ASSUMPTIONS ARE USED TO CALCULATE THE FOUR**
23 **DEPRECIATION SCHEDULES?**

1 A. For each of the four dams, the depreciation calculation does not contain any
2 salvage or cost of removal estimates; and does not contain any estimates of
3 interim additions or interim retirements.

4 **Q. HOW IS THE ANNUAL DEPRECIATION EXPENSE CALCULATED?**

5 A. In the response to Staff's data request, PacifiCorp provided data by FERC
6 accounts and by individual dam location for each of the four dams.

7 I derived the annual depreciation expense by taking the remaining net plant
8 balance as of June 30, 2009 for each of the dams and dividing by the remaining
9 10.5-year life of each dam (the period between June 30, 2009 and December
10 31, 2019).

11 The straight-line depreciation rate is 6.4 percent. When this rate is applied
12 to Oregon's share of the gross plant, valued at \$21.38 million, it produces a
13 collective \$1.37 million annual depreciation expense for the four dams. (See
14 details for each of the four dams in the attachment).

15 **Q. WHAT IS THE EFFECTIVE DATE FOR THE DEPRECIATION SCHEDULE**
16 **CHANGES AND RESULTING RATE CHANGES?**

17 A. Changes in the depreciation schedules would be effective January 1, 2011,
18 and reflected in rates through the Company's pending general rate case,
19 Docket No. UE 217, and effective at the same date as rates resulting from
20 this proceeding.

21 **Q. WHAT DEPRECIATION SCHEDULES DO YOU RECOMMEND?**

22 A. My recommended depreciation schedules are in Exhibit Staff/202. Table 1
23 below summarizes each schedule.

1

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Table 1. Klamath Hydro Dams' Depreciation Schedules: Oregon Summary

OREGON SUMMARY											page 1
Location	FERC		End	Plant Balance	Accum Depreciation	Amount to	Remaining	Annual	Depreciation	Oregon	
Description	Account	Methodology	Life	at 6/30/2009	at 6/30/2009	Recover	Life	Depreciation	Rate%	Allocation %	
JC BOYLE HYDRO PLAN	303-398	LIFESPAN	12/31/2019	8,824,019	(2,362,303)	6,461,716	10.5	615,401	6.974%	26.177%	
IRON GATE HYDRO PLAN	330-398	LIFESPAN	12/31/2019	5,693,376	(2,030,834)	3,662,542	10.5	348,813	6.127%	26.177%	
COPOD #1 HYDRO PLAN	330-397	LIFESPAN	12/31/2019	2,440,787	(1,138,151)	1,302,635	10.5	124,061	5.083%	26.177%	
COPOD #2 HYDRO PLAN	330-398	LIFESPAN	12/31/2019	4,422,986	(1,484,204)	2,938,782	10.5	279,884	6.328%	26.177%	
TOTAL				21,381,167	(7,015,493)	14,365,674	10.5	1,368,159	6.3989%	26.177%	

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Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

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A. Yes.

CASE: UE 219
WITNESS: Ming Peng

**PUBLIC UTILITY COMMISSION
OF
OREGON**

STAFF EXHIBIT 201

Witness Qualification Statement

June 4, 2010

WITNESS QUALIFICATION STATEMENT

NAME: MING PENG (Ms.)
EMPLOYER: PUBLIC UTILITY COMMISSION OF OREGON
TITLE: SENIOR ECONOMIST
ADDRESS: 550 CAPITOL ST. N.E. SUITE 215, SALEM, OR 97301-2551

EDUCATION & TRAINING:

Depreciation studies - the Society of Depreciation Professionals	2008
Certified Rate of Return Analyst (CRR) Society of Utility and Regulatory Financial Analysts	2002
NARUC Annual Regulatory Studies Program Michigan State University, East Lansing	1999
Master of Science, Agricultural Economics University of Idaho, Moscow	1990
Bachelor of Science, Statistics People's University of China, Beijing	1983

EXPERIENCE:

SENIOR ECONOMIST 1999 - present
Public Utility Commission of Oregon. Working in areas including Industrial Property Retirement and Depreciation Rates, Cost of Capital Analysis, Fixed Income Security Analysis, Financial Risk Analysis on Merger & Acquisition, Electricity Load and Price Forecasting, Weather Normalization, Public Utility Auditing, Market Competition Survey Analysis for Telecom Industry, Sampling Design for Revenue Issues.

INDUSTRY ANALYST 1996-1998
Weyerhaeuser Company. Forecasted product demand, price trends, and price elasticity. Established the process (specific methods and techniques) for market, investment, and economic analyses. Selected the analytical techniques most appropriate for any given problem.

ECONOMIST (Natural Resources) 1992-1996
Idaho Department of Water Resources. Conducted economic research. Developed analysis in evaluating policy and planning alternatives; determined the financial and economic feasibility of proposed natural resource projects using economic modeling and investment analysis.

CASE: UE 219
WITNESS: Ming Peng

**PUBLIC UTILITY COMMISSION
OF
OREGON**

STAFF EXHIBIT 202

**Exhibits in Support
Of Direct Testimony**

June 4, 2010

OREGON SUMMARY

Location Description	FERC Account	Methodology	End Life	Plant Balance at 6/30/2009	Accum Depreciation at 6/30/2009	Amount to Recover	Remaining Life	Annual Depreciation	Depreciation Rate%	Oregon Allocation %
JC BOYLE HYDRO PLANT	303-398	LIFE SPAN	12/31/2019	8,824,019	(2,362,303)	6,461,716	10.5	615,401	6.974%	26.177%
IRON GATE HYDRO PLANT	330-398	LIFE SPAN	12/31/2019	5,693,376	(2,030,834)	3,662,542	10.5	348,813	6.127%	26.177%
COPCO #1 HYDRO PLANT	330-397	LIFE SPAN	12/31/2019	2,440,787	(1,138,151)	1,302,635	10.5	124,061	5.083%	26.177%
COPCO #2 HYDRO PLANT	330-398	LIFE SPAN	12/31/2019	4,422,986	(1,484,204)	2,938,782	10.5	279,884	6.328%	26.177%
TOTAL				21,381,167	(7,015,493)	14,365,674	10.5	1,368,159	6.3989%	26.177%

Depreciation Schedule for 4 Klamath Hydro Dams - Total Company

JC BOYLE HYDRO PLANT-COMPANY

FERC Account	Methodology	End Life	Plant Balance at 6/30/2009	Accum Depreciation at 6/30/2009	Amount to Recover	Rem Life	Annual Depreciation	Depreciation Rate%
[1]	[2]	[3]	[4]	[5]	[6]=[4]+[5]	[7]	[8]=[6]/[7]	[9]=[8]/[4]
3034900	LIFE SPAN	12/31/2019	30,123	(19,306)	10,817	10.5	1,030	3.42%
3301000	LIFE SPAN	12/31/2019	26,277	0	26,277	10.5	2,503	9.52%
3310000	LIFE SPAN	12/31/2019	0	0	0	10.5	-	-
3311000	LIFE SPAN	12/31/2019	2,367,202	(744,800)	1,622,402	10.5	154,514	6.53%
3313000	LIFE SPAN	12/31/2019	53,311	(12,641)	40,671	10.5	3,873	7.27%
3321000	LIFE SPAN	12/31/2019	13,458,694	(4,622,617)	8,836,078	10.5	841,531	6.25%
3322000	LIFE SPAN	12/31/2019	1,086,244	(213,717)	872,527	10.5	83,098	7.65%
3330000	LIFE SPAN	12/31/2019	8,686,453	(1,765,077)	6,921,376	10.5	659,179	7.59%
3340000	LIFE SPAN	12/31/2019	5,276,038	(871,520)	4,404,518	10.5	419,478	7.95%
3347000	LIFE SPAN	12/31/2019	906,455	(136,741)	769,714	10.5	73,306	8.09%
3351000	LIFE SPAN	12/31/2019	145,988	(70,273)	75,715	10.5	7,211	4.94%
3360000	LIFE SPAN	12/31/2019	886,710	(290,016)	596,693	10.5	56,828	6.41%
3910000	LIFE SPAN	12/31/2019	4,677	(3,036)	1,641	10.5	156	3.34%
3912000	LIFE SPAN	12/31/2019	748	(81)	667	10.5	64	8.49%
3920400	LIFE SPAN	12/31/2019	153,544	(44,611)	108,932	10.5	10,375	6.76%
3920500	LIFE SPAN	12/31/2019	47,660	(3,081)	44,580	10.5	4,246	8.91%
3920600	LIFE SPAN	12/31/2019	57,885	(29,705)	28,181	10.5	2,684	4.64%
3920900	LIFE SPAN	12/31/2019	7,507	(797)	6,710	10.5	639	8.51%
3940000	LIFE SPAN	12/31/2019	79,573	(44,029)	35,545	10.5	3,385	4.25%
3950000	LIFE SPAN	12/31/2019	23,346	(14,383)	8,963	10.5	854	3.66%
3970000	LIFE SPAN	12/31/2019	403,740	(135,490)	268,250	10.5	25,548	6.33%
3980000	LIFE SPAN	12/31/2019	6,764	(2,397)	4,367	10.5	416	6.15%
JC BOYLE HYDRO PLANT TOTAL			33,708,941	(9,024,317)	24,684,624		2,350,917	6.97%
COMPANY								

IRON GATE HYDRO PLANT-COMPANY

FERC Account	Methodology	End Life	Plant Balance at 6/30/2009	Accum Depreciation at 6/30/2009	Amount to Recover	Rem Life	Annual Depreciation	Depreciation Rate%
[1]	[2]	[3]	[4]	[5]	[6]=[4]+[5]	[7]	[8]=[6]/[7]	[9]=[8]/[4]
3301000	LIFE SPAN	12/31/2019	337,105	0	337,105	10.5	32,105	9.52%
3302000	LIFE SPAN	12/31/2019	4,601	(2,448)	2,154	10.5	205	4.46%
3311000	LIFE SPAN	12/31/2019	1,787,216	(746,799)	1,040,417	10.5	99,087	5.54%
3312000	LIFE SPAN	12/31/2019	2,270,295	(666,071)	1,604,224	10.5	152,783	6.73%
3313000	LIFE SPAN	12/31/2019	502,368	(148,867)	353,501	10.5	33,667	6.70%
3321000	LIFE SPAN	12/31/2019	12,100,121	(4,020,040)	8,080,081	10.5	769,532	6.36%
3322000	LIFE SPAN	12/31/2019	830,121	(409,014)	421,108	10.5	40,105	4.83%
3330000	LIFE SPAN	12/31/2019	1,949,245	(898,884)	1,050,361	10.5	100,034	5.13%
3340000	LIFE SPAN	12/31/2019	215,647	(140,587)	75,060	10.5	7,149	3.31%
3347000	LIFE SPAN	12/31/2019	53,011	(19,682)	33,328	10.5	3,174	5.99%
3351000	LIFE SPAN	12/31/2019	15,459	(7,942)	7,516	10.5	716	4.63%
3352000	LIFE SPAN	12/31/2019	0	0	0	10.5	-	5.85%
3360000	LIFE SPAN	12/31/2019	1,076,116	(415,607)	660,509	10.5	62,906	3.02%
3910000	LIFE SPAN	12/31/2019	7,553	(5,158)	2,395	10.5	228	5.28%
3920400	LIFE SPAN	12/31/2019	25,091	(11,181)	13,910	10.5	1,325	2.87%
3930000	LIFE SPAN	12/31/2019	5,268	(3,681)	1,587	10.5	151	7.11%
3940000	LIFE SPAN	12/31/2019	24,956	(6,313)	18,643	10.5	1,776	9.03%
3950000	LIFE SPAN	12/31/2019	607	(32)	575	10.5	55	5.05%
3970000	LIFE SPAN	12/31/2019	544,052	(255,707)	288,345	10.5	27,461	8.79%
3980000	LIFE SPAN	12/31/2019	631	(49)	582	10.5	55	
IRON GATE HYDRO PLANT TOTAL			21,749,463	(7,758,061)	13,991,402		1,332,514	6.13%
COMPANY								

COPCO #1 HYDRO PLANT-COMPANY

FERC Account	Methodology	End Life	Plant Balance at 6/30/2009	Accum Depreciation at 6/30/2009	Amount to Recover	Rem Life	Annual Depreciation	Depreciation Rate%
[1]	[2]	[3]	[4]	[5]	[6]=[4]+[5]	[7]	[8]=[6]/[7]	[9]=[8]/[4]
3301000	LIFE SPAN	12/31/2019	143,005	0	143,005	10.5	13,620	9.52%
3302000	LIFE SPAN	12/31/2019	36,340	(34,000)	2,340	10.5	223	0.61%
3304000	LIFE SPAN	12/31/2019	1,030	(1,156)	(127)	10.5	(12)	0.00%
3311000	LIFE SPAN	12/31/2019	1,278,255	(469,036)	809,219	10.5	77,069	6.03%
3313000	LIFE SPAN	12/31/2019	87,722	(38,577)	49,145	10.5	4,680	5.34%
3321000	LIFE SPAN	12/31/2019	2,641,584	(1,887,263)	754,321	10.5	71,840	2.72%
3330000	LIFE SPAN	12/31/2019	3,582,357	(1,288,287)	2,294,070	10.5	218,483	6.10%
3340000	LIFE SPAN	12/31/2019	1,334,814	(549,941)	784,874	10.5	74,750	5.60%
3347000	LIFE SPAN	12/31/2019	59,036	(27,569)	31,467	10.5	2,997	5.08%
3351000	LIFE SPAN	12/31/2019	1,262	(644)	618	10.5	59	4.67%
3360000	LIFE SPAN	12/31/2019	105,442	(32,983)	72,458	10.5	6,901	6.54%
3900000	LIFE SPAN	12/31/2019	0	0	0	10.5	-	-
3920400	LIFE SPAN	12/31/2019	23,777	(10,167)	13,609	10.5	1,296	5.45%
3940000	LIFE SPAN	12/31/2019	6,784	(3,504)	3,280	10.5	312	4.60%
3970000	LIFE SPAN	12/31/2019	22,726	(4,764)	17,962	10.5	1,711	7.53%
COPCO #1 HYDRO PLANT TOTAL			9,324,133	(4,347,891)	4,976,243		473,928	5.08%

COMPANY

COPCO #2 HYDRO PLANT-COMPANY

FERC Account	Methodology	End Life	Plant Balance at 6/30/2009	Accum Depreciation at 6/30/2009	Amount to Recover	Rem Life	Annual Depreciation	Depreciation Rate%
[1]	[2]	[3]	[4]	[5]	[6]=[4]+[5]	[7]	[8]=[6]/[7]	[9]=[8]/[4]
3301000	LIFE SPAN	12/31/2019	20,914	0	20,914	10.5	1,992	9.52%
3311000	LIFE SPAN	12/31/2019	2,184,729	(760,806)	1,423,923	10.5	135,612	6.21%
3321000	LIFE SPAN	12/31/2019	2,954,724	(2,704,856)	249,869	10.5	23,797	0.81%
3330000	LIFE SPAN	12/31/2019	3,485,850	(1,421,954)	2,063,896	10.5	196,562	5.64%
3340000	LIFE SPAN	12/31/2019	6,553,106	(260,500)	6,292,606	10.5	599,296	9.15%
3370000	LIFE SPAN	12/31/2019	259,420	(124,611)	134,808	10.5	12,839	4.95%
3351000	LIFE SPAN	12/31/2019	0	0	0	10.5	-	7.63%
3360000	LIFE SPAN	12/31/2019	479,588	(95,507)	384,081	10.5	36,579	0.51%
3910000	LIFE SPAN	12/31/2019	1,934	(1,831)	103	10.5	10	8.49%
3912000	LIFE SPAN	12/31/2019	749	(81)	668	10.5	64	5.41%
3913000	LIFE SPAN	12/31/2019	1,572	(679)	892	10.5	85	7.03%
3920400	LIFE SPAN	12/31/2019	147,247	(38,575)	108,671	10.5	10,350	9.32%
3920600	LIFE SPAN	12/31/2019	180,294	(3,809)	176,485	10.5	16,808	9.01%
3920900	LIFE SPAN	12/31/2019	14,207	(762)	13,445	10.5	1,281	9.48%
3930000	LIFE SPAN	12/31/2019	3,367	(17)	3,350	10.5	319	3.02%
3940000	LIFE SPAN	12/31/2019	57,759	(39,436)	18,324	10.5	1,745	5.75%
3970000	LIFE SPAN	12/31/2019	534,770	(211,912)	322,859	10.5	30,748	8.19%
3972000	LIFE SPAN	12/31/2019	3,649	(511)	3,138	10.5	299	6.47%
3980000	LIFE SPAN	12/31/2019	12,523	(4,014)	8,509	10.5	810	6.33%
COPCO #2 HYDRO PLANT TOTAL			16,896,402	(5,669,860)	11,226,542		1,069,194	
COMPANY								

JC BOYLE HYDRO PLANT-OREGON

FERC Account	Methodology	End Life	Plant Balance at 6/30/2009	Accum Depreciation at 6/30/2009	Amount to Recover	Rem Life	Annual Depreciation	Depreciation Rate%	Oregon Allocation%
[1]	[2]	[3]	[4]	[5]	[6]=[4]+[5]	[7]	[8]=[6]/[7]	[9]=[8]/[4]	[10]
3034900	LIFE SPAN	12/31/2019	7,885	(5,054)	2,832	10.5	270	3.42%	26.177%
3301000	LIFE SPAN	12/31/2019	6,879	0	6,879	10.5	655	9.52%	26.177%
3310000	LIFE SPAN	12/31/2019	0	0	0	10.5	0		26.177%
3311000	LIFE SPAN	12/31/2019	619,665	(194,967)	424,697	10.5	40,447	6.53%	26.177%
3313000	LIFE SPAN	12/31/2019	13,955	(3,309)	10,646	10.5	1,014	7.27%	26.177%
3321000	LIFE SPAN	12/31/2019	3,523,094	(1,210,066)	2,313,028	10.5	220,288	6.25%	26.177%
3322000	LIFE SPAN	12/31/2019	284,347	(55,945)	228,402	10.5	21,753	7.65%	26.177%
3330000	LIFE SPAN	12/31/2019	2,273,861	(462,046)	1,811,815	10.5	172,554	7.59%	26.177%
3340000	LIFE SPAN	12/31/2019	1,381,113	(228,139)	1,152,975	10.5	109,807	7.95%	26.177%
3347000	LIFE SPAN	12/31/2019	237,284	(35,795)	201,489	10.5	19,189	8.09%	26.177%
3351000	LIFE SPAN	12/31/2019	38,215	(18,395)	19,820	10.5	1,888	4.94%	26.177%
3360000	LIFE SPAN	12/31/2019	232,115	(75,918)	156,197	10.5	14,876	6.41%	26.177%
3910000	LIFE SPAN	12/31/2019	1,224	(795)	430	10.5	41	3.34%	26.177%
3912000	LIFE SPAN	12/31/2019	196	(21)	175	10.5	17	8.49%	26.177%
3920400	LIFE SPAN	12/31/2019	40,193	(11,678)	28,515	10.5	2,716	6.76%	26.177%
3920500	LIFE SPAN	12/31/2019	12,476	(806)	11,670	10.5	1,111	8.91%	26.177%
3920600	LIFE SPAN	12/31/2019	15,153	(7,776)	7,377	10.5	703	4.64%	26.177%
3920900	LIFE SPAN	12/31/2019	1,965	(209)	1,756	10.5	167	8.51%	26.177%
3940000	LIFE SPAN	12/31/2019	20,830	(11,525)	9,305	10.5	886	4.25%	26.177%
3950000	LIFE SPAN	12/31/2019	6,111	(3,765)	2,346	10.5	223	3.66%	26.177%
3970000	LIFE SPAN	12/31/2019	105,687	(35,467)	70,220	10.5	6,688	6.33%	26.177%
3980000	LIFE SPAN	12/31/2019	1,771	(627)	1,143	10.5	109	6.15%	26.177%
JC BOYLE HYDRO PLANT -TOTAL OREGON			8,824,019	(2,362,303)	6,461,716		615,401	6.97%	

IRON GATE HYDRO PLANT-OREGON

FERC Account	Methodology	End Life	Plant Balance at 6/30/2009	Accum Depreciation at 6/30/2009	Amount to Recover	Rem Life	Annual Depreciation	Depreciation Rate%	Oregon Allocation%
[1]	[2]	[3]	[4]	[5]	[6]=[4]+[5]	[7]	[8]=[6]/[7]	[9]=[8]/[4]	[10]
3301000	LIFE SPAN	12/31/2019	88,244	0	88,244	10.5	8,404	9.52%	26.177%
3302000	LIFE SPAN	12/31/2019	1,204	(641)	564	10.5	54	4.46%	26.177%
3311000	LIFE SPAN	12/31/2019	467,841	(195,490)	272,351	10.5	25,938	5.54%	26.177%
3312000	LIFE SPAN	12/31/2019	594,297	(174,358)	419,939	10.5	39,994	6.73%	26.177%
3313000	LIFE SPAN	12/31/2019	131,505	(38,969)	92,536	10.5	8,813	6.70%	26.177%
3321000	LIFE SPAN	12/31/2019	3,167,459	(1,052,329)	2,115,130	10.5	201,441	6.36%	26.177%
3322000	LIFE SPAN	12/31/2019	217,302	(107,068)	110,234	10.5	10,498	4.83%	26.177%
3330000	LIFE SPAN	12/31/2019	510,256	(235,302)	274,954	10.5	26,186	5.13%	26.177%
3340000	LIFE SPAN	12/31/2019	56,450	(36,802)	19,649	10.5	1,871	3.31%	26.177%
3347000	LIFE SPAN	12/31/2019	13,877	(5,152)	8,724	10.5	831	5.99%	26.177%
3351000	LIFE SPAN	12/31/2019	4,047	(2,079)	1,968	10.5	187	4.63%	26.177%
3352000	LIFE SPAN	12/31/2019	0	0	0	10.5	0		26.177%
3360000	LIFE SPAN	12/31/2019	281,696	(108,794)	172,902	10.5	16,467	5.85%	26.177%
3910000	LIFE SPAN	12/31/2019	1,977	(1,350)	627	10.5	60	3.02%	26.177%
3920400	LIFE SPAN	12/31/2019	6,568	(2,927)	3,641	10.5	347	5.28%	26.177%
3930000	LIFE SPAN	12/31/2019	1,379	(963)	416	10.5	40	2.87%	26.177%
3940000	LIFE SPAN	12/31/2019	6,533	(1,653)	4,880	10.5	465	7.11%	26.177%
3950000	LIFE SPAN	12/31/2019	159	(8)	151	10.5	14	9.03%	26.177%
3970000	LIFE SPAN	12/31/2019	142,417	(66,937)	75,480	10.5	7,189	5.05%	26.177%
3980000	LIFE SPAN	12/31/2019	165	(13)	152	10.5	15	8.79%	26.177%
IRON GATE HYDRO PLANT TOTAL			5,693,376	(2,030,834)	3,662,542		348,813	6.13%	
OREGON									

COPCO #1 HYDRO PLANT - OREGON

FERC Account	Methodology	End Life	Plant Balance at 6/30/2009	Accum Depreciation at 6/30/2009	Amount to Recover	Rem Life	Annual Depreciation	Depreciation Rate%	Oregon Allocation%
[1]	[2]	[3]	[4]	[5]	[6]=[4]+[5]	[7]	[8]=[6]/[7]	[9]=[8]/[4]	[10]
3301000	LIFE SPAN	12/31/2019	37,435	0	37,435	10.5	3,565	9.52%	26.177%
3302000	LIFE SPAN	12/31/2019	9,513	(8,900)	613	10.5	58	0.61%	26.177%
3304000	LIFE SPAN	12/31/2019	269	(303)	(33)	10.5	(3)	0.00%	26.177%
3311000	LIFE SPAN	12/31/2019	334,610	(122,780)	211,830	10.5	20,174	6.03%	26.177%
3313000	LIFE SPAN	12/31/2019	22,963	(10,098)	12,865	10.5	1,225	5.34%	26.177%
3321000	LIFE SPAN	12/31/2019	691,490	(494,031)	197,459	10.5	18,806	2.72%	26.177%
3330000	LIFE SPAN	12/31/2019	937,757	(337,236)	600,521	10.5	57,192	6.10%	26.177%
3340000	LIFE SPAN	12/31/2019	349,416	(143,958)	205,457	10.5	19,567	5.60%	26.177%
3347000	LIFE SPAN	12/31/2019	15,454	(7,217)	8,237	10.5	784	5.08%	26.177%
3351000	LIFE SPAN	12/31/2019	330	(168)	162	10.5	15	4.67%	26.177%
3360000	LIFE SPAN	12/31/2019	27,602	(8,634)	18,968	10.5	1,806	6.54%	26.177%
3900000	LIFE SPAN	12/31/2019	0	0	0	10.5	0		26.177%
3920400	LIFE SPAN	12/31/2019	6,224	(2,662)	3,563	10.5	339	5.45%	26.177%
3940000	LIFE SPAN	12/31/2019	1,776	(917)	859	10.5	82	4.60%	26.177%
3970000	LIFE SPAN	12/31/2019	5,949	(1,247)	4,702	10.5	448	7.53%	26.177%
COPCO #1 HYDRO PLANT TOTAL			2,440,787	(1,138,151)	1,302,635		124,061	5.08%	
OREGON									

COPCO #2 HYDRO PLANT - OREGON

FERC Account	Methodology	End Life	Plant		Accum Depreciation at 6/30/2009	Amount to Recover	Rem Life	Annual Depreciation	Depreciation Rate%	Oregon Allocation%
			Balance at 6/30/2009	Depreciation at 6/30/2009						
[1]	[2]	[3]	[4]	[5]	[6]=[4]+[5]	[7]	[8]=[6]/[7]	[9]=[8]/[4]	[10]	
3301000	LIFE SPAN	12/31/2019	5,475	0	5,475	10.5	521	9.52%	26.177%	
3311000	LIFE SPAN	12/31/2019	571,898	(199,157)	372,742	10.5	35,499	6.21%	26.177%	
3321000	LIFE SPAN	12/31/2019	773,461	(708,052)	65,408	10.5	6,229	0.81%	26.177%	
3330000	LIFE SPAN	12/31/2019	912,494	(372,226)	540,268	10.5	51,454	5.64%	26.177%	
3340000	LIFE SPAN	12/31/2019	1,715,412	(68,191)	1,647,221	10.5	156,878	9.15%	26.177%	
3347000	LIFE SPAN	12/31/2019	67,909	(32,620)	35,289	10.5	3,361	4.95%	26.177%	
3351000	LIFE SPAN	12/31/2019	0	0	0	10.5	0		26.177%	
3360000	LIFE SPAN	12/31/2019	125,542	(25,001)	100,541	10.5	9,575	7.63%	26.177%	
3910000	LIFE SPAN	12/31/2019	506	(479)	27	10.5	3	0.51%	26.177%	
3912000	LIFE SPAN	12/31/2019	196	(21)	175	10.5	17	8.49%	26.177%	
3913000	LIFE SPAN	12/31/2019	411	(178)	234	10.5	22	5.41%	26.177%	
3920400	LIFE SPAN	12/31/2019	38,545	(10,098)	28,447	10.5	2,709	7.03%	26.177%	
3920600	LIFE SPAN	12/31/2019	47,196	(997)	46,199	10.5	4,400	9.32%	26.177%	
3920900	LIFE SPAN	12/31/2019	3,719	(199)	3,520	10.5	335	9.01%	26.177%	
3930000	LIFE SPAN	12/31/2019	881	(4)	877	10.5	84	9.48%	26.177%	
3940000	LIFE SPAN	12/31/2019	15,120	(10,323)	4,797	10.5	457	3.02%	26.177%	
3970000	LIFE SPAN	12/31/2019	139,987	(55,472)	84,515	10.5	8,049	5.75%	26.177%	
3972000	LIFE SPAN	12/31/2019	955	(134)	821	10.5	78	8.19%	26.177%	
3980000	LIFE SPAN	12/31/2019	3,278	(1,051)	2,227	10.5	212	6.47%	26.177%	
COPCO #2 HYDRO PLANT TOTAL OREGON			4,422,986	(1,484,204)	2,938,782		279,884	6.33%		

TOTAL OREGON

21,381,167	(7,015,493)	14,365,674	1,368,159	6.40%
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