



# Citizens' Utility Board of Oregon

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December 7, 2011

Commissioners

Public Utility Commission of Oregon

550 Capitol St NE #215

PO Box 2148

Salem OR 97308-2148

**Re: LC 52 Submission of CUB, NWECA, RNP, and Sierra Club's (with support of ODOE), Proposed Edits to PacifiCorp Action Item No. 8 with attached Coal Evaluation Template**

Dear Commissioners Ackerman, Savage and Bloom:

The Citizens' Utility Board of Oregon (CUB), on behalf of itself and of the Northwest Energy Coalition (NWECA), the Renewable Northwest Project (RNP) and the Sierra Club ("Joint Parties") – with the support of the Oregon Department of Energy – herewith submits its comments on PacifiCorp's Action Item No. 8 and also provides the Commission, and all the parties to the service list, with a Coal Evaluation Template for use by PacifiCorp in running the initial study that the Joint Parties believe is necessary to move this docket forward. This information is being provided because the Joint Parties continue to believe that to date the company has not done a transparent, unit by unit analysis that allows others to understand and analyze the underlying data and assumptions, it is also being provided in response to the Commission's taking of this docket under advisement at the close of yesterday's Public Meeting, the fact that the Joint Parties did not have an opportunity to respond to the Reply Comments filed by PacifiCorp on Monday evening December 5, 2011, and also in response to a request received yesterday afternoon from Erik Colville of Commission Staff asking for the parties to: "Please advise if you agree with the following action item addition related to PacifiCorp's coal plant study. This will help the Commission bring closure to today's meeting. Thank you."

Please note that the provision of this information to the Commission does not in any way alter the position of the Joint Parties that PacifiCorp's LC 52 Integrated Resource Plan (IRP) should not be acknowledged as this time.

## **1. PacifiCorp's Action Item No. 8**

PUC Commission Staff Erik Colville has requested that the parties advise whether they agree with the following action item:

- PacifiCorp will file its next IRP Update in March 2012. The IRP Update will include a revised Supplemental Coal Replacement Study. The revised Study

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will investigate whether there is flexibility in the emerging environmental regulations that would allow the Company to avoid early compliance costs by offering to shut down individual units prior to the end of their useful lives. The Company will also conduct further plant specific analysis to determine whether this tradeoff would be in the ratepayers' interest. In these additional analyses, the Company will provide a concise explanation and transparent example of its treatment of post-2030 costs, will provide an analysis that shows the results of treatment of environmental investments made prior to 2015 both avoidable and unavoidable, and provide additional natural gas and CO<sub>2</sub> cost scenarios that pair high CO<sub>2</sub> and low natural gas prices and low CO<sub>2</sub> and high natural gas prices. To guide and inform the revised Study, the Company will schedule a workshop with stakeholders to occur in January 2012. PacifiCorp will invite to this workshop representatives from each of its regulatory jurisdictions. The Company will develop and seek Commission acknowledgement of specific action items related to coal plant investments.

The Joint Parties, rather than engaging in an editing process, have drafted a completely new action item that we believe to be more appropriate for the Company and this docket.

The Company will present an analysis reviewing the economic merit of maintaining or retiring each of its coal units. The analysis shall include line-item annual capital costs and fixed costs of maintaining the existing coal fleet, as well as the capital costs and fixed costs of replacement capacity, as per the Company's IRP analysis. The analysis shall review the merit of retiring coal units to avoid new additional capital expenditures implemented in the year 2010 or thereafter, and examine, at a minimum, the merit or cost of retiring each unit individually in the year 2015. The analysis shall be conducted in such a way that stakeholders may examine unit-by-unit annual costs and the derivations thereof; the analysis shall examine a reasonable range of gas and CO<sub>2</sub> price forecasts, including high, medium, and low costs, and all combinations of these forecasts. The results of this analysis should clearly indicate the value, in present dollars, of maintaining or retiring each coal unit in the Company's portfolio. The analysis and all supporting workpapers and assumptions shall be presented to stakeholders 10 business days prior to the January technical meeting.

In addition to providing the above new action item the Joint Parties, for the convenience of the Commission and the Company, are also submitting (by electronic mail only) the attached Coal Evaluation Template for use in conducting the above requested study. This Coal evaluation Template is submitted as a reasonable and expected mechanism towards achieving the Joint Party proposed action item. For ease of review, a written description of the Coal Evaluation Template follows.

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**2. The Joint Parties Coal Evaluation Template (supported by ODOE) is designed to serve as a transparent mechanism to evaluate and communicate the net value of maintaining and retrofitting, or retiring and replacing, each coal unit in the PacifiCorp fleet**

As noted in the introductory paragraph to this letter, the Joint Parties see the attached (by electronic mail only) Coal Evaluation Template as a means to do the *initial* study run for the year 2015 which is needed to move this docket forward. Given the complexity of this matter we did not want to overly burden the Company by providing it with a multi-year study template right out of the gate. It is the Joint Parties' intent that following a Commission required *initial* run of this study that, based upon what we learn, additional analysis for some units will be necessary to look at closure options in additional years.

The joint parties based their Coal Evaluation Template on spreadsheets filed in utility commission dockets in Kansas, Kentucky and Georgia. The Template is designed to serve as a transparent mechanism to evaluate and communicate the net value of maintaining and retrofitting, or retiring and replacing, each coal unit in the PacifiCorp fleet. The Joint Parties respectfully request that the Commission require the Company to fill out the accompanying spreadsheet with annual unit and retrofit specific information. The worksheet is designed to compare the costs of a "no retirement" scenario (in which all coal units are maintained through their expected useful lives) against the costs of scenarios in which individual units are retired in the year 2015 and replaced by an optimized portfolio. The worksheet is not designed to provide an absolute retire/retrofit decision, but is designed instead to inform stakeholders of the relative merits of retrofitting versus retiring units under different fundamental assumptions, most notably a range of gas and CO2 prices.

The Coal Evaluation Template contains a summary worksheet entitled "retire-retrofit". Within this worksheet, there are seven sections to be filled out by the Company, the sum of which yields the estimated annual bulk power cost of the generating units. The Company is requested to examine 27 scenarios, one "no retirement" reference scenario and 26 individual unit retirement scenarios in which specific coal units are forced to retire in 2015. All assumptions are to be held consistent between scenarios, with the exception of the forced unit retirement (and associated avoided and incurred costs). Comparisons between the present value of each retirement scenario against the reference case will provide insight on the value of maintaining or retiring specific units.

The seven sections should be filled in through the Company analysis period, in thousands of nominal dollars. The sections include:

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1. Production Cost: The variable costs of energy production from all existing and new units. It is expected that such a value will be generated by the Company's build-out model (i.e. System Optimizer).<sup>1</sup>
2. New Unit Capital Cost: The capital cost, amortized as appropriate, of building new generation to replace retired units.
3. New and Existing Unit Fixed O&M: The annual fixed O&M costs associated with existing and new units.
4. New Environmental Controls Capital Costs: The capital cost, amortized as appropriate, of installing new environmental controls at the Company's coal fleet, including the incremental compliance cost of meeting current and emerging air, water, and solid waste regulations.
5. New Environmental Controls Fixed O&M: The annual fixed O&M costs associated with new environmental controls, as in Section 4.
6. Other Forward-Going Capital Costs: Other capital expenditures required to maintain existing and new units, including component replacement, periodic maintenance, life extension projects, and other expected capital expenses.
7. Decommissioning Costs: The cost of decommissioning the selected coal unit. Blank for the reference case.

It is expected that, with the exception of Sections 1 and 2 (Production Cost and New Unit Capital Cost, respectively), all other costs and expenses will be broken down by unit, and (as required) control or expense type in separate worksheets, and that this information will flow directly into the final analysis workbook. Such information has been provided, for example, for Section 4 (New Environmental Controls Capital Costs) in the response to Sierra Club Data Request 12. The structure of the provided worksheet has been copied into the template by way of example.

Finally, the purpose of this spreadsheet is to evaluate the value of maintaining or retiring individual coal units in the PacifiCorp fleet over a range of gas and CO<sub>2</sub> prices. As such, this worksheet should be copied nine times, for all permutations of a low, mid, and high gas and CO<sub>2</sub> price. The worksheet should be labeled with the specific gas and CO<sub>2</sub> assumption used in the "Info" tab, and the utilized gas and CO<sub>2</sub> prices should be shown in lines 3 and 4 of the "Retire Retrofit" tab. It is expected, generally, that Sections 1 and 2 will change with different gas and CO<sub>2</sub> price assumptions. All other sections are expected to remain consistent between all nine permutations of this worksheet.

If additional detail or clarifications are required to illustrate a particular point, additional rows, columns, or worksheets may be added as required. The Company is welcome to alter the

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<sup>1</sup> The Company's build-out model should allow a portfolio approach to replacement (i.e. all available resources are available as replacement capacity), as conducted in the Coal Replacement Study.

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discount rate as required, or to supply values in real dollars instead of nominal values, as long as assumptions are clear.

In conclusion, the Joint Parties and ODOE sincerely hope that the provision of these comments, and of the attached (by electronic mail only) Coal Evaluation Template, will assist the Commission in formulating its decision as to how best to move this docket forward. The Joint Parties and ODOE also request that the Commission view this submission as supplemental to each of the Joint Parties and ODOE's previously filed comments in this docket and not as in any way substituting or revising those prior comments.

If the Commission or the Company has any questions in regard to the Joint Parties proposed Action Item No. 8, or to the Coal Evaluation Template, those questions may be submitted to the Joint Parties jointly.

Thank you for your careful consideration of these additional comments from the Joint Parties.

Respectfully submitted,



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c. LC 52 Service List (w/out attachment due to electronic receipt of same by email)

<b>Date</b>	
<b>Build Out Model</b>	Strategist/System Optimizer/Other
<b>CO<sub>2</sub> Scenario</b>	Low / Mid / High
<b>Gas Price Scenario</b>	Low / Mid / High
<b>Reference Case Buildout</b>	IRP Case #
<b>Comments</b>	

**12/6/2011 Coal Retirement Evaluation**

	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>
CO <sub>2</sub> Price (\$/tCO <sub>2</sub> )				
HH Gas Price (\$/MMBtu)				

Nominal Discount Rate:

Calculation Cells (do not change)

Insert build-out model results (i.e. Stra

Insert new environmental and other ca

Values are *examples only* and do not represent the real costs of any known system.

**Scenarios:**  
**No Retirements:** Preferred build-out  
**Retire X:** Force retirement of X in 2015

	\$M	\$000 (Nominal)			
	<u>NPVRR</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>

**Section 1**

**Production Cost - Export from Build-Out Model [Strategist/System Optimizer]**

Insert annual variable production costs for each scenario from build-out model. Variable production costs include fuel and variable O&M costs (including O&M for environmental controls). First scenario represents no-retirement reference case with Company preferred build-out. All other scenarios force single unit retirement in 2015.	No Retirements	33,346	1,293,000	1,400,000	1,470,000	1,596,000
	Retire Carbon 1	33,362	1,293,000	1,400,000	1,470,000	1,592,000
	Retire Carbon 2	0				
	Retire Cholla 4	0				
	Retire Colstrip 1	0				
	Retire Colstrip 2	0				
	Retire Craig 1	0				
	Retire Craig 2	0				
	Retire Dave Johnston 1	0				
	Retire Dave Johnston 2	0				
	Retire Dave Johnston 3	0				
	Retire Dave Johnston 4	0				
	Retire Hayden 1	0				
	Retire Hayden 2	0				
	Retire Hunter 1	0				
	Retire Hunter 2	0				
	Retire Hunter 3	0				
	Retire Huntington 1	0				
	Retire Huntington 2	0				
	Retire Jim Bridger 1	0				
	Retire Jim Bridger 2	0				

Retire Jim Bridger 3	0
Retire Jim Bridger 4	0
Retire Naughton 1	0
Retire Naughton 2	0
Retire Naughton 3	0
Retire Wyodak	0

**Section 2**

**New Unit Capital - Export from Build-Out Model [Strategist/System Optimizer]**

Insert annual capital costs for all new generating units in each scenario

No Retirements	2,960	0	0	0	7,000
Retire Carbon 1	3,117	0	0	7,000	58,000
Retire Carbon 2	0				
Retire Cholla 4	0				
Retire Colstrip 1	0				
Retire Colstrip 2	0				
Retire Craig 1	0				
Retire Craig 2	0				
Retire Dave Johnston 1	0				
Retire Dave Johnston 2	0				
Retire Dave Johnston 3	0				
Retire Dave Johnston 4	0				
Retire Hayden 1	0				
Retire Hayden 2	0				
Retire Hunter 1	0				
Retire Hunter 2	0				
Retire Hunter 3	0				
Retire Huntington 1	0				
Retire Huntington 2	0				
Retire Jim Bridger 1	0				
Retire Jim Bridger 2	0				
Retire Jim Bridger 3	0				
Retire Jim Bridger 4	0				
Retire Naughton 1	0				
Retire Naughton 2	0				
Retire Naughton 3	0				



Retire Wyodak

0

**Section 3**

**New and Existing Unit Fixed O&M**

Insert annual fixed O&M costs for all new and existing generating units in each scenario

No Retirements

5,152

300,000

306,000

293,000

299,000

Retire Carbon 1

5,143

300,000

306,000

293,000

299,000

Retire Carbon 2

0

Retire Cholla 4

0

Retire Colstrip 1

0

Retire Colstrip 2

0

Retire Craig 1

0

Retire Craig 2

0

Retire Dave Johnston 1

0

Retire Dave Johnston 2

0

Retire Dave Johnston 3

0

Retire Dave Johnston 4

0

Retire Hayden 1

0

Retire Hayden 2

0

Retire Hunter 1

0

Retire Hunter 2

0

Retire Hunter 3

0

Retire Huntington 1

0

Retire Huntington 2

0

Retire Jim Bridger 1

0

Retire Jim Bridger 2

0

Retire Jim Bridger 3

0

Retire Jim Bridger 4

0

Retire Naughton 1

0

Retire Naughton 2

0

Retire Naughton 3

0

Retire Wyodak

0

**Section 4**

**New Environmental Controls Capital Costs**

Insert annual capital costs for all new environmental controls in

No Retirements

6,728

10,000

97,000

286,000

540,000

Retire Carbon 1

6,649

10,000

95,000

280,000

531,000

each scenario

Retire Carbon 2	0				
Retire Cholla 4	0				
Retire Colstrip 1	0				
Retire Colstrip 2	0				
Retire Craig 1	0				
Retire Craig 2	0				
Retire Dave Johnston 1	0				
Retire Dave Johnston 2	0				
Retire Dave Johnston 3	0				
Retire Dave Johnston 4	0				
Retire Hayden 1	0				
Retire Hayden 2	0				
Retire Hunter 1	0				
Retire Hunter 2	0				
Retire Hunter 3	0				
Retire Huntington 1	0				
Retire Huntington 2	0				
Retire Jim Bridger 1	0				
Retire Jim Bridger 2	0				
Retire Jim Bridger 3	0				
Retire Jim Bridger 4	0				
Retire Naughton 1	0				
Retire Naughton 2	0				
Retire Naughton 3	0				
Retire Wyodak	0				

**Section 5**

**New Environmental Controls Fixed O&M**

Insert annual fixed O&M costs for all new environmental controls in each scenario	No Retirements	698	0	0	0	6,000
	Retire Carbon 1	613	0	0	0	6,000
	Retire Carbon 2	0				
	Retire Cholla 4	0				
	Retire Colstrip 1	0				
	Retire Colstrip 2	0				
	Retire Craig 1	0				

Retire Craig 2	0	
Retire Dave Johnston 1	0	
Retire Dave Johnston 2	0	
Retire Dave Johnston 3	0	
Retire Dave Johnston 4	0	
Retire Hayden 1	0	
Retire Hayden 2	0	
Retire Hunter 1	0	
Retire Hunter 2	0	
Retire Hunter 3	0	
Retire Huntington 1	0	
Retire Huntington 2	0	
Retire Jim Bridger 1	0	
Retire Jim Bridger 2	0	
Retire Jim Bridger 3	0	
Retire Jim Bridger 4	0	
Retire Naughton 1	0	
Retire Naughton 2	0	
Retire Naughton 3	0	
Retire Wyodak	0	

**Section 6**

Insert any additional forward-going capital expenditures at existing and new generating units or system (i.e. component replacement, periodic maintenance requirements, and other expected capital expenses)

**Other Forward-Going Capital Costs**

No Retirements	1,366	7,000	16,000	25,000	34,000
Retire Carbon 1	1,342	7,000	16,000	25,000	34,000
Retire Carbon 2	0				
Retire Cholla 4	0				
Retire Colstrip 1	0				
Retire Colstrip 2	0				
Retire Craig 1	0				
Retire Craig 2	0				
Retire Dave Johnston 1	0				
Retire Dave Johnston 2	0				
Retire Dave Johnston 3	0				
Retire Dave Johnston 4	0				





Retire Jim Bridger 4	0	0	0	0	0
Retire Naughton 1	0	0	0	0	0
Retire Naughton 2	0	0	0	0	0
Retire Naughton 3	0	0	0	0	0
Retire Wyodak	0	0	0	0	0

**Section 9**

Difference between each retirement scenario and reference case. Fixed calculation.

**PVRR Delta (Benefit of Maintaining Unit)**

No Retirements

Retire Carbon 1	-20.1	0	-2,000	1,000	38,000
Retire Carbon 2	#VALUE!				
Retire Cholla 4	#VALUE!				
Retire Colstrip 1	#VALUE!				
Retire Colstrip 2	#VALUE!				
Retire Craig 1	#VALUE!				
Retire Craig 2	#VALUE!				
Retire Dave Johnston 1	#VALUE!				
Retire Dave Johnston 2	#VALUE!				
Retire Dave Johnston 3	#VALUE!				
Retire Dave Johnston 4	#VALUE!				
Retire Hayden 1	#VALUE!				
Retire Hayden 2	#VALUE!				
Retire Hunter 1	#VALUE!				
Retire Hunter 2	#VALUE!				
Retire Hunter 3	#VALUE!				
Retire Huntington 1	#VALUE!				
Retire Huntington 2	#VALUE!				
Retire Jim Bridger 1	#VALUE!				
Retire Jim Bridger 2	#VALUE!				
Retire Jim Bridger 3	#VALUE!				
Retire Jim Bridger 4	#VALUE!				
Retire Naughton 1	#VALUE!				
Retire Naughton 2	#VALUE!				
Retire Naughton 3	#VALUE!				
Retire Wyodak	#VALUE!				

<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>

regist / System Optimizer)
Capital costs; environmental O&M costs, decommissioning cost, etc...

<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>
1,713,000	1,872,000	1,849,000	1,958,000	2,092,000	2,175,000	2,308,000	2,476,000	2,550,000	2,537,000	2,616,000
1,710,000	1,816,000	1,851,000	1,961,000	2,097,000	2,183,000	2,321,000	2,493,000	2,576,000	2,550,000	2,624,000

59,000	115,000	170,000	162,000	156,000	149,000	152,000	208,000	269,000	312,000	317,000
112,000	166,000	158,000	152,000	146,000	140,000	143,000	200,000	261,000	304,000	309,000

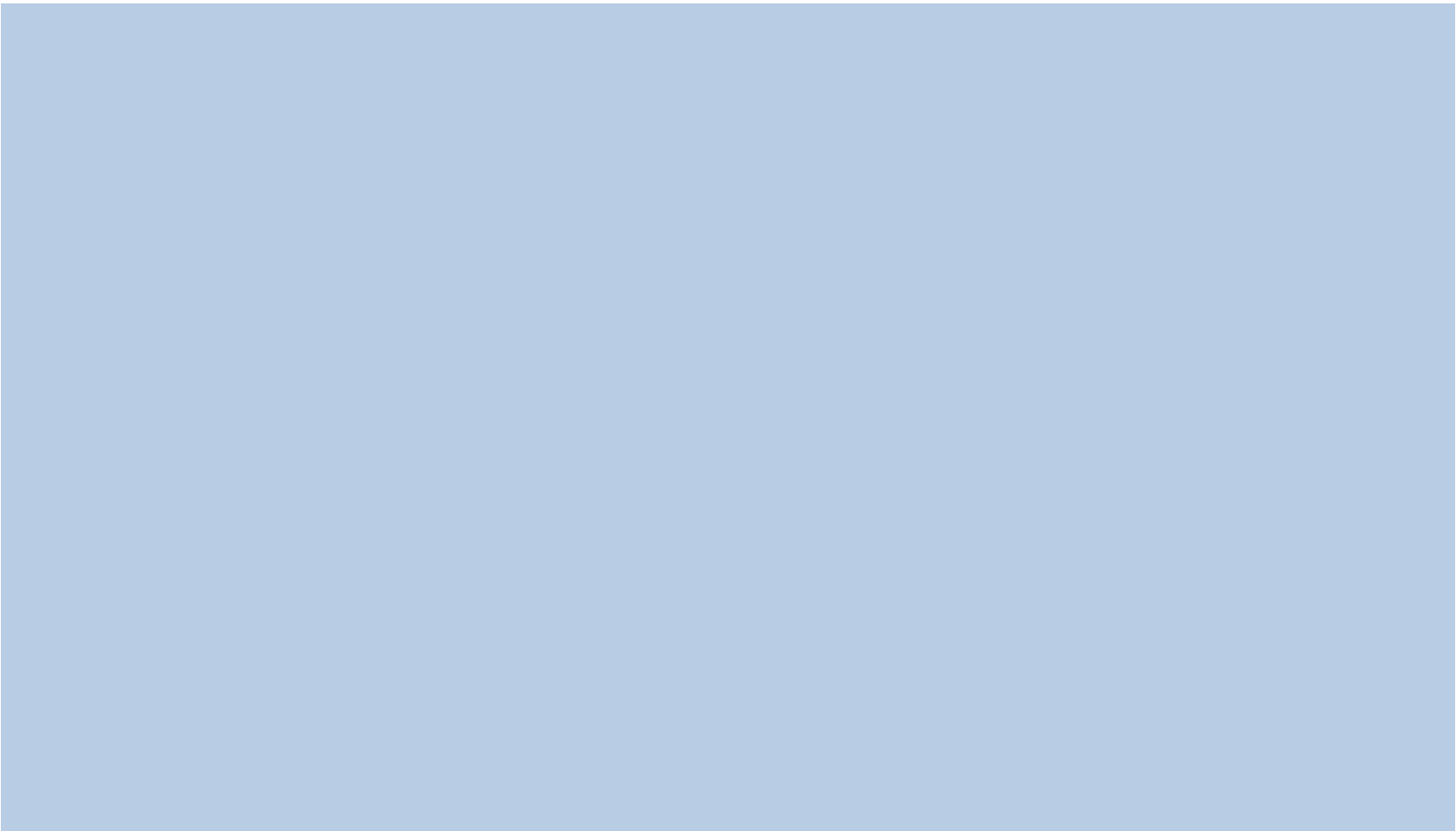




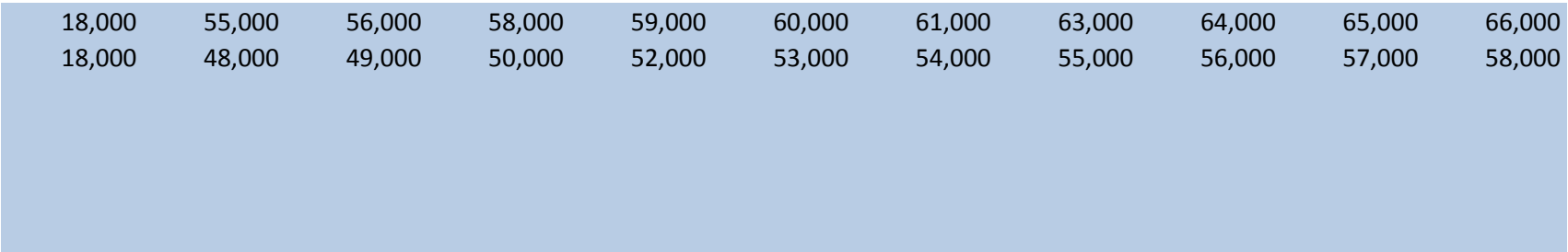
305,000	311,000	318,000	324,000	330,000	337,000	344,000	351,000	358,000	365,000	372,000
305,000	311,000	317,000	323,000	330,000	336,000	343,000	350,000	357,000	364,000	371,000



675,000	737,000	706,000	677,000	653,000	632,000	605,000	576,000	551,000	527,000	510,000
666,000	729,000	698,000	669,000	646,000	625,000	599,000	570,000	545,000	522,000	505,000

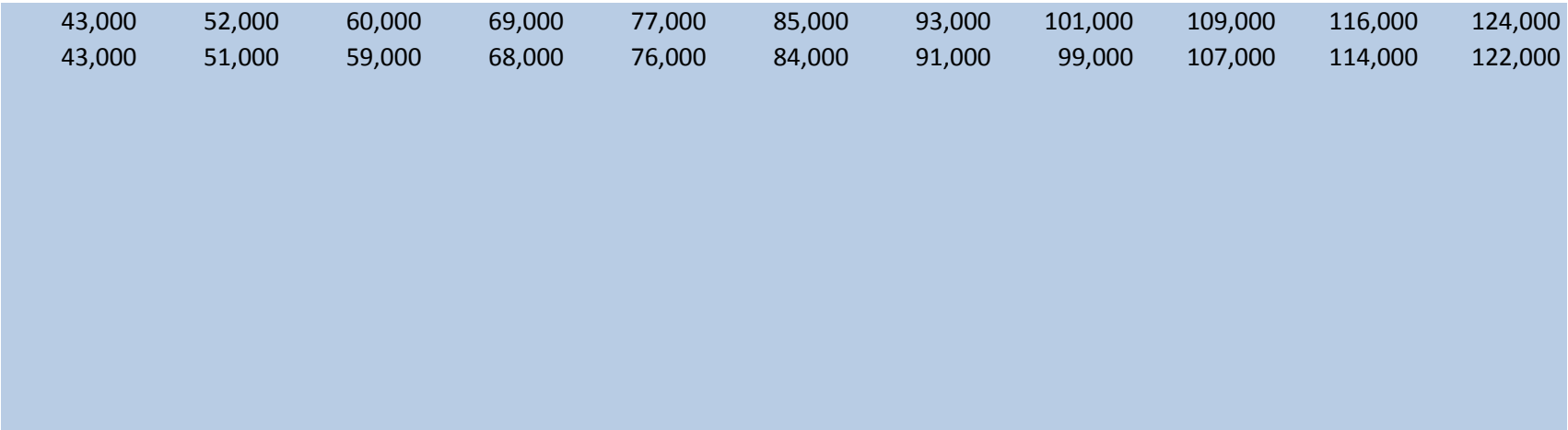


18,000	55,000	56,000	58,000	59,000	60,000	61,000	63,000	64,000	65,000	66,000
18,000	48,000	49,000	50,000	52,000	53,000	54,000	55,000	56,000	57,000	58,000





43,000	52,000	60,000	69,000	77,000	85,000	93,000	101,000	109,000	116,000	124,000
43,000	51,000	59,000	68,000	76,000	84,000	91,000	99,000	107,000	114,000	122,000







0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0





303,000	298,000	337,000	381,000	410,000	407,000	398,000	442,000	491,000	523,000	518,000
295,000	292,000	352,000	416,000	461,000	462,000	444,000	435,000	479,000	528,000	559,000

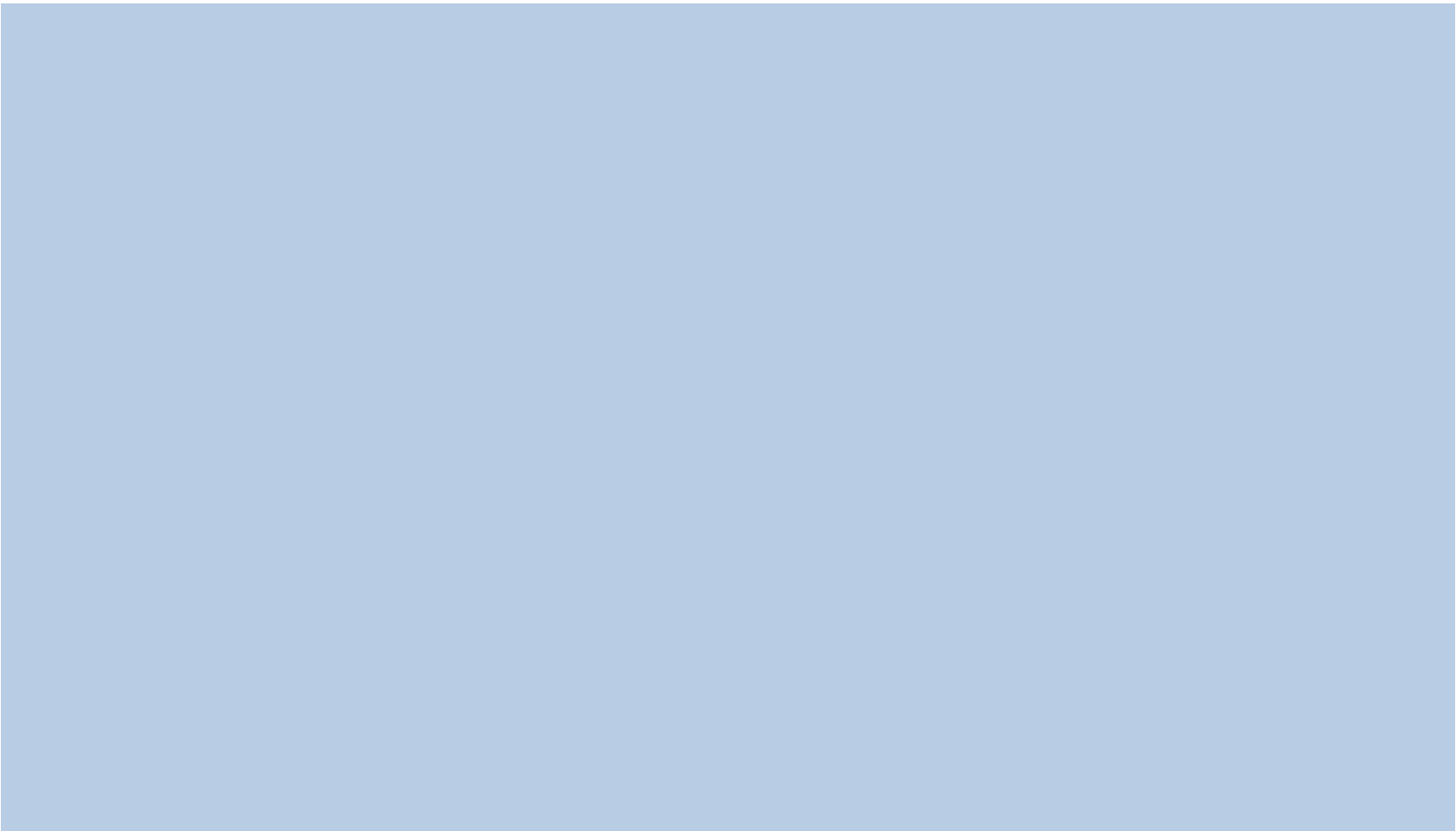




380,000	387,000	395,000	403,000	411,000	419,000	427,000	436,000	445,000	454,000	463,000
379,000	386,000	394,000	402,000	410,000	418,000	427,000	435,000	444,000	453,000	462,000



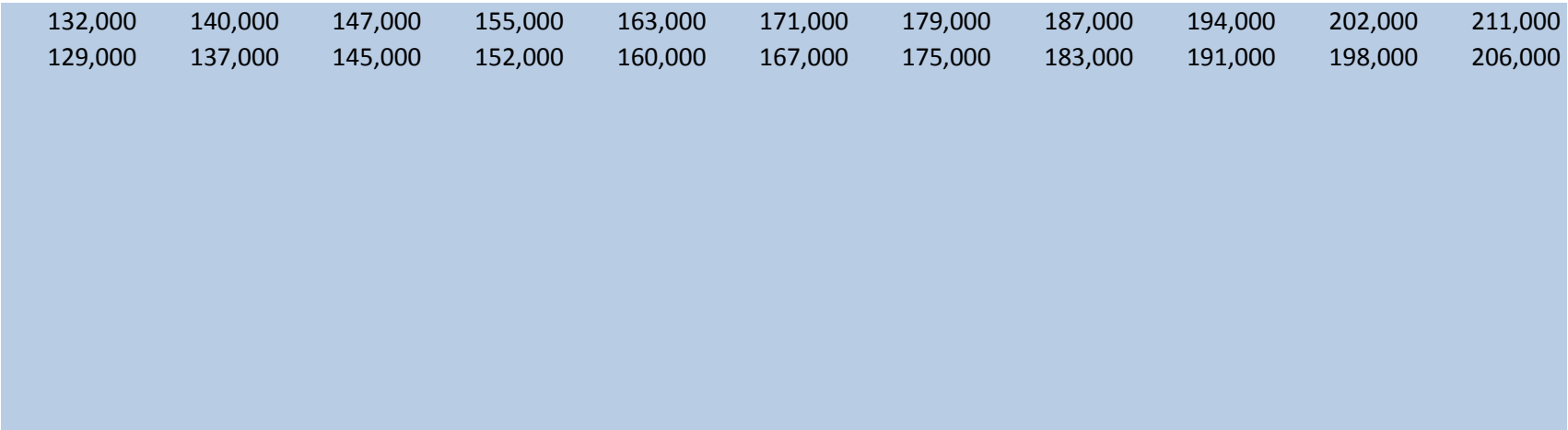
501,000	492,000	480,000	479,000	453,000	420,000	419,000	380,000	374,000	369,000	347,000
496,000	488,000	475,000	475,000	449,000	415,000	415,000	376,000	370,000	365,000	344,000

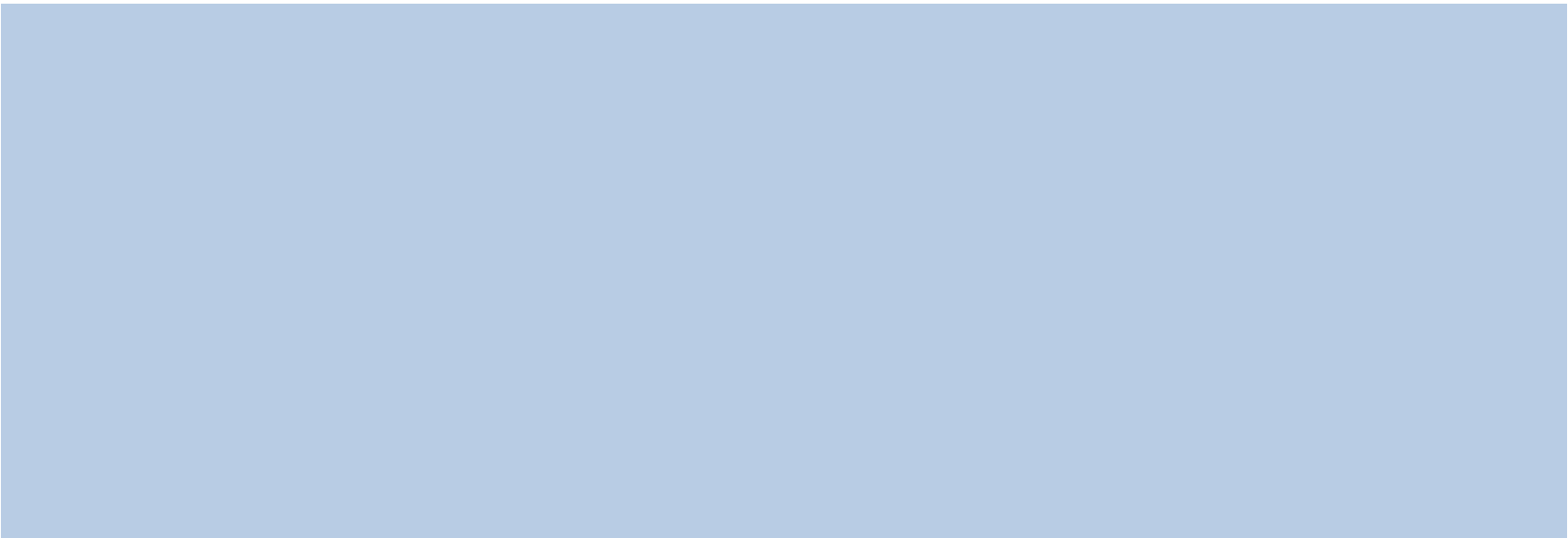


68,000	69,000	70,000	72,000	73,000	75,000	76,000	78,000	79,000	81,000	83,000
59,000	60,000	62,000	63,000	64,000	65,000	67,000	68,000	69,000	71,000	72,000

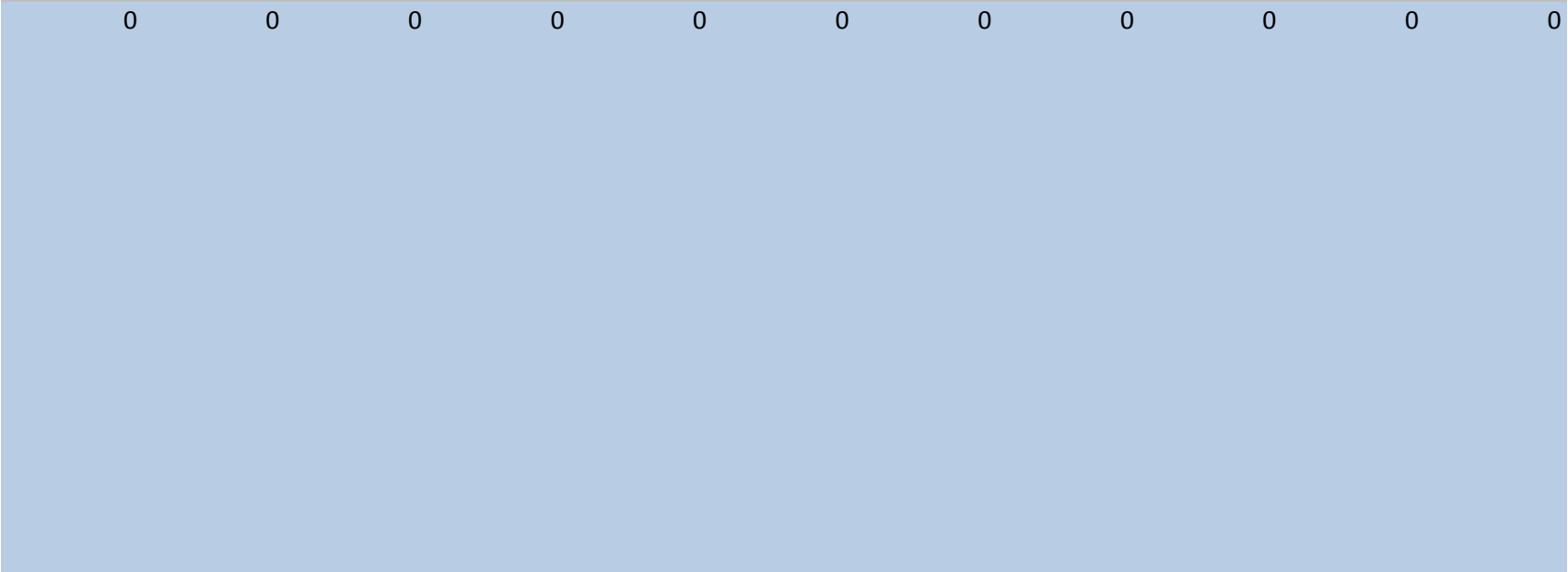


132,000	140,000	147,000	155,000	163,000	171,000	179,000	187,000	194,000	202,000	211,000
129,000	137,000	145,000	152,000	160,000	167,000	175,000	183,000	191,000	198,000	206,000





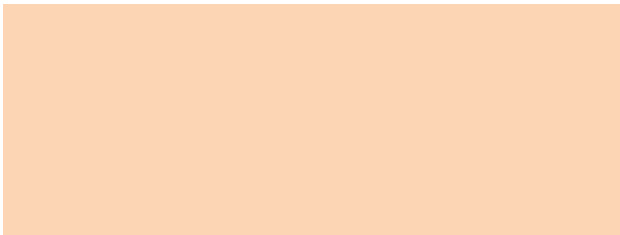
0 0 0 0 0 0 0 0 0 0 0











508,000	514,000	511,000	498,000
553,000	528,000	507,000	487,000







472,000	481,000	491,000	501,000
471,000	480,000	490,000	500,000

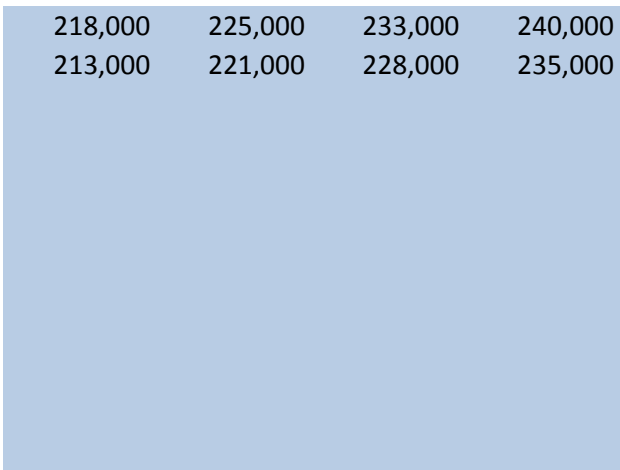
334,000	214,000	191,000	165,000
331,000	211,000	188,000	162,000

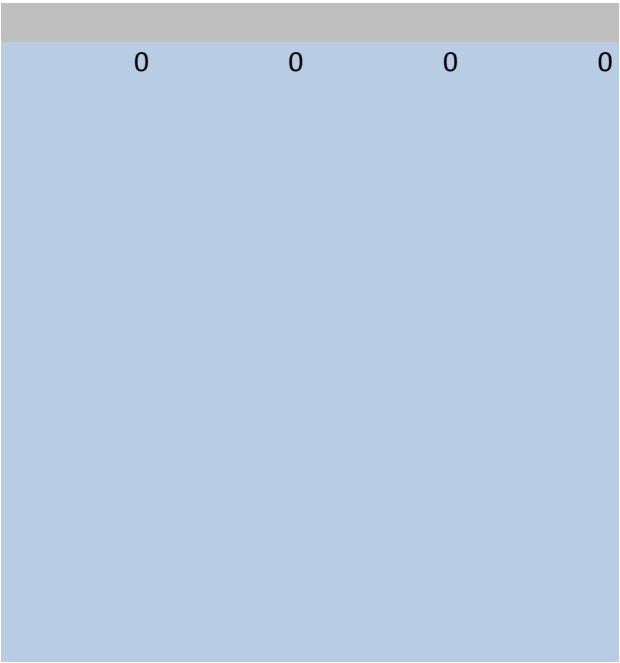
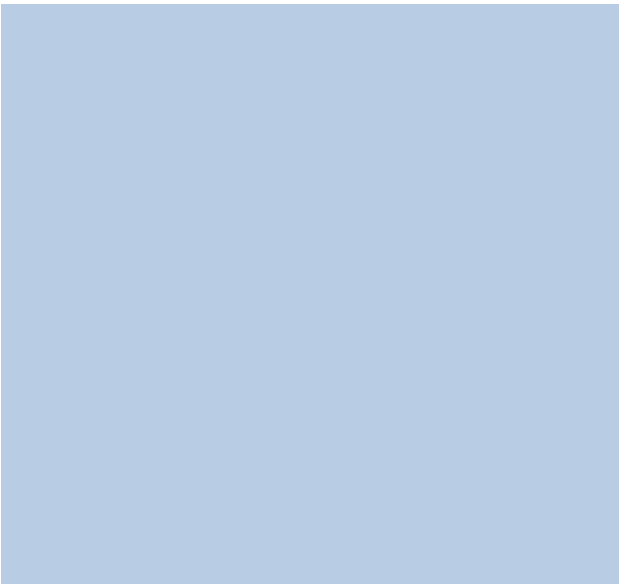


84,000	86,000	88,000	89,000
74,000	75,000	77,000	78,000



218,000	225,000	233,000	240,000
213,000	221,000	228,000	235,000







0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

14,000	-30,000	-21,000	-27,000

*Provide individual unit FOM costs in \$/yr for new and existing units*

<b>Unit</b>	<b><u>2011</u></b>	<b><u>2012</u></b>	<b><u>2013</u></b>	<b><u>2014</u></b>	<b><u>2015</u></b>	<b><u>2016</u></b>	<b><u>2017</u></b>
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As provided in Sierra Club 12-1 CONF ("NT3 CPCN Analysis")

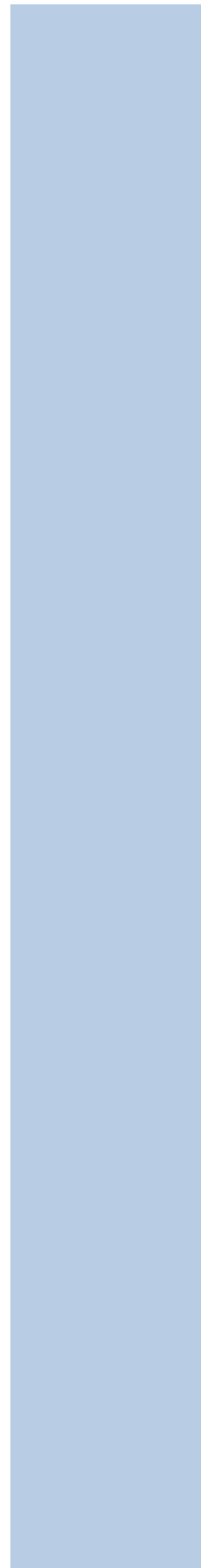
**Total Nominal Capital Summary**

	All Resources
SO2, NOX, Particulates	
Mercury	
Coal Combustion Residuals	
Cooling Water Intake	
<i>Sub-total post-2011 spend</i>	

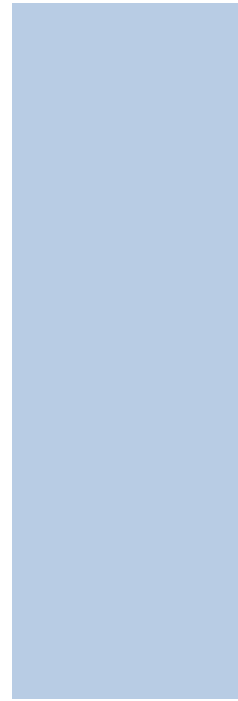
**Environmental Review**

Plant	Type (i.e. SO2, SCR, MER, CCB, LNB, CWA316...)	Unit	Sum of Total
Carbon		0	
Carbon		1	
Carbon		2	
Cholla		0	
Cholla		4	
Cholla		4	
Colstrip		0	
Colstrip		4	
Colstrip		3-4	
Craig		0	
Craig		1	
Craig		2	
Craig		1	
Craig		2	
Craig		1	
Craig		2	
Dave Johnston		0	
Dave Johnston		0	
Dave Johnston		3	
Dave Johnston		4	
Dave Johnston		1	
Dave Johnston		2	
Dave Johnston		3	
Dave Johnston		4	
Dave Johnston		3	
Dave Johnston		4	
Hayden		0	

Hayden	1
Hayden	2
Hayden	1
Hayden	2
Hunter	0
Hunter	0
Hunter	1
Hunter	2
Hunter	3
Hunter	1
Hunter	2
Hunter	3
Hunter	1
Hunter	2
Hunter	3
Hunter	1
Hunter	2
Hunter	3
Huntington	0
Huntington	0
Huntington	1
Huntington	2
Huntington	1
Huntington	2
Huntington	1
Huntington	2
Huntington	1
Huntington	2
Jim Bridger	0
Jim Bridger	0
Jim Bridger	1
Jim Bridger	2
Jim Bridger	3
Jim Bridger	4
Jim Bridger	1
Jim Bridger	2
Jim Bridger	3
Jim Bridger	4
Jim Bridger	1
Jim Bridger	2
Jim Bridger	3
Jim Bridger	4
Jim Bridger	1
Jim Bridger	2
Jim Bridger	3
Jim Bridger	4
Naughton	0



Naughton	0
Naughton	1
Naughton	2
Naughton	1
Naughton	2
Naughton	3
Naughton	3
Naughton	3
Naughton	3
Naughton	1
Naughton	1-2
Naughton	2
Naughton	3
Wyodak	0
Wyodak	1
Wyodak	1
Wyodak	1
Wyodak	1



Phase 2 Scrubber Work

Bridger
Bridger
Bridger

1
2
3

Sum of CY11

Sum of CY12

Sum of CY13

Sum of CY14

Sum of CY15









Sum of CY16

Sum of CY17

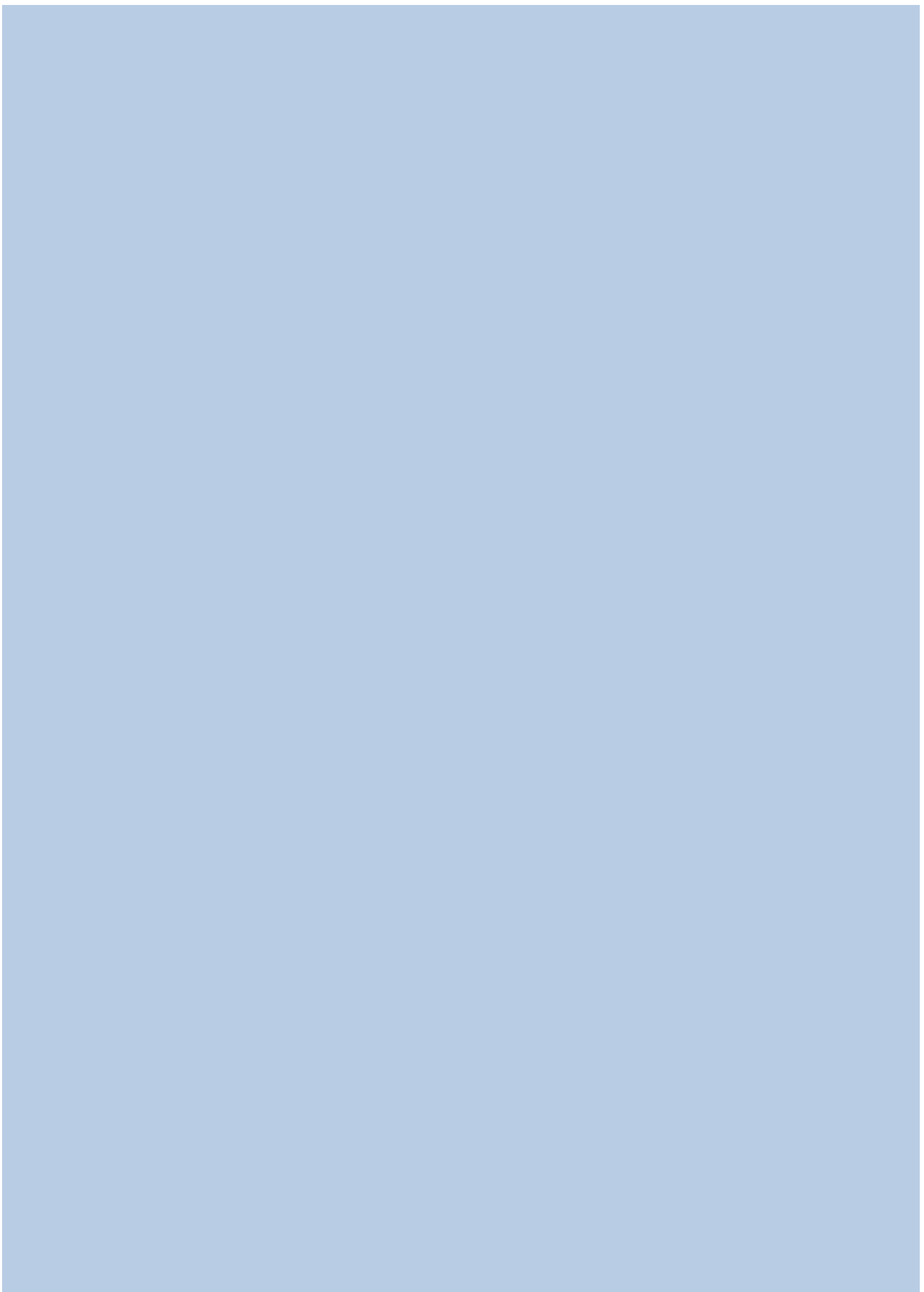
Sum of CY18

Sum of CY19

Sum of CY20

Sum of CY21







Sum of CY22

Sum of CY23

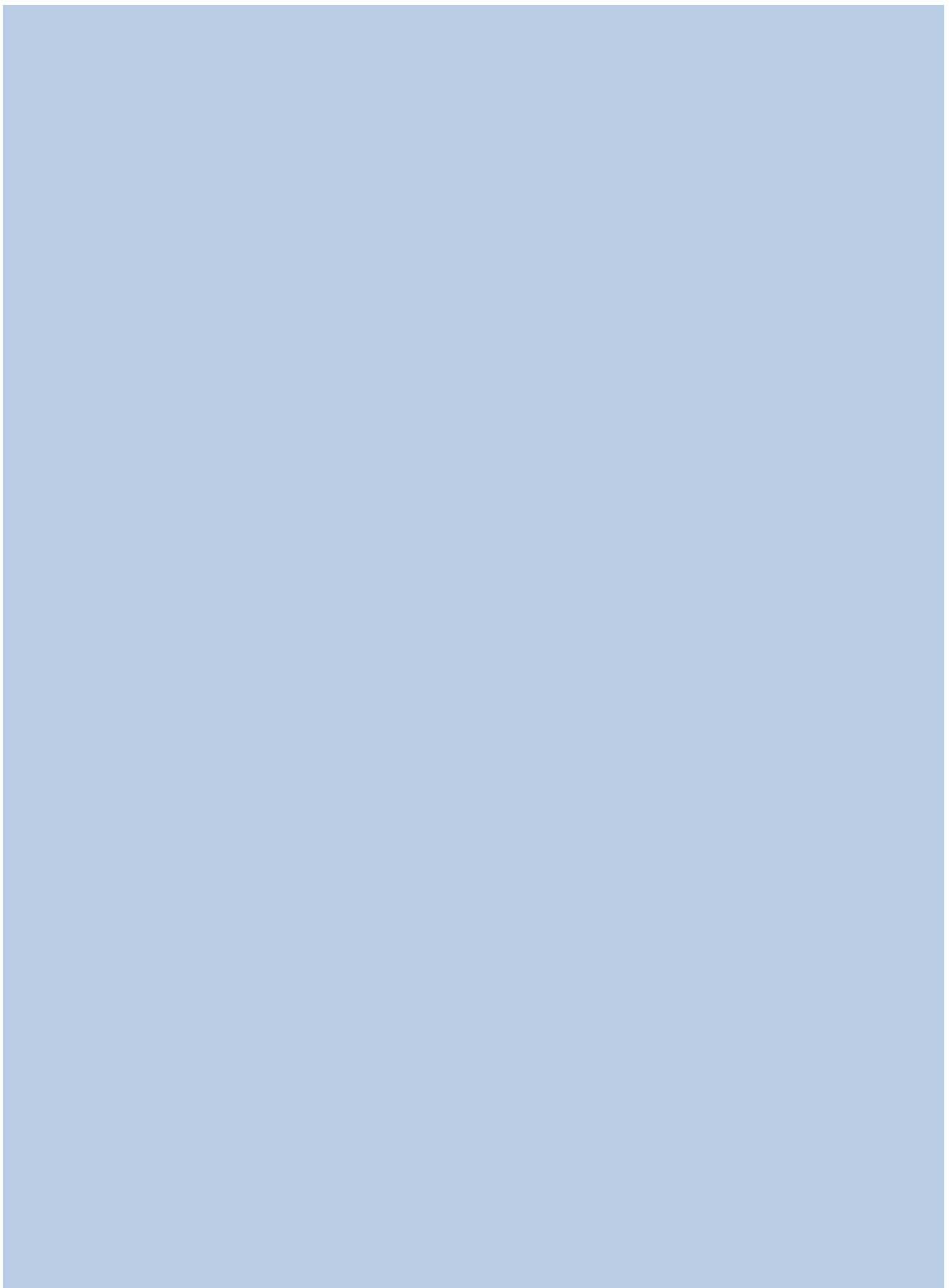
Sum of CY24

Sum of CY25

Sum of CY26

Sum of CY27







Sum of CY28

Sum of CY29

Sum of CY30









*Provide new individual environmental control FOM costs in \$/yr, by unit and control*

<b>Unit</b>	<b>Control</b>	<b><u>2011</u></b>	<b><u>2012</u></b>	<b><u>2013</u></b>	<b><u>2014</u></b>	<b><u>2015</u></b>	<b><u>2016</u></b>
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*Provide annual forward-going non-environmental capital costs by unit and type (\$/yr)*

<b>Unit</b>	<b>Type</b>	<b><u>2011</u></b>	<b><u>2012</u></b>	<b><u>2013</u></b>	<b><u>2014</u></b>	<b><u>2015</u></b>	<b><u>2016</u></b>
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*Provide decommissioning costs for each unit*

*Break out other costs individually (i.e. coal liquidation damages)*

## LC 52 – CERTIFICATE OF SERVICE

I hereby certify that, on this 7<sup>th</sup> day of December, 2011, I served the **FOREGOING LC 52 SUBMISSION OF CUB, NWEC, RNP, AND SIERRA CLUB'S (WITH SUPPORT OF ODOE), PROPOSED EDITS TO PACIFICORP ACTION ITEM NO. 8 WITH ATTACHED COAL EVALUATION TEMPLATE** in docket LC 52 upon each party listed in the LC 52 Service List by email and, where paper service is not waived, by U.S. mail, postage prepaid, and upon the Commission by email and by sending one original and one copy by U.S. mail, postage prepaid, to the Commission's Salem offices.

(W denotes waiver of paper service)

(C denotes service of Confidential material authorized)

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LC 52 - Certificate of Service SUBMISSION OF CUB, NVEC, RNP, AND SIERRA CLUB'S (WITH SUPPORT OF ODOE), PROPOSED EDITS TO PACIFICORP ACTION ITEM NO. 8 WITH ATTACHED COAL EVALUATION TEMPLATE

Respectfully submitted,



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