

**TABLE 3.1.2
PCB & COST OF TRANSFORMERS & REACTIVE**

Substation	A	B	C	D	E	F	G	H	I
	Segment	PCBs in segment by voltage class				Transformer		Reactive	
		115 kV	230 kV	500 kV	69 kV	LowV	Matl. Cost (\$)	Factor	Matl. Cost (\$)
Addy	N	7					487,419	2.5	284,946
	D					3	440,652	2.5	
Albany	N	8					797,811	1.9	253,282
	P	1				1	23,425	1.9	
	IU	1				1	23,425	1.9	
Albeni Falls	N	4							
	G	0.5							
Alcoa	N	2					459,000	2.5	136,845
	D	7				10	507,676	2.5	178,106
Alvey	N	11	9			1	1,753,783	1.9	895,455
	P	1				1	179,366	1.8	
	I								
Ashe	N		3	5					2,247,000
	G		2	2					
Bandon	N	4							204,218
	IU	0.5				1	39,740	1.9	
	P	0.5				2	39,740	1.9	
Bell	N	10	16	1			4,500,143	1.9	1,622,354
	D		6			15	1,718,650	1.8	1,177,480
Big Eddy	N	6	10				657,200	1.9	
	I		7	8		15	10,923,038	1.8	340,380
	G	2	4						
Bonners Ferry	N	1							29,328
	P	1					52,580	1.6	340,380

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PCB & COST OF TRANSFORMERS & REACTIVE**

Substation	A	B	C	D	E	F	G	H	I
	Segment	PCBs in segment by voltage class				Transformer		Reactive	
Boundary		115 kV	230 kV	500 kV	69 kV	LowV	Matl.Cost (\$)	Factor	Matl. Cost (\$)
Boundary	N	1	5						
	I		2						
Bridge	N	2							207,183
	P					1	108,500	1.8	
Buckley	N								
	I								
Chief Joseph	N		9	6			816,684	1.4	926,790
	G		4	2		1			
	I		1			1			144195
Columbia	N	8	10			1	1,113,202	1.9	1,580,940
	P					1	26,617	1.8	
Columbia Falls	N	5					380,496	1.9	368,118
	IU					1	48,005	1.9	
	NP					1	48,005	1.9	
Conkelley	N		8						416,397
	D		5			3	1,014,966	1.7	
Cowlitz	N	3							
	P	2				3	203,615	1.9	54470
Custer	N		5	2			13,699,499	1.4	770,370
	I			5					
Deer Park	P					1	130,150	1.8	
	IU					1	55,940	1.8	
Drain	N	1			2		140,000	1.8	770,370
	P					2	57,734	1.8	

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PCB & COST OF TRANSFORMERS & REACTIVE**

Substation	A	B	C	D	E	F	G	H	I
	Segment	PCBs in segment by voltage class				Transformer		Reactive	
		115 kV	230 kV	500 kV	69 kV	LowV	Matl.Cost (\$)	Factor	Matl. Cost (\$)
Dworshak	N				2				441,160
	G				2				
Eugene	N	7			2		157,720	1.8	
	P					3	7,748	1.9	
Flathead	N		2						
	IU					1	74,200	2.5	
	NP					1.5	75,560	2.5	
Florence	N				1		62,975	1.8	
	P					1	52,117	1.9	
Forest Grove	N	3							
	P					2	141,640	1.9	
Franklin	N	11					480,024	1.8	
	P	1				2	124,505	1.9	
	G	3							
Freewater	N				0.5				100,800
	P					2	189,421	1.9	
Garrison	N IE		4	2			3,128,652		3,105,120
Grandview	N	3							327,573
	P					2	82,663	1.4	
Hood River	N	2							
	P					1	50,000	2.5	
Intalco	N		2						
	D		7			9	779,852	1.9	498,756

**TABLE 3.1.2
PCB & COST OF TRANSFORMERS & REACTIVE**

Substation	A	B	C	D	E	F	G	H	I
	Segment	PCBs in segment by voltage class				Transformer		Reactive	
		115 kV	230 kV	500 kV	69 kV	LowV	Matl.Cost (\$)	Factor	Matl. Cost (\$)
John Day	N				7				
	G				4				
	I				6				
Kalispell	N	5							48,852
	IU					1.5	80,000	2.5	
	NP					1.5	75,560	2.5	
Libby	N	1	4				332,730	3.0	
	G		2						
Little Goose	N				3				
	G				2				
Longview	N	6	12		1		1,304,649	1.8	314,244
	D		5			7	3,195,336	1.9	501,088
Lookout Point	N	4							
	G	1							
Lopez Island	N				1		783,527	2.0	
	P				2	2	565,624	1.9	
Lower Granite	N				2				
	G				2				
Lower Monumental	N				4				1,346,700
	G				3				
Malin	N								
	I								
McMinnville	N	5							115,764
	P	1				2	151,218	1.9	

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PCB & COST OF TRANSFORMERS & REACTIVE**

Substation	A	B	C	D	E	F	G	H	I																																																																																																																																																																																	
	Segment	PCBs in segment by voltage class					Transformer		Reactive																																																																																																																																																																																	
		115 kV	230 kV	500 kV	69 kV	LowV	Matl.Cost (\$)	Factor	Matl. Cost (\$)																																																																																																																																																																																	
McNary	N	4	13	1	1	1	3,786,651	1.9	996,189																																																																																																																																																																																	
	G	1	4							Midway	N	6	16				874,488	1.9		P					2			Monroe	N		4	6			873,180	1.5	2,982,320	I			2			Naselle	N	4					39,980	1.9	312,675	P					1		North Bonneville	N		5				53,994	1.9		G		5					P							Oakridge	G	1					121,612	1.8		P					1		Pendleton	N				1					P					1		Pomeroy	N				1		36,114	1.9		P					1	15,586	1.9		Prairie	P					1	53,140	2.0		IU					2	70,131	2.0		Raymond	N	4					74,850	2.5		P	0.5				1		Reedsport	N	2					108,531	2.5	40,509	P		
Midway	N	6	16				874,488	1.9																																																																																																																																																																																		
	P					2																																																																																																																																																																																				
Monroe	N		4	6			873,180	1.5	2,982,320																																																																																																																																																																																	
	I			2						Naselle	N	4					39,980	1.9	312,675	P					1		North Bonneville	N		5				53,994	1.9		G		5					P							Oakridge	G	1					121,612	1.8		P					1		Pendleton	N				1					P					1		Pomeroy	N				1		36,114	1.9		P					1	15,586	1.9		Prairie	P					1	53,140	2.0		IU					2	70,131	2.0		Raymond	N	4					74,850	2.5		P	0.5				1		Reedsport	N	2					108,531	2.5	40,509	P					2																															
Naselle	N	4					39,980	1.9	312,675																																																																																																																																																																																	
	P					1																																																																																																																																																																																				
North Bonneville	N		5				53,994	1.9																																																																																																																																																																																		
	G		5																																																																																																																																																																																							
	P																																																																																																																																																																																									
Oakridge	G	1					121,612	1.8																																																																																																																																																																																		
	P					1																																																																																																																																																																																				
Pendleton	N				1																																																																																																																																																																																					
	P					1																																																																																																																																																																																				
Pomeroy	N				1		36,114	1.9																																																																																																																																																																																		
	P					1	15,586	1.9																																																																																																																																																																																		
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	IU					2	70,131	2.0																																																																																																																																																																																		
Raymond	N	4					74,850	2.5																																																																																																																																																																																		
	P	0.5				1																																																																																																																																																																																				
Reedsport	N	2					108,531	2.5	40,509																																																																																																																																																																																	
	P					2																																																																																																																																																																																				

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PCB & COST OF TRANSFORMERS & REACTIVE**

Substation	A	B	C	D	E	F	G	H	I
	Segment	PCBs in segment by voltage class				Transformer		Reactive	
		115 kV	230 kV	500 kV	69 kV	LowV	Matl.Cost (\$)	Factor	Matl. Cost (\$)
Ritzville	P					1	74,906	2.0	
	IU					0.5	74,906	2.0	
Sacajewea	N	2					1,317,300	1.9	
	G	0.5							
Sacheen	N	2	2				297,964	2.5	
	P					2	41,240	2.5	
Salem	N	8					635,112	1.9	
	P	1					256,920	1.9	
Sandpoint	N								142,260
	P						29,321	1.9	
Santiam	N		9		4		1,380,816	1.9	539,418
	G		1						
Silver Bow	N	1			1		56,461	1.9	
	IU					1	137,688	1.9	
St. Johns	N	6			4		805,856	2	187,791
	D	0.5				1	44,148	1.9	
	IU	0.5				1	44,148	1.9	
Summer Lake	N								
	I								
Swan Valley	N	2.5					564,758	1.9	
	P						26,290	1.9	
Tacoma	N		9				1,349,469	1.8	711,159
	D		1.5			2	447,674	1.9	466,392

**TABLE 3.1.2
PCB & COST OF TRANSFORMERS & REACTIVE**

Substation	A	B	C	D	E	F	G	H	I
	Segment	PCBs in segment by voltage class				Transformer		Reactive	
		115 kV	230 kV	500 kV	69 kV	LowV	Matl.Cost (\$)	Factor	Matl. Cost (\$)
Targhee	N				1		151,866	1.9	191,352
	P						39,000	1.9	
The Dalles	N	4							
	P	1				4	289,545	1.5	
Tillamook	N	5					635,112	1.9	239,235
	P	0.5				3	159,547	1.9	
Trego	N								51,201
	P					1	110463	2.5	
Trentwood	N	6							
	D	2					522,372	1.9	257,754
Troutdale	N		8				2,684,000	1.9	253,713
	D		4			8	685,377	1.9	567,754
Valhalla	N	6							
	D	2				12	675,800	1.4	545,154
Walla Walla	N	6			5		76,800	1.9	121,000
	P					1	220,000	1.9	
West Burley	N	1							
	P						124,000	1.9	
East Hills	NP					1	91,007	1.9	
	P					1	28,378	1.9	
Ellensburg	NP					1	74,880	1.9	
	P					2	68450	1.9	

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PCB & COST OF TRANSFORMERS & REACTIVE

Substation	A	B	C	D	E	F	G	H	I
	Segment	PCBs in segment by voltage class					Transformer		Reactive
		115 kV	230 kV	500 kV	69 kV	LowV	Matl.Cost (\$)	Factor	Matl. Cost (\$)
Grandview	NP					1	43,916	1.9	
	P					1	38747	1.9	
Mapleton	NP					1	33,647	1.9	
	P					1	52807	1.9	
Potlach	NP					1	131,677	1.9	
	P					1	20786	1.9	
Scootenev	NP					2	32,910	1.9	
	P					1	33370	1.9	

TABLE 3.2.1
SEGMENTED SUBSTATION INVESTMENT

MULTI-SEGMENTED SUBSTATIONS
Segmented O&M

J				K	L	M	N	B
Direct Costs of Major Components (\$)				Investment in Segment (\$)				Three-year Average (\$)
PCBs	Transformers	Reactive	Subtotal					
1,349,888	1,218,548	601,236	3,169,672				5,623,043	421,686
322,808	1,101,630	0	1,424,438				2,526,972	189,504
							8,150,015	611,190
1,417,404	1,515,841	534,425	3,467,669				10,327,624	305,041
	44,508	0	289,783				863,049	25,491
245,275	44,508		289,783				863,049	25,491
							12,053,722	356,024
1,222,294		0	1,222,294				1,063,172	69,930
152,787		0	152,787				132,896	8,741
							1,196,068	78,671
284,170	1,147,500	288,743	1,720,412.6				2,670,154	349,632
2,275,464	1,269,190	375,803.7	3,920,457.5				6,084,717	796,737
							8,754,871	1,146,369
4,514,601	3,332,188	188,941.0	9,736,198.7				15,537,340	1,600,900
176,392	322,859	0	499,250.54				796,720	82,091
							9,536,686	
							25,870,746	1,682,991
9,605,009		0	4,741,170	14,346,179			18,646,717.48	1,498,629
4,022,035		0	4,022,035				5,227,717	420,150
							23,874,434	1,918,779
352,248		0	430,900	783,148			1,404,585	142,509
58,128	75,506	0	133,634				239,674	24,317
72,224	75,506		147,730				264,956	26,882
							1,909,215	193,709
7,119,860	8,550,272	3,423,167	19,093,299				26,177,195	2,263,502
4,571,333	3,093,570	2,484,483	10,149,386				13,914,958	1,203,205
							40,092,153	3,466,707
5,751,757	1,248,680	0	7,000,437				8,076,682	302,343
16,451,774	19,661,468	718,202	36,831,444				42,493,899	1,590,720
2,251,877	0		2,251,877				2,598,080	97,257
							53,168,661	1,990,320
300,771	0	61,882	362,653				614,993	52,850
300,771	84,128		384,899				652,718	56,092
							1,267,711	108,942

TABLE 3.2.1
SEGMENTED SUBSTATION INVESTMENT

MULTI-SEGMENTED SUBSTATIONS
Segmented O&M

J				K	L	M	N	B
Direct Costs of Major Components (\$)				Investment in Segment (\$)				Three-year Average (\$)
PCBs	Transformers	Reactive	Subtotal					
1,434,406	0	0	1,434,406				2,867,769	309,792
533,273		0	533,273				1,066,159	115,172
							3,933,928	424,964
		0	437,156		437,156		1,064,568	77,032
40,533	195,300		235,833				574,303	41,557
							1,638,871	118,589
	0	0	0		0		3,755,971	134,377
	0	0	0		0		4,978,845	178,127
							8,734,816	312,504
8,943,631	1,143,358	1,955,527	12,042,515				12,229,958	1,324,671
341,965		0	341,965				347,281.08	376,160
438,444		0	742,695		304,251		754,255	81,696
							16,457,094	1,782,527
4,634,862	2,115,084	3,335,783	10,085,729				17,062,394	1,113,707
56,464	47,911		104,375				176,574	11,525
							17,238,968	1,125,232
1,248,541	722,942	776,729	2,748,213				5,216,826	298,794
124,854	91,210		216,064				410,145	23,491
124,854	91,210		216,064				410,145	23,491
							6,037,116	345,776
2,254,165		0	878,598		3,132,763		4,823,701	563,470
1,721,242	1,725,442		0		3,446,684		5,307,064	619,933
							10,130,765	1,183,403
373,792		0	0		373,792		436,891	94,016
385,109	386,869		114,932		886,909		1,036,625	223,074
							1,473,516	317,090
2,566,553	19,179,299	1,625,481	23,371,333				25,273,649	1,557,029
3,804,687		0	0		3,804,687		4,114,371	253,473
							29,388,020	1,810,502
64,305	234,270		0		298,575		668,375	63,504
64,305	100,692				164,997		369,353	35,093
							1,037,728	98,597
333,383	252,000	1,625,481	2,210,863				957,909	74,174
57,186	103,921		161,107				69,803	5,405
							1,027,712	79,579

**TABLE 3.2.1
SEGMENTED SUBSTATION INVESTMENT**

**MULTI-SEGMENTED SUBSTATIONS
Segmented O&M**

J				K		L		M		N		B	
Direct Costs of Major Components (\$)				Investment in		Three-year Average (\$)							
PCBs	Transformers	Reactive	Subtotal	Segment (\$)									
6,215,063	0	0	6,215,063	8,169,593								651,983	
3,551,465	0	0	3,551,465	4,668,339								372,562	
5,327,197	0		5,327,197	7,002,508								558,842	
				19,840,439								1,583,387	
1,126,639	0	103,078	1,229,717	2,175,287								412,983	
85,534	200,000	0	285,534	505,090								95,892	
64,150	188,900		253,050	447,629								84,983	
				3,128,006								593,859	
1,132,568	998,190	0	2,130,758	4,282,231								498,101	
415,089	0	0	415,089	834,214								97,034	
				5,116,445								595,135	
2,966,694	0	0	2,966,694	3,936,056								268,312	
1,977,796	0	0	1,977,796	2,624,037								178,874	
				6,560,093								447,186	
4,722,706	2,348,368	663,055	7,734,129	15,275,298								584,024	
2,379,559	6,071,138	1,057,296	9,507,993	18,778,768								717,972	
				34,054,066								1,301,996	
830,153	0	0	830,153	945,366								88,779	
207538.2	0	0	207,538	236,342								22,195	
				1,181,708								110,974	
80,426	1,567,054	0	1,647,480	2,181,977								122,475	
298,832	1,074,686	0	1,373,517	1,819,131								102,109	
				4,001,108								224,584	
1,366,137	0	0	1,366,137	2,872,988								206,268	
1,366,137	0	0	1,366,137	2,872,988								206,268	
				5,745,975								412,536	
3,475,253	0	2,841,537	6,316,790	9,799,090								547,712	
2,606,439	0	0	2,606,439	4,043,310								225,998	
				13,842,400								773,710	
0	0	0	0	766,787								51,691	
0	0	0	0	17,391,355								1,172,397	
				18,158,142								1,224,088	
781,487	0	244,262	1,025,749	1,119,696								145,988	
204,776	287,314	0	492,090	537,159								70,036	
				1,656,855								216,024	

**TABLE 3.2.1
SEGMENTED SUBSTATION INVESTMENT**

**MULTI-SEGMENTED SUBSTATIONS
Segmented O&M**

J				K	L	M	N	B
Direct Costs of Major Components (\$)				Investment in Segment (\$)				Three-year Average (\$)
PCBs	Transformers	Reactive	Subtotal					
6,557,519	7,194,637	2,101,959	15,854,115				22,229,797	1,121,609
1679153.3		0	0	1,679,153			2,354,419	118,793
							24,584,216	1,240,402
5,715,413	1,661,527		0	7,376,941			9,267,246	931,703
44,002		0	0	44,002			55,277	5,557
							9,322,523	937,260
6,529,065	1,309,770	6,292,695	14,131,530				14,231,909	947,424
1,852,930		0	0	1,852,930			1,866,092	124,227
							16,098,001	1,071,651
334,280		0	659,744	994,024			1,496,821	104,515
32165.9		75962		108,128			162,821	11,369
							1,659,642	115,884
1,152,891		0	0	1,152,891			2,676,114	248,901
1,152,891		0	0	1,152,891			2,676,114	248,901
	102,589			102,589			238,131	22,148
							5,590,359	519,950
69,386		0	0	69,386			151,117	8,598
54,934	218,902		0	273,836			596,389	33,933
							747,506	42,531
151,999			0	151,999			288,235	44,987
9624.8			0	9,625			18,251	2,849
							306,486	47,836
204,300	68,617		0	272,917			268,086	26,924
68,100	29,613		0	97,713			95,984	9,640
							364,070	36,564
32,298	106,280			138,578			338,060	29,487
64,595	140,262			204,857			499,749	43,590
							837,809	73,077
706,019		0	0	706,019			1,415,755	141,519
100,556	187125		0	287,681			576,876	57,665
							1,992,631	199,184
141,555		0	85,474	227,029			533,015	68,535
35,512	271,328		0	306,839			720,392	92,628
							1,253,407	161,163

**TABLE 3.2.1
SEGMENTED SUBSTATION INVESTMENT**

**MULTI-SEGMENTED SUBSTATIONS
Segmented O&M**

J				K	L	M	N	B
Direct Costs of Major Components (\$)				Investment in Segment (\$)				Three-year Average (\$)
PCBs	Transformers	Reactive	Subtotal					
65,217	149,812		215,029			218,162		18,386
32,609	149,812		182,421			185,078		15,597
						403,240		33,983
499,110	2,502,870	0	3,001,980			5,017,042		252,119
124,778	0	0	124,778			208,534		10,479
						5,225,576		262,598
914,475	744,910	0	1,659,385			2,052,570		125,061
54,289	103,100	0	157,389			194,682		11,862
						2,247,252		136,923
1,103,691	1,206,713	0	2,310,404			5,024,938		218,035
137,961	488,148	0	626,109			1,361,737		59,086
						6,386,675		277,121
		300,169	300,169			468,104		120,348
	55,710		557,099			86,878		22,336
						554,982		142,684
3,017,471	2,623,550	1,138,172	6,779,194			8,875,868		780,517
278,349		0	278,349			364,437		32,047
						9,240,305		812,564
417,344	107,276	0	524,619			1,395,849		73,263
97,515	261,607	0	359,122			955,511		50,151
						2,351,360		123,414
1,016,076	1,531,126	396,239	2,943,442			3,779,876		272,441
135,561	83,881	0	219,442			281,801		20,311
135,561	83,881		219,442			281,801		20,311
						4,343,478		313,063
						2,162,438		122,864
						3,236,487		183,889
						5,398,925		306,753
394,563	1,073,040	0	1,467,603			2,363,004		154,368
0	49,951	0	49,951			80,427		5,254
						2,443,431		159,622
2,717,420	2,429,044	1,500,545	6,647,009			9,305,124		697,241
648,850	850,581	984,087	2,483,517			3,476,667		260,509
						12,781,791		957,750

TABLE 3.2.1
SEGMENTED SUBSTATION INVESTMENT

MULTI-SEGMENTED SUBSTATIONS
Segmented O&M

Direct Costs of Major Components (\$)				Investment in Segment (\$)	Three-year Average (\$)
J	K	L	M		
PCBs	Transformers	Reactive	Subtotal		
101,147	288,545	403,753	793,445	1,452,286	103,336
0	74,100	0	74,100	135,629	9,651
				1,587,915	112,987
529,783	0	0	529,783	781,964	71,147
134,504	434,318	0	568,821	839,584	76,390
				1,621,548	147,537
1,339,725	1,206,713	504,786	3,051,223	4,678,161	423,155
245,193	303,139	0	548,333	840,708	76,045
				5,518,869	499,200
0	0	108,034	108,034	238,389	32,256
19,068	276,158	0	295,226	651,448	88,145
				889,837	120,401
1,659,461			1,659,461	2,926,937	172,711
553,154	992,507	543,861	2,089,521	3,685,473	217,471
				6,612,410	390,182
2,099,644	5,099,600	535,334	7,734,579	9,698,040	974,305
1,852,204	1,302,216	1,197,961	4,352,381	5,457,254	548,258
				15,155,294	1,522,563
1,328,145	0	0	1,328,145	1,424,538	176,595
1,492,054	946,120	1,150,275	3,588,449	3,848,890	477,134
				5,273,428	653,729
1,490,277	145,920	255,310	1,891,507	2,723,422	334,004
0	418,000	0	418,000	601,843	73,811
				3,325,265	407,815
124,200	0	0	124,200	139,016	8,680
0	235,600	0	235,600	263,706	16,464
				402,722	25,144
59,342	172,913		232,256	497,598	33,100
44,919	53,918			98,837	211,754
				596,435	244,854
10,265	142,272		152,537	815,039	97,586
21,229	130,055		151,284	808,344	96,785
				1,623,383	194,371

TABLE 3.2.1
SEGMENTED SUBSTATION INVESTMENT

MULTI-SEGMENTED SUBSTATIONS
Segmented O&M

J				K	L	M	N	B
Direct Costs of Major Components (\$)						Investment in	Three-year Average (\$)	
PCBs	Transformers	Reactive	Subtotal			Segment (\$)		
61,158	83,440		144,599			115,045		9,053
17,910	73,619		91,530			72,822		5,730
						187,867		14,783
85,357	63,929		149,286			342,347		34,235
34,958	100,333		135,291			310,255		31,025
						652,602		65,260
118,626	250,186		368,812			552,147		41,063
11,532	39,493		51,025			76,389		5,681
						628,536		46,744
75,818	62,529		138,347			534,204		61,056
17,910	63,403		81,313			313,978		35,886
						848,182		96,942