

Table 1
Estimated Cost Summary
Okanogan PUD
Methow Transmission Project

Alternative	Permits	Private Easement Costs	Engineer's Estimate						Temporary Generation Cost	Road Construction and Reconstruction Costs	Mitigation Costs	Decommission Costs	Total New Capital Cost
			Transmission	Sub-station + Getaways	Distribution	Design Engineering	Const. & change mgmt.	Subtotal, Eng. Cost					
1 No Action	\$ 1,233,436	\$ -							\$ -	\$ -	\$ -	\$ -	\$ 1,233,436
2 Proposed Action (Pateros-Twisp Transmission Line, Gold Creek Substation)	\$ 1,268,436	\$ 206,646	\$ 4,737,981	\$ 1,060,500	\$ 674,432	\$ 453,104	\$ 1,893,327	\$ 8,819,344	\$ -	\$ 145,155	\$ 398,463	\$ -	\$ 10,838,043
3 Valley Floor Alternative (Transmission Overbuild, Gold Creek Substation)	\$ 1,278,436	\$ 509,286	\$ 5,498,040	\$ 1,060,500	\$ 1,910,897	\$ 592,861	\$ 2,477,310	\$ 11,539,608	\$ -	\$ 20,060	\$ 323,022	\$ -	\$ 13,670,412
4 Loup-Loup Hot Rebuild, Distribution Rebuild	\$ 1,273,436	\$ -	\$ 7,021,801		\$ 3,362,180	\$ 726,879	\$ 3,037,314	\$ 14,148,174	\$ -	\$ 22,300	\$ 460,410	\$ -	\$ 15,904,320
5 Loup-Loup Hot Rebuild, Gold Creek Substation	\$ 1,278,436	\$ 71,082	\$ 9,646,084	\$ 1,060,500	\$ 248,045	\$ 766,824	\$ 3,204,229	\$ 14,925,682	\$ -	\$ 117,540	\$ 550,566	\$ -	\$ 16,943,306
6 Loup-Loup Cold Rebuild, Temporary Generation, Distribution Rebuild	\$ 1,453,636	\$ -	\$ 5,236,067	\$ -	\$ 3,362,180	\$ 863,082	\$ 3,809,450	\$ 13,270,778	\$ 13,593,095	\$ 22,300	\$ 360,130	\$ -	\$ 28,699,939
7 Loup-Loup Partial Hot, Partial Parallel Rebuild	\$ 1,273,436	\$ 163,680	\$ 6,241,374	\$ -	\$ 3,362,180	\$ 672,249	\$ 2,809,040	\$ 13,084,842	\$ -	\$ 24,000	\$ 385,760	\$ 28,596	\$ 14,960,314

Alternative	Basis for BPA Reimburs	ANNUAL						% annual retail revenue requirmts
		Cost of Capital Improvement	transmission line loss savings	distribution line loss savings	maint. costs	annual BPA reimbursement	total annual cost to customers	
1 No Action	\$ 616,718	\$ 71,882	\$ -	\$ -	\$ 15,588		\$ 87,470	0.32%
2 Proposed Action (Pateros-Twisp Transmission Line, Gold Creek Substation)	\$ 4,183,797	\$ 631,621	\$ (351,500)	\$ (53,000)	\$ 19,508	\$ (243,824)	\$ 2,805	0.01%
3 Valley Floor Alternative	\$ 4,749,089	\$ 796,686	\$ (351,500)	\$ (53,000)	\$ 16,052	\$ (276,768)	\$ 131,470	0.48%
4 Loup-Loup Hot Rebuild, Distribution Rebuild	\$ 5,582,680	\$ 926,875	\$ (256,300)	\$ (50,000)	\$ 6,020	\$ (325,348)	\$ 301,246	1.10%
5 Loup-Loup Hot Rebuild, Gold Creek Substation	\$ 7,471,688	\$ 987,425	\$ (256,300)	\$ (53,000)	\$ 16,713	\$ (435,436)	\$ 259,401	0.94%
6 Loup-Loup Cold Rebuild, Temporary Generation, Distribution Rebuild	\$ 11,222,745	\$ 1,672,580	\$ (256,300)	\$ (50,000)	\$ 6,020	\$ (654,041)	\$ 718,259	2.61%
7 Loup-Loup Partial Hot, Partial Parallel Rebuild	\$ 5,119,457	\$ 871,860	\$ (256,300)	\$ (50,000)	\$ 6,020	\$ (298,353)	\$ 273,227	0.99%

Table 2
Estimated Permitting Costs
Okanogan PUD
Methow Transmission Project

	ALTERNATIVE	BLM ROW	DNR ROW	DFW ROW	Timber purchase	WDOT Encroachment Permit	JARPA	CUP substation	CUP generation	Road Encroachment Permit	Air Permit	TOTAL (includes EIS costs)
1	No Action							\$ -	\$ -	\$ -	\$ -	\$ 1,233,436
2	Proposed Action (Pateros-Twisp Transmission Line, Gold Creek Substation)		\$ 15,000		\$ -	\$ 5,000	\$ 5,000	\$ 5,000	\$ -	\$ 5,000	\$ -	\$ 1,268,436
3	Valley Floor Alternative (Transmission Overbuild, Gold Creek Substation)	\$ 5,000	\$ 15,000	\$ 5,000	\$ -	\$ 5,000	\$ 5,000	\$ 5,000	\$ -	\$ 5,000	\$ -	\$ 1,278,436
4	Loup-Loup Hot Rebuild, Distribution Rebuild	\$ 5,000	\$ 15,000	\$ 5,000	\$ -	\$ 5,000	\$ 5,000	\$ -	\$ -	\$ 5,000	\$ -	\$ 1,273,436
5	Loup-Loup Hot Rebuild, Gold Creek Substation	\$ 5,000	\$ 15,000	\$ 5,000	\$ -	\$ 5,000	\$ 5,000	\$ 5,000	\$ -	\$ 5,000	\$ -	\$ 1,278,436
6	Loup-Loup Cold Rebuild, Temporary Generation, Distribution Rebuild	\$ 5,000	\$ 15,000	\$ 5,000	\$ -	\$ 5,000	\$ 5,000	\$ -	\$ 5,000	\$ 5,000	\$ 175,200	\$ 1,453,636
7	Loup-Loup Partial Hot, Partial Parallel Rebuild	\$ 5,000	\$ 15,000	\$ 5,000	\$ -	\$ 5,000	\$ 5,000	\$ -	\$ -	\$ 5,000	\$ -	\$ 1,273,436

permitting costs \$5,000 per permit without survey; \$15,000 per permit with metes & bounds survey
includes application fees, application preparation, meeting attendance, etc.
additional considerations:

EIS Costs (common to all alternatives):

Tetra Tech	\$ 934,436
Forest Service cost reimbursement (estimate to date)	\$ 33,000
Engineering (CAI) Cost estimate	\$ 16,000
PUD time in managing EIS	\$ 250,000
Subtotal, EIS costs	\$ 1,233,436

Air Permitting Costs

publishing fee	\$ 200
air consulting including air modeling, BACT, application, consulting	\$ 50,000
source testing	\$ 40,000
noise study	\$ 15,000
mitigation	\$ 20,000
PUD staff time	\$ 50,000
	\$ 175,200

Table 3
Easement Costs
Okanogan PUD
Methow Transmission Project

EASEMENT COSTS		Number of Easements	Fixed Cost Per Easement	Number of Contacts	Estimated Cost Per Contact	miles on private	linear feet on private	cost of easement	Total Easement Cost
Alternative									
1	No Action								
2	Proposed Action (Pateros-Twisp Transmission Line, Gold Creek Substation)	75	\$ 750	225	\$ 300	16	82,896	\$ 1	\$ 206,646
3	Valley Floor Alternative (Transmission Overbuild, Gold Creek Substation)	265	\$ 750	530	\$ 300	29	151,536	\$ 1	\$ 509,286
4	Loup-Loup Hot Rebuild, Distribution Rebuild	0	\$ 750	-	\$ 300		-	\$ 1	\$ -
5	Loup-Loup Hot Rebuild, Gold Creek Substation	13	\$ 750	39	\$ 300	9	49,632	\$ 1	\$ 71,082
6	Loup-Loup Cold Rebuild, Temporary Generation, Distribution Rebuild	0	\$ 750	-	\$ 300		-	\$ 1	\$ -
7	Loup-Loup Partial Hot, Partial Parallel Rebuild	56	\$ 750	168	\$ 300	14	71,280	\$ 1	\$ 163,680

Assumptions

3 contacts per landowner on average for PT, Loup Loup parallel

2 contacts per landowner, valley floor, smaller lots

Easement fixed cost based on OKPUD time to negotiate.

A "contact" is a pole or an anchor for a guy.

The \$1/linear foot is an estimate of the average additional easement cost over the cost of the contacts.

Table 4
Access Cost Estimate
Okanogan PUD
Methow Transmission Project

ALTERNATIVE		New Track Construction			Road Blading			Track Blading & Leveling			Total
		miles	cost/mile	subtotal	miles	cost/mile	subtotal	mile	cost/mile	subtotal	
1	No Action										
2	Proposed Action (Pateros-Twisp Transmission Line, Gold Creek Substation)	6.4	\$ 10,000	\$ 64,000	6.15	\$ 8,500	\$ 52,275	15.2	\$ 1,900	\$ 28,880	\$ 145,155
3	Valley Floor Alternative (Transmission Overbuild, Gold Creek Substation)	1.4	\$ 10,000	\$ 14,000	0.4	\$ 8,500	\$ 3,400	1.4	\$ 1,900	\$ 2,660	\$ 20,060
4	Loup-Loup Hot Rebuild, Distribution Rebuild	0.2	\$ 10,000	\$ 2,000	0.6	\$ 8,500	\$ 5,100	8	\$ 1,900	\$ 15,200	\$ 22,300
5	Loup-Loup Hot Rebuild, Gold Creek Substation	7.7	\$ 10,000	\$ 77,000	1.26	\$ 8,500	\$ 10,710	15.7	\$ 1,900	\$ 29,830	\$ 117,540
6	Loup-Loup Cold Rebuild, Temporary Generation, Distribution Rebuild	0.2	\$ 10,000	\$ 2,000	0.6	\$ 8,500	\$ 5,100	8	\$ 1,900	\$ 15,200	\$ 22,300
7	Loup-Loup Partial Hot, Partial Parallel Rebuild	0.2	\$ 10,000	\$ 2,000	0.8	\$ 8,500	\$ 6,800	8	\$ 1,900	\$ 15,200	\$ 24,000

Table 5
Pre-design Cost Estimates
Okanogan County PUD
Methow Transmission Project

Alternate 1 Do Nothing

	<u>Labor & Equipment</u>	<u>%</u>	<u>Material</u>	<u>%</u>	<u>Total</u>	<u>Miles</u>	<u>Per Mile</u>
Total	\$0	\$0	\$0	0%	\$0	0	\$0

Alternate 2 Pateros/Twisp - Build 28 miles of new transmission line from Pateros to Gold Creek to Twisp and a new substation near Gold Creek. This includes 8.7 miles of new distribution underbuild.

	<u>Labor & Equipment</u>	<u>%</u>	<u>Material</u>	<u>%</u>	<u>Total</u>	<u>Miles</u>	<u>Per Mile</u>
Transmission	\$3,208,200	68%	\$1,529,781	32%	\$4,737,981	27.9	\$169,820
Distribution	\$438,150	65%	\$236,282	35%	\$674,432	8.7	\$77,521
Substation	\$380,000	39%	\$597,500	61%	\$977,500		
Substation Get Aways	\$24,000	29%	\$59,000	71%	\$83,000		
Design Engineering					\$453,104		
Construction Management					\$129,458		
Price & Construction Change Allowance					\$1,763,869		
Total	\$4,050,350		\$2,422,563		\$8,819,344		

Alternate 3 Valley Floor - Build a new transmission line along the Valley Floor, build a new substation near Gold Creek, and reconstruct the distribution system (70% energized) as part of the new transmission system.

	<u>Labor & Equipment</u>	<u>%</u>	<u>Material</u>	<u>%</u>	<u>Total</u>	<u>Miles</u>	<u>Per Mile</u>
Transmission	\$3,809,492	69%	\$1,688,548	31%	\$5,498,040	29.2	\$188,289
Distribution	\$1,402,028	73%	\$508,869	27%	\$1,910,897	29.2	\$65,442
Substation	\$380,000	39%	\$597,500	61%	\$977,500		
Substation Get Aways	\$24,000	29%	\$59,000	71%	\$83,000		
Design Engineering					\$592,861		
Construction Management					\$169,389		
Price & Construction Change Allowance					\$2,307,922		
Total	\$5,615,520		\$2,853,917		\$11,539,608		

Table 5
Pre-design Cost Estimates
Okanogan County PUD
Methow Transmission Project

Alternate 4 Hot Rebuild - Rebuild 28 miles of existing transmission Loup Loup line "hot" and rebuild the Pateros and Twisp main distribution circuits.

	<u>Labor & Equipment</u>	<u>%</u>	<u>Material</u>	<u>%</u>	<u>Total</u>	<u>Miles</u>	<u>Per Mile</u>
Transmission Loup Loup Hot	\$5,308,080	76%	\$1,713,721	24%	\$7,021,801	28	\$250,779
Distribution Twisp 3000	\$887,082	62%	\$548,879	38%	\$1,435,961	13	\$110,459
Distribution Pateros 4000	\$1,234,600	64%	\$691,619	36%	\$1,926,219	18	\$107,012
Design Engineering					\$726,879		
Construction Management					\$207,680		
Price & Construction Change Allowance					\$2,829,635		
Total	\$7,429,762		\$2,954,219		\$14,148,174		

Alternate 5 Hot Rebuild + 15 miles + substation - Rebuild 28 miles of existing transmission Loup Loup line "hot" and build 15 miles of new transmission line from Pateros to a new Gold Creek Substation. Build 3.4 miles of distribution underbuild.

	<u>Labor & Equipment</u>	<u>%</u>	<u>Material</u>	<u>%</u>	<u>Total</u>	<u>Miles</u>	<u>Per Mile</u>
Transmission, Loup Loup Hot	\$5,308,080	76%	\$1,713,721	24%	\$7,021,801	28	\$250,779
Transm., Pateros Gold Creek	\$1,786,100	68%	\$838,183	32%	\$2,624,283	15	\$174,952
Distrib., Pateros to Gold Creek	\$160,051	65%	\$87,994	35%	\$248,045	3.4	\$72,954
Substation	\$380,000	39%	\$597,500	61%	\$977,500		
Substation Get Aways	\$24,000	29%	\$59,000	71%	\$83,000		
Design Engineering					\$766,824		
Construction Management					\$219,093		
Price & Construction Change Allowance					\$2,985,136		
Total	\$7,658,231		\$3,296,398		\$14,925,682		

Table 5
Pre-design Cost Estimates
Okanogan County PUD
Methow Transmission Project

Alternate 6

Cold Rebuild - Rebuild 28 miles of existing transmission Loup Loup line "cold," provide 20MW temporary diesel generating capacity in Twisp during rebuild, and rebuild the Pateros and Twisp main distribution circuits "hot".

	<u>Labor & Equipment</u>	<u>%</u>	<u>Material</u>	<u>%</u>	<u>Total</u>	<u>Miles</u>	<u>Per Mile</u>
Transmission, Loup Loup Cold	\$3,536,096	68%	\$1,699,971	32%	\$5,236,067	28	\$187,002
Distribution Twisp 3000	\$887,082	62%	\$548,879	38%	\$1,435,961	13	\$110,459
Distribution Pateros 4000	\$1,234,600	64%	\$691,619	36%	\$1,926,219	18	\$107,012
Temporary Generator Site	\$210,000	6%	\$3,521,495	94%	\$3,731,495		
Temp Generator Mobilization/Demobilization	\$812,000	100%	\$0	0%	\$812,000		
Design Engineering					\$863,082		
Construction Management					\$246,595		
Price & Construction Change Allowance					\$3,562,855		
Total	\$6,679,778		\$6,461,964		\$17,814,273		

Alternate 7 Partial Hot, Partial parallel - Rebuild 13 miles of existing transmission Loup Loup line "hot" across forested areas, build 15 miles in a new parallel ROW along the Loup Loup alignment, and rebuild the Pateros and Twisp main distribution circuits "hot".

	<u>Labor & Equipment</u>	<u>%</u>	<u>Material</u>	<u>%</u>	<u>Total</u>	<u>Miles</u>	<u>Per Mile</u>
13 Miles Loup Loup Hot	\$2,521,600	75%	\$821,875	25%	\$3,343,475	13	\$257,190
16 Miles Loup Loup Cold	\$1,951,501	67%	\$946,398	33%	\$2,897,899	16	\$181,119
Distribution Twisp 3000	\$887,082	62%	\$548,879	38%	\$1,435,961	13	\$110,459
Distribution Pateros 4000	\$1,234,600	64%	\$691,619	36%	\$1,926,219	18	\$107,012
Design Engineering					\$672,249		
Construction Management					\$192,071		
Price & Construction Change Allowance					\$2,616,968		
Total	\$6,594,783		\$3,008,771		\$13,084,842		

Table 6
Temporary Generation Cost Estimate
Okanogan PUD
Methow Transmission Project

Alternative		Temporary Generation Cost									
		Mkt. Value of Energy Purchased	engineer estimate	lease land	add'l noise abatement	scrubbers	air permit, model, test	diesel	urea	decom.	subtotal, temp gen.
1	No Action	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2	Proposed Action (Pateros-Twisp Transmission Line, Gold Creek Substation)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
3	Valley Floor Alternative (Transmission Overbuild, Gold Creek Substation)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
4	Loup-Loup Hot Rebuild, Distribution Rebuild	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
5	Loup-Loup Hot Rebuild, Gold Creek Substation	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
6	Loup-Loup Cold Rebuild, Temporary Generation, Distribution Rebuild	\$ (2,613,800)	\$ 4,543,495	\$ 5,000	\$ 200,000	\$ 3,150,000	\$ 175,000	\$ 7,638,400	\$ 420,000	\$ 75,000	\$ 13,593,095
7	Loup-Loup Partial Hot, Partial Parallel Rebuild	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

4,928,000 gallons diesel
336,000 gallons urea
\$ 1.55 cost/gallon diesel
\$ 1.25 cost/gallon urea

74,680 MWhrs
\$35 cost/MWhr
total savings
\$ 2,613,800

Market Value of Energy Purchased; Energy purchased from BPA at \$31/MWH and resold at \$35/MWH

Table 7
 Estimated Decommission Costs
 Okanogan PUD
 Methow Transmission Project

Decommission Cost		Number of Holes	Fixed Cost Per Hole	Total Cost
Alternative				
1	No Action			
2	Proposed Action (Pateros-Twisp Transmission Line, Gold Creek Substation)	0	\$ 236	\$ -
3	Valley Floor Alternative (Transmission Overbuild, Gold Creek Substation)	0	\$ 236	\$ -
4	Loup-Loup Hot Rebuild, Distribution Rebuild	0	\$ 236	\$ -
5	Loup-Loup Hot Rebuild, Gold Creek Substation	0	\$ 236	\$ -
6	Loup-Loup Cold Rebuild, Temporary Generation, Distribution Rebuild	0	\$ 236	\$ -
7	Loup-Loup Partial Hot, Partial Parallel Rebuild	121	\$ 236	\$ 28,596

Decommission cost is per pole:

Hand Crew:	\$ 1,400	day
	\$ 175	hour
backhoe	\$ 50	hour
backhoe move in/move out	\$ 200	
dump truck with clean fill for holes	\$ 100	10-yard load
holes require: 1 yard fill per hole, 1 hour backhoe and 1 hour crew time to fill, recontour, and seed if directed by land manager	\$ 236	

Table 8.1
 Estimated Mitigation Cost Summary
 Okanogan PUD
 Methow Transmission Project

ALTERNATIVE--physical mitigation installation		Miles Line Construction			Miles Road Work			Road watering			Weed control				Environmental Monitoring			TOTAL
		miles	cost/mile	subtotal	miles	cost/mile	subtotal	work month	cost/mo.	subtotal	miles line	miles road	substat.	subtotal	work months	cost/mo.	subtotal	mitigation
1	No Action	0	\$ -	\$ -	0	\$ -	\$ -	0	\$ -	\$ -	0	0	0	\$ -	0	\$ -	\$ -	\$ -
2	Proposed Action (Pateros-Twisp Transmission Line, Gold Creek Substation)	28	\$ 2,800	\$ 88,838	27.75	\$ 2,800	\$ 77,700	8	\$ 2,800	\$ 22,400	28	21.6	1	\$ 31,365	8	\$ 22,270	\$ 178,160	\$ 398,463
3	Valley Floor Alternative (Transmission Overbuild, Gold Creek Substation)	30	\$ 2,800	\$ 84,000	3.2	\$ 2,800	\$ 8,960	8	\$ 2,800	\$ 22,400	30	1.8	1	\$ 29,502	8	\$ 22,270	\$ 178,160	\$ 323,022
4	Loup-Loup Hot Rebuild, Distribution Rebuild	28	\$ 2,800	\$ 78,400	8.8	\$ 2,800	\$ 24,640	12	\$ 2,800	\$ 33,600	53	32.4		\$ 56,530	12	\$ 22,270	\$ 267,240	\$ 460,410
5	Loup-Loup Hot Rebuild, Gold Creek Substation	43	\$ 2,800	\$ 130,838	24.66	\$ 2,800	\$ 69,048	12	\$ 2,800	\$ 33,600	43	43.8	1	\$ 49,841	12	\$ 22,270	\$ 267,240	\$ 550,566
6	Loup-Loup Cold Rebuild, Temporary Generation, Distribution Rebuild	28	\$ 2,800	\$ 78,400	8.8	\$ 2,800	\$ 24,640	8	\$ 2,800	\$ 22,400	53	32.4	0	\$ 56,530	8	\$ 22,270	\$ 178,160	\$ 360,130
7	Loup-Loup Partial Hot, Partial Parallel Rebuild	28	\$ 2,800	\$ 78,400	9	\$ 2,800	\$ 25,200	9	\$ 2,800	\$ 25,200	53	32.4	0	\$ 56,530	9	\$ 22,270	\$ 200,430	\$ 385,760

note: watering only needed during line construction for alt 6, not during temp generation construction & establishment

note: monitoring only needed during line construction for alt 6, not during temp generation construction & establishment

Table 8.2
 Details for Mitigation Cost Estimate
 Okanogan PUD
 Methow Transmission Project

Environmental monitoring		Bird Perch Diverters
item	monthly cost per monitor	Watson Draw - Bill Shaw Rd alternative 2, 5
cellular phone	\$ 100	20 H-frame structures, need
car	\$ 1,950	2 diverters/structure
miscellaneous	\$ 300	\$60/diverter
per diem	\$ 3,150	\$ 2,400
base salary	\$ 16,770	
total	\$ 22,270	Bird Flight Diverters
base salary @	\$ 65 per hour	P-T alignment to substation
assume 60-hour week, no OT, 4.3		3600 feet, diverter every 15 feet
weeks per month		2 lines need diverters
4wd lease @	\$ 65 day	243 BFDs * 2 lines
	\$ 1,950 month	486 BFDs @ \$11.60 each
misc covers gas & supplies		\$ 5,638
per diem @	\$ 105 day	BFD installation
	\$ 3,150 month	2 days hand crew @\$1,400/day
		\$2,400
		total Bird Diverter cost
		\$ 10,438
Mitigation Measure Purchase and Installation		
hand crew	\$ 1,400 day	
estimate	1 day/mile transmission line	
	1 day/mile road	
backhoe	\$50 hour	
	8 hours/mile transmission line	
	8 hours/mile access road	
materials cost		
(hay bales, straw	\$1,000 mile transmission	
wattles, etc)	\$1,000 mile road work (blade, reconstruction, etc.)	
Road costs per mile		
	\$ 2,800	
Transmission line costs per mile		
	\$2,800	
Dust Control		
Water Truck	\$100 hour	
Roads 7/1-10/1	2 trips/day	
road watering	\$800 day	
days of work	176 8 months * 22 workdays/month	
Weed Control		
herbicide application costs \$9/1000 sq. ft. and includes licensed applicator, all labor, and all approved herbicides		
substation weed control (periphery, spot inside)		
800' around x 20'	16,000 square feet	
spot applications	8,000 square feet	
cost/year	\$216	
3-year control	\$648	
line weed control--includes distribution rebuild and valley floor		
assume no herbicides on NFS or BLM lands on line or roads		
assume 10% of line will need attention first year		
assume 5% of line will need treatment years 2 and 3		
roadmiles include all roads upgraded or constructed and includes all miles, not just reconstructed miles		
assume 10% of roadsides will need attention first year		
assume 5% of roadsides will need treatment years 2 & 3		
transmission line	52,800 sq.ft./mile, year 1 (10% of 100' ROW)	
roadsides	10,560 sq.ft./mile, year 1 (10% of 10' either side of road)	
cost per mile, transmission lines		cost per mile, roadsides
year 1	\$475	year 1 \$95
years 2 & 3	\$238	years 2 & 3 \$48
SUBTOTAL, lines	\$950	SUBTOTAL, r \$190

Table 9
 Estimate Operations Maintenance Costs
 Okanogan PUD
 Methow Transmission Project

ALTERNATIVE		miles of transmission in MV system	cost per mile	patrol cost	scheduled outage	replacement	total system maint. Cost
1	No Action	28	\$ 215	\$ 6,020	\$ 5,568	\$ 4,000	\$ 15,588
2	Proposed Action (Pateros-Twisp Transmission Line, Gold Creek Substation)	56	\$ 215	\$ 12,040	\$ 3,468	\$ 4,000	\$ 19,508
3	Valley Floor Alternative (Transmission Overbuild, Gold Creek Substation)	58	\$ 148	\$ 8,584	\$ 3,468	\$ 4,000	\$ 16,052
4	Loup-Loup Hot Rebuild, Distribution Rebuild	28	\$ 215	\$ 6,020	\$ -	\$ -	\$ 6,020
5	Loup-Loup Hot Rebuild, Gold Creek Substation	43	\$ 215	\$ 9,245	\$ 3,468	\$ 4,000	\$ 16,713
6	Loup-Loup Cold Rebuild, Temporary Generation, Distribution Rebuild	28	\$ 215	\$ 6,020	\$ -	\$ -	\$ 6,020
7	Loup-Loup Partial Hot, Partial Parallel Rebuild	28	\$ 215	\$ 6,020	\$ -	\$ -	\$ 6,020

patrol 1 hour/week, 2x20 hours structural visit, except valley floor 2x8		crews	hours	cost/hour		
crew (\$1400/day)	\$ 1,400	scheduled outage--alt 1 (transmission & distribution)				
crew hourly	\$ 175	crew labor	3	4 \$ 350	\$ 4,200	
crew costs include labor, benefits, and vehicle costs for crew and foreman		trucks	3	4 \$ 64	\$ 768	
		admin staff	2	4 \$ 75	\$ 600	
		subtotal			\$ 5,568	
		planned materials				\$ 4,000
		scheduled outage--alts 2,3, 5 (distribution)				
		crew labor	3	4 \$ 175	\$ 2,100	
		trucks	3	4 \$ 64	\$ 768	
		admin staff	2	4 \$ 75	\$ 600	
		subtotal,			\$ 3,468	
total miles for district	105					

Table 10.1
 Estimated Forecast Value of 115 kV Transmission System Losses
 Okanogan PUD
 Methow Transmission Project

Alternative	Description	conductor type	Average Losses (MWs)	Average Losses Savings over No Action Alternative	
				(MWs)	\$
1	No Action	NA	2.26		
2	Pateros-Twisp	336	1.30	0.96	\$ 351,500
3	P-T Valley Floor	336	1.30	0.96	\$ 351,500
4	LL Hot Rebuild	556	1.56	0.70	\$ 256,300
5	Hot Rebuild+15Miles+GC Sub	556	1.56	0.70	\$ 256,300
6	LL Cold Rebuild	556	1.56	0.70	\$ 256,300
7	LL Partial Hot, Partial Rebuild	556	1.56	0.70	\$ 256,300

Based on two year forecast Mid-Columbia Price of 41.8 Mills/KWh for CY 2005 & CY 2006

Table 10.2
 Estimated Forecast 13.2 kV Distribution System Losses Savings
 Okanogan PUD
 Methow Transmission Project

Alternative	Description	Average Losses (MWs)	Annual Losses Savings over No Action Alternative	
			(MWs)	\$
1	No Action	0.195		
2	Pateros-Twisp	0.049	0.15	\$ 53,000
3	P-T Valley Floor	0.049	0.15	\$ 53,000
4	LL Hot Rebuild	0.059	0.14	\$ 50,000
5	Hot Rebuild+15Miles+GC Sub	0.049	0.15	\$ 53,000
6	LL Cold Rebuild	0.059	0.14	\$ 50,000
7	LL Partial Hot, Partial Rebuild	0.059	0.14	\$ 50,000

Based on two year forecast Mid-Columbia Pri 41.8 Mills/KWh for CY 2005 & CY 2006

Note: Alternatives 1,2,3,5 Conductor #2 CU (Copper)

Alternatives 4,6,7 Conductor 336 AA

Note: Loss calculations based on results of OKPUD recorded circuit peaks and existing conductor data.