

**CHAKACHAMNA HYDROELECTRIC PROJECT
CONCEPTUAL ESTIMATE SUMMARIES -- SHEET 1 OF 2**

ALTERNATIVES	ESTIMATED COSTS IN THOUSANDS OF DOLLARS				
	A	B	C	D	E
LAND AND LAND RIGHTS	Not included	Not included	Not included	Not included	Not included
POWER PLANT STRUCTURE AND IMPROVEMENTS					
Valve Chamber	5,600	5,500	5,600	5,600	5,500
Underground Power House	26,200	25,200	26,200	26,200	25,200
Bus Galleries	200	200	200	200	200
Transformer Gallery	4,600	4,300	4,300	4,300	4,300
Valve Chamber and Transformer Gallery -- Access Tunnel	400	400	400	400	400
P. H. Access Tunnel	13,500	13,500	13,500	13,500	13,500
Cable Way	800	800	800	800	800
	51,300	49,900	51,000	51,000	49,900
RESERVOIR, DAM AND WATERWAYS					
Reservoir	100	100	100	100	100
Intake Structure	10,400	9,300	10,400	10,400	9,300
Intake Gate Shaft	13,200	12,400	13,200	13,200	17,600
Fish Facilities	-	-	-	-	85,400
Dike & Spillway	-	-	-	-	9,100
Access Tunnel					
-- At Intake	21,600	19,100	21,600	21,600	0
-- At Surge Chamber, No. 3	6,600	5,900	8,900	8,900	5,900
-- At Mile 3, 5, No. 1	0	0	20,800	20,800	0
-- At Mile 7, 5, No. 2	0	0	14,500	14,500	0
Power Tunnel	626,800	580,400	712,500	712,500	447,800
Surge Chamber -- Upper	12,900	11,000	12,900	12,900	18,900
Penstock -- Inclined Section	18,000	16,500	15,400	15,400	0
-- Horizontal Section and Elbow	6,700	6,000	6,700	6,700	6,000
-- Wye Branches to Valve Chamber	13,200	11,900	12,100	12,100	11,900
-- Between Valve Chamber & Power House	800	600	800	800	600
Draft Tube Tunnels	1,900	1,700	1,900	1,900	1,700
Surge Chamber -- Tailrace	2,400	2,400	2,400	2,400	2,400
Tailrace Tunnel and Structure	10,300	9,600	10,300	10,300	9,600
Tailrace Channel	900	700	900	900	700
River Training Works	500	500	500	500	500
Miscellaneous Mechanical and Electrical	7,100	6,100	5,700	5,700	6,100
	753,400	694,200	871,600	871,600	633,600

A, B -- McArthur development, high level tunnel excavated by drilling and blasting
 C, D -- Chacacatna valley development excavated by drilling and blasting
 E -- Mc Arthur development, low level tunnel excavated by boring machine

**CHAKACHAMNA HYDROELECTRIC PROJECT
CONCEPTUAL ESTIMATE SUMMARIES - SHEET 2 OF 2**

ALTERNATIVES	ESTIMATED COSTS IN THOUSANDS OF DOLLARS				
	A	B	C	D	E
TURBINES AND GENERATORS	67,900	57,900	54,500	54,500	57,900
ACCESSORY ELECTRICAL EQUIPMENT	11,200	9,500	9,000	9,000	9,500
MISCELLANEOUS POWER PLANT EQUIPMENT	8,600	7,300	6,900	6,900	7,300
SWITCHYARD STRUCTURES	3,600	3,600	3,600	3,600	3,600
SWITCHYARD EQUIPMENT	13,800	12,500	12,100	12,100	12,500
COMM. SUPV. CONTROL EQUIPMENT	1,600	1,600	1,600	1,600	1,600
TRANSPORTATION FACILITIES					
Port	4,600	4,600	4,600	4,600	4,600
Airport	2,000	2,000	2,000	2,000	2,000
Access and Construction Roads	59,600	59,600	44,100	44,100	59,600
	66,200	66,200	50,700	50,700	66,200
TRANSMISSION LINE & CABLE CROSSING	63,200	63,200	56,500	56,500	63,200
TOTAL SPECIFIC CONSTRUCTION COST AT JANUARY 1982 PRICE LEVELS	1,040,800	965,900	1,117,500	1,117,500	905,300
ENGINEERING & CONSTRUCTION MANAGEMENT					
SUBTOTAL	124,900	115,900	134,100	134,100	108,700
CONTINGENCY @ 20%	1,165,700	1,081,800	1,251,600	1,251,600	1,014,000
ESCALATION	233,100	216,400	250,300	250,300	203,000
INTEREST DURING CONST. @ 3% PER ANNUM	Not Incl.	Not Incl.	Not Incl.	Not Incl.	Not Incl.
OWNER'S COSTS	111,900	104,100	101,400	101,400	97,400
ALLOWANCE FOR FISH PASSAGE FACILITIES	Not Incl.	Not Incl.	Not Incl.	Not Incl.	Not Incl.
	-	50,000	-	50,000	Under Reservoir Item
TOTAL PROJECT COST AT JANUARY, 1982 PRICE LEVELS	1,510,700	1,452,300	1,603,300	1,653,300	1,314,400
USE	1,500,000	1,450,000	1,600,000	1,650,000	1,314,000

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