U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

TECHNICAL NOTE

Filing Code 3500

Date Issued 6/70

Bureau of Land Management U.S. DEPARTMENT OF THE INTERIOR

Subject: Coal, Value

Selected References:

1. Federal Power Commission, Steam-Electric Plant Construction Cost and Annual Production Expenses. Supplements published yearly, GPO. Typical contents of this publication are shown in Attachment 1-A. Typical construction cost and production expense figures are shown in Attachment 1-B. NOTE: The cost of coal at the plant is given in Attachment 1-B. By obtaining railroad tariffs and other transportation expenses, it is possible to work back to the value of the coal at the mine. (1967, cost $1.25).

2. National Coal Association, Steam-Electric Plant Factors. Published yearly by the National Coal Association, 1130 17th Street, N. W., Washington, D. C. 20036. A typical table of contents is shown in Attachment 2-A. A typical table, giving cost data is shown in Attachment 2-B. See the note above. Also contains a table showing new and expansion plans over the next seven years, Attachment 2-C (1967, cost $5.00).

3. Bureau of Mines, Minerals Yearbook, Volume III, Area Reports: Domestic. Published yearly, GPO. Gives average values of coal statewide by type of mining: underground or strip.

Please send any additional references on this subject or other minerals subjects to DSC (D-310). If the complete article or publication is needed, DSC (D-310) will attempt to obtain a copy or a loan for you.

Attachment 1-A

CONTENTS

Attachment 2-A

TABLE OF CONTENTS

Attachment K

STEAM-ELECTRIC PLANT CONSTRUCTION COST AND ANNUAL PRODUCTION EXPENSES

1966

Name of Utility: UTAH POWER & LIGHT COMPANY

Line No.									
	Name of Plant	Carbon County Section I		Carbon County Section II				Naughton	
	Region and Power Supply Area	VII-41		VII-41				VII-41	
	Location of Plant	Castle Gate, Utah		Castle Gate, Utah				Kemmerer, Wyo.	
1	Installed Generating Capacity - Max. Gen. Nameplate Rating - Megawatts	75.0		113.6				163.2	
2	Net Generation, Million Kilowatt-hours	314.6		645.6				1,031.5	
3	Plant Factor, Percent, Based on Nameplate Rating (Line 1)	48		65				72	
4	Peak Demand on Plant, Megawatts (60 Minutes) (Net)	71.0		107.0				170.0	
5	Net Continuous Plant Capability, Megawatts								
6	When not Limited by Condenser Water	66.0		100.0				160.0	
7	When Limited by Condenser Water	66.0		100.0				160.0	
8	COST OF PLANT (Thousands of Dollars)								
9	Land and Land Rights	70		174				437	
10	Structures and Improvements	2,635		1,878				5,993	
11	Equipment	9,270		11,571				20,125	
12	Total Cost	11,975		13,623				26,555	
13	Cost per Kilowatt of Installed Capacity (Line 12/Line 1) $	160		120				163	
14	PRODUCTION EXPENSES	$1000	Mills Kwh	$1000	Mills Kwh	$1000	Mills Kwh	$1000	Mills Kwh
15	Operation Supervision and Engineering	12	.04	12	.02			24	.02
16	Steam Expenses	56	.18	55	.09			70	.07
17	Steam from Other Sources								
18	Steam Transferred (Cr.)								
19	Electric Expenses	75	.24	78	.12			83	.08
20	Misc. Steam Power Expenses	29	.09	28	.04			43	.04
21	Rents	-	-	-	-				
22									
23	Maintenance Supervision and Engineering	10	.03	11	.02			42	.04
24	Maintenance of Structures	15	.05	4	.01			7	.01
25	Maintenance of Boiler Plant	64	.20	80	.12			107	.10
26	Maintenance of Electric Plant	24	.08	27	.04			27	.03
27	Maintenance of Misc. Steam Plant	16	.05	15	.02			29	.03
28									
29	Total, Exclusive of Fuel	301	.96	310	.48			432	.42
30	Fuel	856	2.72	1,526	2.36			2,052	1.99
31	Total Production Expenses	1,157	3.68	1,836	2.84			2,484	2.41
32	FUEL USED	Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost
33	Coal burned, 1000 tons of 2000 lbs. and Cost per ton $	145.5	5.77	266.4	5.72			548.5	3.73
34	Btu per Pound and Cost per Million Btu ¢	12,572	22.95	12,575	22.74			9,400	19.85
35	Cost per Ton, as delivered, f.o.b. Plant during reported year $		5.64		5.64				3.72
36	Oil burned, 1000 bbls. of 42 gals. and Cost per bbl. $								
37	Btu per Gallon and Cost per Million Btu ¢								
38	Cost per Barrel, as delivered, f.o.b. Plant during reported year $								
39	Gas burned, Million cu. ft., and Cost per 1000 cu. ft. ¢								
40	Btu per Cubic Foot and Cost per Million Btu ¢								
41									
42									
43									
44	Average Btu per Kilowatt-hour Net Generation	11,693		10,384				10,003	
45	Total Number of Units (Exclusive of House Service Units)	1		1				1	
46	Number of Reheat Units	-		1				1	
47	Reheat Units - Total Megawatts	-		113.6				163.2	
48	Condensing Water Supply	Price River &		Price River &				Hams Fork River	
49	Average Number of Employees	24	C.T.'s	29	C.T.'s			32	&C.T.
50	Plant Building - Type of Construction (Conv., Semi-O.D., O.D.)	Outdoor Boiler		Outdoor Boiler				Outdoor Boiler	
51	Initial Year of Plant Operation	1954		1957				1963	

ADDITIONS, RETIREMENTS AND CHANGES IN 1966

No. of T.G. Units	GENERATORS				TURBINES				RPM	BOILERS						
	Max. Cont. Rating MW	Coolant Pressure (Hydrogen or Other)	PF %	Voltage KV	Max. Cont. Rating MW	Throttle PSI	Throttle Temp. °F Initial	Throttle Temp. °F Reheat		No.	1000 lbs. per hr. Max. Cont. Rating	PSI	Temp. °F Initial	Temp. °F Reheat	Fuel & Methods of Firing (Pulv. Coal, Cyclone Furnace, Stoker, Gas, Oil)	Year

FPC Form 1159
Rev (4-67)

Attachment 2-B

Table 1. Steam-Electric Plant Capacity, Net Generation, Fuel Consumption, and Unit Costs, 1966

LINE NO.	CITY	COMPANY	PLANT	INSTALLED GENERATING CAPACITY (Thous. Kw)*	NET GENERATION (Million Kwh)*	FUEL DESIGNED FOR: C-COAL S-STOKER P-PULV'D. O-OIL G-GAS	COAL		COAL		OIL				GAS			COST PER MILLION BTU (CENTS)				PERCENT OF CONSUMPTION IN B.T.U.			LINE NO.
							TONS (Thous.)	COST PER TON F.O.B. PLANT	COST PER TON AS BURNED	BTU PER LB.	BARRELS (Thous.)	COST PER BARREL F.O.B. PLANT	COST PER BARREL AS BURNED	BTU PER GALLON	MILLION CUBIC FEET	COST AS BURNED (¢-MCF)	BTU PER CUBIC FOOT	F.O.B. PLANT*	AS BURNED						
																		COAL	COAL	OIL	GAS	COAL	OIL	GAS	
				(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	
	MOUNTAIN - Cont'd																								
	COLORADO																								
1	Alamosa	Public Service Co. of Colorado	Alamosa 2	19.5	67.1	C(S)OC	-	$ -	$ -	-	-	$ -	$ -	-	1,390	na	762 7	-	-	-	na	-	-	100	1
2	Denver	"	Arapahoe	250.5	867.0	CC	215	4.87	5.18	9,973	-	-	-	-	7,621	18.3	842	24.4	26.0	-	21.7	40	-	60	2
3	Cameo	"	Cameo	75.0	339.1	COG	120	5.30	5.51	10,508	0.2	5.18	5.18	138,131	1,669	17.0	854	25.2	26.2	89.3	19.9	64	-	36	3
4	Deover	"	Cherokee	420.5	2,460.2	CC	870	5.05	5.17	11,173	-	-	-	-	7,412	18.3	842	22.6	23.1	-	21.7	76	-	24	4
5	Grand Junction	"	Grand Junction 14	16.3	-	C(S)C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5
6	Boulder	"	Valmont	273.8	1,101.8	CC	520	4.57	4.73	10,328	-	-	-	-	1,683	21.7	826	22.1	22.9	-	26.3	89	-	11	6
7	Denver	"	Zuni	115.3	460.8	COC	105	4.61	4.76	9,503	19	2.47	2.47	148,001	5,193	18.4	824	24.3	25.0	39.7	21.9	31	2	67	7
8	Montrose	Western Colorado Power Company	Jim Bullock 2	10.0	94.5	C(P)O	56	na	na	12,500 7	-	-	-	-	-	-	-	na	18.8	-	-	100	-	-	8
9	Durango	"	Durango 2	5.0	10.5	C(P)OC	6	na	na	10,681 4	-	-	-	-	30	na	1,050 4	na	na	-	na	80	-	20	9
10	Somerset	"	Oliver 2	3.0	9.7	C(S)	8	na	na	10,681 4	-	-	-	-	-	-	-	na	13.0	-	-	100	-	-	10
11	Canon City	Westero Power & Gas Company	W. N. Clark	38.5	320.5	C(S)	198	na	4.30	10,681 4	-	-	-	-	-	-	-	na	20.1 4	-	-	100	-	-	11
12	Pueblo	"	Pueblo	30.0	140.7	C(SP)C	8	na	6.15	10,681 4	-	-	-	-	2,224	19.2	1,050 4	na	28.8 4	-	18.3 4	7	-	93	12
13	Rocky Ford	"	Rocky Ford	7.5	29.6	OC	-	-	-	-	1	na	2.81	150,000 4	493	23.7	1,050 4	-	-	44.6 4	22.6 4	-	1	99	13
14	Colo.Springs	Colorado Springs Dept. Utilities	Martin Drake 7	75.0	327.0	C(P)OG	6	na	na	10,400	0.4	na	na	146,800	3,680	na	975	na	na	na	na	3	-	97	14
15	Colo.Springs	"	George Birdsall 7	62.5	266.9	OG	-	-	-	-	3	na	na	146,800	3,325	na	975	-	-	na	na	-	1	99	15
16	Fort Collins	Fort Collins Light & Power Dept.	Fort Collins	11.0	27.5	C(S)OG	13	na	na	9,800	-	-	-	-	214	na	1,050	na	na	-	na	53	-	47	16
17	Lamar	Lamar Light & Power Department	Lamar	9.0	39.8	OC	-	-	-	-	-	-	-	-	676	21.5	1,031	-	-	-	20.9	-	-	100	17
18	Trinidad	Trioidad Elec. Power & Lt. Dept.	Trinidad	7.5	23.4	C(S)OC	9	5.76	5.76	11,000	0.1	4.26	4.26	138,800	303	23.0	972	26.2	26.2	73.0	23.7	40	-	60	18
19	Walsenburg	Walsenburg Utilitiea	Walsen 6e	11.0	24.1	C(S)	18	5.25	4.94	11,500	-	-	-	-	-	-	-	22.8	21.5	-	-	100	-	-	19
20	Montrose	Colorado-Ute Elec. Assn., Inc.	Nucla 7	38.0	122.9	C	72	na	na	12,121	-	-	-	-	-	-	-	na	na	-	-	100	-	-	20
21	Hayden	"	Hayden 7	163.2	1,098.0	OG	493	na	na	10,360	1	na	na	130,000	-	-	-	na	na	-	-	100	-	-	21
22	Steamboat Springs	"	McGregor 14	5.3	-	C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22
		TOTAL COLORADO		1,647.4	7,831.1		2,717	4.89	4.98	10,681	25	2.51	2.52	147,195	35,913	18.8	886	22.9	23.3	40.6	21.6	65	-	35	
	MONTANA																								
1	Glendive	Montana-Dakota Utilities Compaoy	Gleodive 2	7.0	(0.2)	OG	-	-	-	-	-	-	-	-	1	na	1,050 4	-	-	-	32.8	-	-	100	1
2	Sidney	"	Lewis & Clark	50.0	317.8	C(P)C	323	2.66	2.71	6,650	-	-	-	-	15	34.0	1,042	20.0	20.4	-	32.6	100	-	-	2
3	Miles City	"	Miles City 2	2.0	(0.1)	OC	-	-	-	-	-	-	-	-	30	na	1,050 4	-	-	-	32.6	-	-	100	3
4	Billings	Montana Power Company	Frank Bird	69.0	315.1	OC	-	-	-	-	82	1.16	1.16	153,095	2,930	23.7	1,176	-	-	18.0	20.1	-	13	87	4
		TOTAL MONTANA		128.0	632.9		323	2.66	2.71	6,650	82	1.16	1.16	153,095	2,976	23.8	1,174	20.0	20.4	18.0	20.2	52	6	42	
	NEVADA																								
1	E. Las Vegas	Nevada Power Company	Clark	190.3	516.6	C	-	-	-	-	-	-	-	-	5,394	39.6	1,082	-	-	-	36.6	-	-	100	1
2	Las Vegas	"	Sunrise	81.6	487.0	C	-	-	-	-	-	-	-	-	4,505	39.6	1,082	-	-	-	36.6	-	-	100	2
3	Moapa	"	Gardner	113.6	778.5	C(P)	302	7.57	7.70	12,785	3	4.15	4.15	137,863	-	-	-	29.6	29.8	71.7	-	-	100	-	3
4	Sparks	Sierra Pacific Power Company	Tracy	133.0	578.6	OG	-	-	-	-	0.4	3.69	4.17	149,417	6,431	40.0	1,057	-	-	66.4	37.8	-	-	100	4
		TOTAL NEVADA		518.5	2,360.7		302	7.57	7.70	12,785	3	4.10	4.15	139,356	16,330	39.8	1,072	29.6	29.8	70.9	37.1	31	-	69	
	NEW MEXICO																								
1	Shiprock	Arizona Public Service Compaoy	Four Corners	633.6	3,547.7	CC	2,011	2.41	2.50	8,968	-	-	-	-	278	38.4	1,100	13.4	14.0	-	34.9	99	-	1	1
2	Lordsburg	Community Public Service Co.	Lordsburg	29.5	128.7	C	-	-	-	-	-	-	-	-	1,762	33.3	1,000	-	-	-	33.3	-	-	100	2
3	El Paso	El Paso Electric Company	Rio Crande	235.0	462.8	C	-	-	-	-	3	2.42	2.42	151,379	5,125	29.4	1,071	-	-	38.2	27.4	-	-	100	3
4	Albuquerque	Public Service Co. of New Mexicb	Persoo	125.0	361.5	OC	-	-	-	-	13	1.56	1.56	148,600	4,210	25.5	1,061	-	-	25.1	24.0	-	2	98	4
5	Albuquerque	"	Prager	35.0	(0.2)	OG	-	-	-	-	-	-	-	-	18	25.7	1,061	-	-	-	24.2	-	-	100	5
6	Albuquerque	"	Reeves	175.0	1,172.3	OG	-	-	-	-	20	1.52	1.52	151,140	11,758	25.5	1,061	-	-	24.0	24.0	-	1	99	6
7	Santa Fe	"	Saota Fe	12.0	0.4	OC	-	-	-	-	-	-	-	-	12	na	1,061	-	-	-	24.6	-	-	100	7
8	Carlsbad	Southwestern Public Service Co.	Carlabad	46.8	151.6	OG	-	-	-	-	-	-	-	-	2,071	18.9	1,000	-	-	-	18.9	-	-	100	8
9	Hobbs	"	Cunningham	265.4	1,359.2	C	-	-	-	-	-	-	-	-	13,812	18.9	1,000	-	-	-	18.9	-	-	100	9
10	Roswell	"	Roswell	26.7	85.2	OC	-	-	-	-	-	-	-	-	1,263	20.1	1,008	-	-	-	19.9	-	-	100	10
11	Farmington	Farmington Elec. Utility System	Animas 6b	36.0	109.2	C	-	-	-	-	-	-	-	-	1,325	16.0	1,122	-	-	-	14.3	-	-	100	11
12	Gallup	Gallup Elec. Light & Power System	Camerco	16.1 6b 14	-	CG	-	-	-	-	-	-	-	-	5	37.7	995	-	-	-	37.9	-	-	100	12
13	Raton	Ratoo Public Service Company	Raton 6b	12.0	22.8	C	18	4.16	4.16	11,128	-	-	-	-	-	-	-	18.7	18.7	-	-	100	-	-	13
14	Albuquerque	Plains Elec. Gen. & Trans. Coop.	Algodooes	60.9	107.6	OC	-	-	-	-	1	na	na	151,000	1,436	na	1,000	-	-	oa	na	-	-	100	14
		TOTAL NEW MEXICO		1,709.0	7,509.0		2,029	2.43	2.51	8,987	37	1.61	1.61	150,257	43,075	23.4	1,036	13.5	14.0	25.5	22.6	45	-	55	

Attachment 2-C

Table 4. Capacity of New Conventional Steam-Electric Generating Plants or Units Planned or Under Construction, 1967-73

CITY	COMPANY	PLANT	N - NEW E - EXISTING PLANT	SCHEDULED YEAR OF COMPLETION AND KILOWATT CAPACITY OF NEW UNITS										
				1967		1968		1969		1970		1971	1972	1973
				NAMEPLATE 1/	DEPENDABLE 2/	NAMEPLATE 1/	DEPENDABLE 2/	NAMEPLATE 1/	DEPENDABLE 2/	NAMEPLATE 1/	DEPENDABLE 2/	CAPACITY 3/	CAPACITY 3/	CAPACITY 3/
MOUNTAIN														
ARIZONA														
1. S.E. of Tucson	Tucson Gas, Elec., Light & Power Co.	Irvington No.4	E	173,300	165,000	-	-	-	-	-	-	-	-	-
TOTAL ARIZONA				173,300	165,000	-	-	-	-	-	-	-	-	-
COLORADO														
1. Colorado Springs	Colorado Springs Dept.of Public Utils.	Martin Drake No.6	E	-	-	75,000	76,000	-	-	-	-	-	-	-
2. North Denver	Public Service Company of Colorado	Cherokee No.4	E	-	-	350,000	350,000	-	-	-	-	-	-	-
TOTAL COLORADO				-	-	425,000	426,000	-	-	-	-	-	-	-
MONTANA														
1. Billings	Montana Power Company	Frank Bird No.2	E	-	-	163,000	180,000	-	-	-	-	-	-	-
TOTAL MONTANA				-	-	163,000	180,000	-	-	-	-	-	-	-
NEVADA														
1. Moapa	Nevada Power Company	Reid Gardner No.2	E	-	-	113,636	113,636	-	-	-	-	-	-	-
2. Yearington	Sierra Pacific Power Company	Ft. Churchill	N	-	-	110,000	110,000	-	-	-	-	-	-	-
3. Mohave	WEST 10/	Mohave No.1 & 2	N	-	-	-	-	-	-	755,000	755,000 3/	755,000	-	-
TOTAL NEVADA				-	-	223,636	223,636	-	-	755,000	755,000	755,000	-	-
NEW MEXICO														
1. Shiprock	Arizona Public Service Company	Four Corners No.4 & 5	E	-	-	-	-	755,000	755,000 3/	755,000	755,000 3/	-	-	-
2. Lordsburg	Community Public Service Company	Lordsburg No.4	E	22,000	22,000	-	-	-	-	-	-	-	-	-
3. West of Hobbe	New Mexico Electric Service Corp.	Maddox No.1	N	115,085	109,000 6	-	-	-	-	-	-	-	-	-
4. N.W.of New Mexico	Plains Electric Gen. & Trans. Coop.	Unassigned	N	-	-	-	-	-	-	7d/	-	-	-	-
TOTAL NEW MEXICO				137,085	131,000	-	-	755,000	755,000	755,000	755,000	-	-	-
WYOMING														
1. Gillette	Black Hills Power & Light Company	Wyodak	E	-	-	-	-	-	-	7e/	-	-	-	-
2. Glenrocks	Pacific Power & Light Company	Dave Johnston No.5	E	-	-	-	-	-	-	250,000	250,000 3/	-	-	-
3. Kemmerer	Utah Power & Light Company	Naughton No.2	E	-	-	200,000	220,000	-	-	-	-	-	-	-
TOTAL WYOMING				-	-	200,000	220,000	-	-	250,000	250,000	-	-	-
PACIFIC														
CALIFORNIA														
1. El Centro	Imperial Irrigation District	El Centro No.4	E	-	-	75,000	75,000 3/	-	-	-	-	-	-	-
2. Seal Beach	Los Angeles Dept.of Water & Power	Haynes No.6	E	343.000	343,000	-	-	-	-	-	-	-	-	-
3. Moss Landing	Pacific Gas & Electric Company	Moss Landing No.6 & 7	E	700,000	735,000	700,000	735,000	-	-	-	-	-	-	-
4. Redondo Beach	Southern California Edison Company	Redondo No.7 & 8	E	450,000	450,000 5	-	-	-	-	-	-	-	-	-
				450,000	450,000	-	-	-	-	-	-	-	-	-
TOTAL CALIFORNIA				1,943,000	1,978,000	775,000	810,000	-	-	-	-	-	-	-
WASHINGTON														
1. Centralia	Pacific Power & Light Company	Unassigned	N	-	-	-	-	-	-	-	-	-	-	500,000 11/
TOTAL WASHINGTON				-	-	-	-	-	-	-	-	-	-	500,000
UNASSIGNED														
1. Unassigned	Southern Company 12/	Unassigned	N	-	-	-	-	-	-	-	-	505,000	-	-

1/ Maximum generetor nameplate rsting which appears on manufacturer's nameplate. 2/ Dependable capacity of unit is the capacity which has been proven by the operating experience of the user. 3/ Source data did not identify capacity ratings as nameplate or dependable. 4/ Conemaugh project is owned jointly by nine utility companies. 5/ Industrial plant, units one through three owned by the Aluminum Company of America, unit four owned jointly with Southern Indiena Cas and Electric Company. 6/ Unit placed in commercial operation during first quarter of 1967. 7/ Additional capacity being considerated for installation to meet estimated loads during the period 1967-1970: 7a/75,000 Kw; 7b/ 105,000 Kw; 7c/ 33,000 Kw; 7d/ 100,000 Kw; 7e/ 16,500 Kw. 8/ Dependable rating not available - capacity approximated for purposes of this study. 9/ Nameplate rating not available - capacity approximated for purposes of this study. 10/ Western Energy Supply and Transmission Associates (West) is comprised of ten companies. 11/ Additional capacity of 500,000 Kw scheduled for installation after 1973. 12/ State and region unannounced as of April 1, 1967.

Sources: Federal Power Commission Report form 12E (data available as of April 1, 1967); FPC Annual Report form No.1, The Edison Electric Institute and news releases.