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COLORADO GEOTHERMAL COMMERCIALIZATION PROGRAM

SEMI-ANNUAL REPORT

JANUARY - JUNE 1980

by

Frank C. Healy

July 1980

**Colorado Geological Survey
Department of Natural Resources
Room 715, 1313 Sherman Street
Denver, Colorado 80203**

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1.0 INTRODUCTION

The Colorado State Geothermal Commercialization Project exists to promote the development and utilization of geothermal energy. The state has significant geothermal potential, most of which is not being utilized at the present time. This project is designed to assist and educate potential users of the energy present through the use of development analyses, outreach mechanisms and technical assistance.

The project is supported by funding from the U.S. Department of Energy. Team members are Richard H. Pearl, Chief, Groundwater Investigations Section, Principal Investigator, and Frank C. Healy, Project Chief.

2.0 TASK DESCRIPTION AND PRODUCTS

The activities and analyses conducted by the Colorado Commercialization Team during the first half of calendar year 1980 are summarized in the following sections.

2.1 Geothermal Prospect Identification

2.1.1 Resource Identification

Fifty-eight thermal wells and springs have been identified in the state. Colorado's resources, due to low and moderate temperatures present, are mainly developable for direct heat applications. Site locations are shown on Figure 1. Table 1 lists thermal site characteristics, including measured surface temperatures and range of estimated heat content. The total energy contained in these geothermal reservoirs is estimated to be between 4.890 and 12.326 quads (BTU's $\times 10^{15}$) (Pearl, 1979). It should be noted that these estimates may be conservative, and continuing exploration efforts throughout the state may show the resource is much greater than previously estimated.

Many of the thermal areas of Colorado are in or near community centers, making them relatively simple to exploit. Twenty-three communities are within 10 miles of inventoried geothermal sites and 16 are virtually on site (Coe, 1978).

Figure 1.--Location of thermal springs and wells in Colorado. Numbers identify thermal areas.

TABLE 1

CHARACTERISTICS OF HYDROTHERMAL RESERVOIRS IN COLORADO

Site	HIGHEST MEASURED SURFACE TEMPERATURE (°C)	ESTIMATED PROBABLE SUBSURFACE TEMPERATURE (°C)	ESTIMATED PROBABLE HEAT CONTENT (BTU's x 1015)
01 Juniper	38	50-75	0.016
02 Craig	39	40-60	0.033-0.340
03 Routt	64	125-175	0.111-0.166
04 Steamboat	39	125-130	0.049
05 Brand's Ranch	42	42-55	0.004-0.016
06 Hot Sulphur	44	75-150	0.070
07 Haystack Butte	28	50	0.006-0.017
08 Eldorado	26	26-40	0.015
09 Idaho	46	NA	0.171
10 Dotsero	32	32-45	0.005
11 Glenwood	51	NA	0.038
12 South Canyon	49	100-130	0.002
13 Penny	56	60-90	0.166-0.486
14 Col. Chinn	42	NA	0.018
15 Conundrum	38	40-50	0.004
16 Cement Creek	25	30-60	0.013-0.066
17 Ranger	27	30-60	0.002-0.006
18 Rhodes	24	25-35	0.043-0.200
19 Hartsel	52	NA	0.047
20 Cottonwood	58	105-182	0.389-1.167
21 *Chalk Creek		150-200	1.062-3.810
Mt. Princeton	56	150-200	
Wright	72	150-200	
Hortense	82	150-200	
Woolmington	39	150-200	
22 Brown's Canyon	25	50-100	0.226-0.486
23 *Poncha	71	115-145	0.141-1.191
24 Wellsville	33	35-50	0.009-0.015
25 Swissvale	28	35-50	
26 Canon City	40	NA	0.003
27 Fremont	35	35-50	0.010
28 Florence	28	34-50	0.008-0.043
29 Don K Ranch	28	NA	0.035
30 Clark	25	25-50	0.008
31 Mineral	60	70-90	0.949
32 Valley View	37	40-50	0.056
33 Shaws	30	30-60	0.015
34 Sand Dunes	44	NA	0.155
35 Splashland	40	40-100	0.155

TABLE 1 CONTINUED

		HIGHEST MEASURED SURFACE TEMPERATURE (°C)	ESTIMATED PROBABLE SUBSURFACE TEMPERATURE (°C)	ESTIMATED PROBABLE HEAT CONTENT (BTU's x 10 ¹⁵)
	<u>Site</u>			
36	Dexter	20	20-50	0.034
37	McIntyre	14	20-50	
38	Dutch Crowley	70	70-80	0.026-0.062
39	Stinking Springs	27	40-60	
40	Eoff	39	40-60	0.017
41	Pagosa	58	80-150	0.023
42	Rainbow 40	40	40-50	0.047-0.094
43	Wagon Wheel Gap	57	NA	0.063-1.429
44	Antelope	32	35-52	0.011-0.088
45	Birdsie	30	35-52	
46	Waunita	80	175-225	0.061
47	*Cebolla	40	NA	0.048
48	Orvis	52	NA	0.028-0.131
49	Ouray	69	70-90	0.226
50	Lemon	33	NA	0.015
51	Dunton	42	50-70	0.007
52	Geyser	28	60-120	0.007
53	Paradise	46	NA	0.023
54	Rico	44	NA	0.174
55	Pinkerton	33	75-125	0.010-0.021
56	Tripp/Trimble	44	45-70	0.036

*Potential Electric Power Generation Sites

SOURCE: Pearl, 1979

Electrical power generation potential may exist at 3 sites within the state. Poncha Springs, Chalk Creek, Mt. Princeton and Cebolla are currently in different stages of exploration by energy companies.

More extensive information concerning the hydrothermal wells and springs in the state is available from various publications including Barrett and Pearl, 1976, Barrett and Pearl, 1978, Coe, 1978 and Pearl, 1979. In addition, several areas have been reported but have not yet been investigated.

2.2.1 Leasing Activity

Leases and lease applications are indicative of development interest and activity in a potential geothermal area. With a large portion of the geothermal sites in Colorado on or near public lands, this leasing information becomes increasingly important. Table 2 lists current non competitive leases on Federally owned land, Table 3 lists current competitive Federal leases (Known Geothermal Resource Areas -KGRA's), Table 4 lists current Colorado State leases. In addition, lease applications for Federal lands awaiting approval or disapproval are shown on Table 5. Many of these lease applications were made as early as 1974 and are still awaiting action by the U.S. Forest Service. Chalk Creek, Mt. Princeton and Poncha Springs are potential electrical power generation sites where exploration activities have been delayed due to waiting for federal action. Also, the large proportion of lease applications compared to current federal leases is an indication of the level of interest in geothermal development in the state. It should be noted that Atlantic Richfield Co. has recently applied for large acreage of federal leases in Dolores and San Juan counties in southwestern Colorado.

TABLE 2
FEDERAL GEOTHERMAL LEASES IN COLORADO
MARCH, 1980

<u>LESSEE</u>	<u>ACRES</u>	<u>TOWNSHIP AND RANGE</u>	<u>COUNTY</u>	<u>DATE ISSUED</u>
Phillips Petroleum Co.	329.50	49N,11E	Fremont	11-75
Occidental Petroleum, Inc.	80.00	49N,8E	Chaffee	11-75
Petro-Lewis Corp. - 50%				
Petroleum, Inc. - 50%	1549.66	49N,9E	Chaffee	7-75
"	1280.00	49N,8E	Chaffee	11-75
"	2113.30	49N,7&8E	Chaffee	11-75
"	1286.17	51N,8E	Chaffee	7-75
Chevron Oil Co.	1867.94	46&47N, 2&3W	Gunnison	1-77
"	2127.56	46&47N,3W	Gunnison	1-77
"	645.74	47N,3W	Gunnison	1-77
Geothermal Kinetics, Inc.	1795.11	37&38N, 12&13E	Alamosa	11-75
"	1203.15	29S,73W	Alamosa	11-75
"	320.00	38N,12E	Alamosa	8-79
"	642.88	37N,12E	Alamosa	8-79
"	827.31	38N&29S 1eE&73W	Alamosa	11-75
"	1335.99	29S,73W	Alamosa	11-75
Utah International, Inc.	2326.89	40&41N,1E	Mineral	8-79
"	2335.22	40&41,1E	Mineral	8-79
Buttes Resource Co.	781.32	46N,2W	Gunnison	1-77
"	2226.88	46N,1&2W	Gunnison	1-77
"	1804.57	46N,1-1/2W	Gunnison	1-77
"	1040.04	46&47N,2W	Gunnison	1-77
"	1970.30	46&47N,2W	Gunnison	1-77
TOTAL	29889.53	ACRES		

Source: Bureau of Land Management

TABLE 3

FEDERAL COMPETITIVE GEOTHERMAL LEASES IN COLORADO -KGRA's
MARCH, 1980

<u>LESSEE</u>	<u>ACRES</u>	<u>TOWNSHIP AND RANGE</u>	<u>COUNTY</u>	<u>DATE ISSUED</u>
Occidental Geothermal, Inc. - 50%				
Petro-Lewis Corp. - 50%	915.84	49N,8E	Chaffee	1976
Phillips Petroleum Co.	2484.28	45N,9E	Saguache	1975
		46N,9E		
Phillips Petroleum Co.	1636.42	45N,10E	Saguache	1975
		46N,10E		
<hr/>				
TOTAL	5036.54	ACRES		

Source: Bureau of Land Management

TABLE 4

COLORADO STATE GEOTHERMAL LEASES
MARCH, 1980

<u>LESSEE</u>	<u>ACRES</u>	<u>TOWNSHIP AND RANGE</u>	<u>COUNTY</u>
AMAX Exploration	640.00	14S,79W	Chaffee
"	2004.85	14S,78W	Chaffee
"	4332.31	15S,78W	Chaffee
General Geothermal, Inc.	2840.00	41N,10E	Saguache
Occidental Geothermal, Inc.	360.00	49N,8E	Chaffee
Petro Lewis Corp.	3226.61	50N,8E	Chaffee
"	1560.00	49N,7E	Chaffee
		50N,8E	
		49N,9E	
Phillips Petroleum Co.	1764.40	49N,4E	Gunnison and
"		49N,5E	Saguache
		48N,5E	
		48N,4E	
<hr/>			
TOTAL	16728.17	ACRES	

Source: Colorado State Board of Land Commissioners

TABLE 5

FEDERAL GEOTHERMAL LEASE APPLICATIONS IN COLORADO

MAY, 1980

<u>LESSEE</u>	<u>ACRES</u>	<u>TOWNSHIP AND RANGE</u>	<u>COUNTY</u>	<u>DATE OF APPLICATION</u>
AMAX Exploration, Inc.	5420.00	14S,79W	Chaffee	1974
"	3473.98	15S,78W	Chaffee	1974
"	1478.62	51N,7E	Chaffee	1974
"		15S,79W		
"	2456.70	51N,7E	Chaffee	1974
"	2300.00	15S,79W	Chaffee	1974
"		15S,78W		
"	2180.00	15S,79W	Chaffee	1974
"	2202.20	14S,79W	Chaffee	1974
		15S,79W		
Atlantic Richfield Co.	5119.53	39N,10W	Dolores-	1980
"	2560.00	40N,10W	San Juan	
"			Dolores-	1980
"	5154.02	39N,11W	San Juan	
"		40N,11W	Dolores	1980
"	5130.52	39N,11W	Dolores	1980
"	2562.88	39N,10W	Dolores	1980
"	8636.57	40N,10W	Dolores	1980
"	20267.57	40N,11W	Dolores	1980
"	9600.70	40N,12W	Dolores	1980
"	4049.95	41N,10W	Dolores	1980
"	17696.16	41N,11W	Dolores	1980
"	5120.00	41N,12W	Dolores	1980
"	2675.36	41N,12W	Dolores	1980
		40N,12W	Dolores	1980
Austral Oil Co., Inc.	2531.02	50N,4E	Gunnison	1974
"	3102.57	49N,4E	Gunnison	1974
Buttes Resources Co.	120.00	46N,2W	Gunnison	1975
Earth Power Corp.	2568.50	7N,84W	Routt	1975
Fluid Energy Corp.	1599.99	45N,8WE	Ouray	1975
		44N,8W		
"	1719.05	45N,8W	Ouray	1975
"	243.99	44N,8W	Ouray	1975

TABLE 5 CONTINUED

<u>LESSEE</u>	<u>ACRES</u>	<u>TOWNSHIP AND RANGE</u>	<u>COUNTY</u>	<u>DATE OF APPLICATION</u>
James E. Franklin	2480.00	45N,9E	Saguache	1979
"		46N,9E		
"	2480.00	46N,10E	Saguache	1979
"	1200.00	45N,10E	Saguache	1979
Geothermal Kinetics, Inc.	1120.00	38N,12E	Alamosa	1974
"	827.31	38N,13E	Alamosa	1974
"	1203.15	29S,73W	Alamosa	1974
Occidental				
Geothermal, Inc.	4677.93	49N,10E	Fremont	1979
"	640.00	51N,8E	Chaffee	1979
"	2400.00	49N,9E	Chaffee & Fremont	1979
"	860.00	49N,9E	Fremont	1979
"	2518.00	50N,8E	Chaffee	1979
"		50N,9E		
"	2528.00	50N,9E	Chaffee	1979
Phillips Petroleum Co.	1298.97	40N,11W	Dolores	1974
"	2311.18	7N,84W	Routt	1974
"		7N,85W		
"	2089.91	49N,4E	Gunnison	1974
"	1849.44	41N,11W	Dolores	1974
D. L. Percell	3200.00	15S,79W	Chaffee	1974
"	1039.34	14S,79W	Chaffee	1974
Thermal Resources	2542.80	46N,9E	Saguache	1974
		46N,10E		
George M. Wilkinson	60.00	6S,90W	Garfield	1979
"	127.00	37N,9W	La Plata	1980
<hr/>				
TOTAL	157,422.91	ACRES		

Source: Bureau of Land Management
Petroleum Information Corp.

2.2 Area Development Plan and Site Specific Development Analysis

Final editing and document assembly for the San Luis Valley Region analysis was completed and forwarded to the Department of Energy. The study determined that if funds were available and savings in energy costs demonstrated, communities in the San Luis Valley could develop geothermal energy estimated to be as much as 450×10^{10} BTU's (Coe, 1980).

An assessment of Chaffee County in central Colorado was completed and forwarded to the Department of Energy. Current geothermal use in the area is limited to mainly resort applications (swimming pools, space heating, etc.) and small greenhouse heating. Conditions for larger scale geothermal development are favorable for the area with abundant resources present, estimated between 0.1 and 0.4 quads from the Cottonwood Creek, Chalk Creek, Poncha Springs and Brown's Canyon thermal resource areas (Pearl, 1979). Estimates of energy consumption for 1980 are 33.9×10^{10} BTU's for residential and commercial use and 9.0×10^{10} BTU's for industrial use.

The main possibilities for development are in the field of electric power generation and direct heat applications for residential and commercial consumers. Energy exploration firms are active in the Chalk Creek and Poncha Springs area with interest primarily in electrical power generation. Geothermal leasing activity in the county includes state leasing (12,124 acres), federal non-competitive leasing (6,309 acres) and one federal Known Geothermal Resource Area (KGRA) in the Poncha Springs area (916 acres). Potential development for electric power generation is estimated at 200 MWe.

In addition, direct heat applications are favorable for development, anticipating utilization of wastewater from the power plants. The potential direct thermal energy on line before the year 2020 from the area's resources is estimated to be at least 52.7×10^{10} BTU's, adequate to serve much of the energy demand of the county.

As with many other potential developments, funding and leasing delays are the main constraints delaying large scale geothermal development in the county.

An Area Development Plan is currently being prepared for the Steamboat Springs area. The town is ideal for the development of geothermal for direct heating purposes, including resource virtually onsite, a growing economy and major highways, railroads and airports in the immediate area. The geothermal resource for Steamboat Springs has been estimated to be approximately 0.049 quads with subsurface temperatures between 125°C and 130°C (Pearl, 1979). The annual heat demand for Steamboat Springs is estimated at 53.3×10^9 BTU (NMEI, 1980). Preliminary economic analyses by the New Mexico Energy Institute indicates that geothermal energy could be supplied to the town for \$2.04 to \$2.45 per MMBTU, while the price of natural gas is currently higher (\$3.78 per MMBTU).

2.3 State Aggregates of Prospective Geothermal Utilization

The estimated geothermal energy developable by the year 2020 is shown on Table 6. Revisions have been made from previous estimates and will be updated as data is collected.

TABLE 6

POTENTIAL ENERGY ON LINE BY THE YEAR 2020

ELECTRIC POWER GENERATION SITES

<u>Site</u>	<u>Estimated MWe</u>
Chalk Creek #21	100
Poncha Springs #23	100
Cebolla #47	<u>200</u>
TOTAL	400

DIRECT THERMAL SITES

	<u>Estimated 10¹⁰ BTU's</u>
San Luis Valley #31,32,33,34,35,36,37,43,44,45	422.0
Pagosa Springs #41	189.0
Glenwood Springs #11	129.0
Hartsel #19	4.0
Waunita #46	12.0
Routt/Steamboat #3,4	25.0
Hot Sulphur #6	14.0
Haystack Butte #7	3.0
Eldorado #8	2.0
Idaho #9	8.0
Ouray #49	15.0
Dunton/Geyser/Paradise #51,52,53	5.0
Juniper/Craig #1,2	12.0
Brand's Ranch #5	0.7
South Canyon #12	2.0
Penny #13	10.0
Colonel Chinn #14	4.0
Cement Creek/Ranger #16,17	3.0
Wellsville/Swissvale #24,25	2.0
Canon City, Fremont #26,27	3.0
Don K. Ranch, Florence #28,29	19.0
Clark #30	2.0
Wagon Wheel Gap #43	4.0
Orvis #48	6.0
Rico #54	4.0
Pinkerton/Mound #55	2.0
Tripp/Trimble #56	7.0
Cottonwood #20	18.0
Poncha Springs #23	<u>34.7</u>
TOTAL	961.4

2.4 Institutional Analysis

Final editing and document assembly was completed for the Colorado institutional handbook, The Regulation of Geothermal Energy in Colorado (Coe and Forman, 1980), and was forwarded to the Department of Energy. The handbook is also available from the Colorado Geological Survey (Information Series 15, Regulation of Geothermal Energy Development in Colorado, Coe and Forman, 1980).

2.5 Public Outreach Program

2.5.1 Outreach Mechanisms

Existing Mechanisms

Information collected and prepared in brochure form by the Colorado Geological Survey and Department of Energy is distributed to interested parties. A display describing geothermal energy in the state was shown at energy and science fairs.

Lectures were presented in Glenwood Springs and Rifle at the Colorado Mountain College campuses in these cities.

Geothermal activities and potential are represented in the news media, including coverage by television, radio, local and regional newspapers and business news publications.

Personal meetings are conducted on a regular basis. Contacts with government, business, industry and individuals are held as part of the educational process of geothermal development and during data collection for area plans and resource identification. This outreach method is probably the most ineffective, given the rural character of most of the geothermal resources found in the state. Telephone interviews and conversations are also an effective outreach mechanism conducted on a regular basis.

Recommended Mechanisms

A newsletter of geothermal news could be distributed to geothermally interested developers, consultants, local and regional governments, citizens and other interested parties. Coverage on a quarterly or monthly basis would be adequate. A newsletter, if undertaken, would be more effective if continued on a long term basis. If terminated after a short period of time, many parties on the distribution list may be dismayed at the actual geothermal potential with a short lived newsletter.

More effective means of distributing to the public geothermal publications published with public funds should be utilized. All too often, a report will never make it to the people to whom it will do the most good, i.e.; local planners, developers, resource owners, etc.

2.5.2 Summary of Contacts and Results

TABLE 7

<u>Contact</u>	<u>Comments</u>
<u>INDUSTRY, CONSULTANTS, ETC.</u>	
AMAX Exploration, Inc.	electric power generation
Willard Owens Assoc., Inc.	district heating -heat pump applications
Chaffee Geothermal	industrial park
Montrose Press	news article
Fox & Assoc., Inc.	district heating
American Thermal Resources	electric power generation
Mahoney & Co.	district heating - ski resorts
Petroleum Information Corp.	leasing
Ethanol International, Inc.	agribusiness
Basil Engineering	district heating
Denver Business World	news article
BDM Corp.	general
Energy Systems Management	heat pumps

Denver Research Institute
 ComFurT Gas Co.
 Greeley Gas Co.
 Public Service Co.
 Chaffee County Times
 Occidental Oil, Inc.
 Petro-Lewis Corp.
 McGrath and Co.

energy fact book
 energy consumption
 energy consumption
 energy consumption
 news article
 electric power generation
 electric power generation
 heat pump applications

INDIVIDUALS

Leonard Cassara
 David Vince
 Robert Owens
 Larry Howser
 Norma Swanson
 Yvonne Reid
 George Vranish
 Bill Fowler

heat pump applications
 agribusiness
 shopping center heating
 alcohol production
 real estate and geothermal
 development
 hot springs owner
 direct heat applications
 hot springs resort owner

LOCAL GOVERNMENT

Ouray City Council - Walt Garrod
 Ouray City Engineer - Jerry Morriss
 Salida Mayor - Ed Toubert
 Salida Chamber of Commerce
 Four Corners Regional Commission
 Chaffee County
 Idaho Springs Mayor
 Dorothy Kyler
 Idaho Springs City Administrator
 T.G. Johnson

district heating
 district heating
 district heating - industrial
 applications
 general
 general
 geothermal exhibit
 district heating
 district heating

Buena Vista Chamber of Commerce Margery Dorfmeister	alternative energy systems
Upper Arkansas Council of Governments	general
Chaffee County Planning Office Bob Staedler	district heating
Buena Vista City Manager Justin Hammil	district heating
Mayor's Office - Denver	general

COLORADO STATE GOVERNMENT

Colorado State Science Fair	geothermal exhibit
Colorado Energy Conservation Office	general
Oil and Gas Conservation Commission	general
Board of Land Commissioners	general
Public Utilities Commission	energy consumption
Division of Planning	demography
Division of Commerce and Development	general
Division of Energy and Mineral Impact	general
Department of Corrections	state prison heating potential at Canon City and Rifle facilities
Department of Highways	interstate highway deicing
Division of Employment and Training	employment statistics
Division of State Buildings	heat state buildings

FEDERAL GOVERNMENT

NOAA	Colorado geothermal map
U.S. Forest Service	leasing
Bureau of Power and Water Resources	desalination - Glenwood Springs and Dotsero Hot Springs
Bureau of Land Management	leasing
Solar Energy Research Institute	energy requirements

2.5.3 Overall Prospectus for Future Geothermal Activity

Electric power generation potential has definitely been slowed by leasing delays on federal lands. At the present time, exploration firms interested in the Chalk Creek, Poncha Springs and Cebolla resource areas are awaiting federal action before continuing exploration and possible development activity. If the constraints inhibiting these developments were lifted, power generation may be a reality.

Funding, or lack of developer expenditure, both in the private and public sector continues to plague the geothermal industry. If high front end costs and reservoir uncertainties were overcome, more development in the direct heat application area would certainly occur. Agribusiness applications in the San Luis Valley and commercial and industrial uses in Chaffee County might be expanded.

In addition, certain larger organizations such as the City and County of Denver, Colorado State Department of Corrections and other state owned buildings are interested in developing geothermal (heat pumps or direct thermal) for space and water heating municipal and institutional structures.

Municipal organizations are in different stages of development. The Pagosa Springs heating district and wells are anticipating completion within one year. Ouray and Glenwood Springs are both conducting feasibility studies and investigating funding possibilities.

Based upon the large increases in the pricing of fossil fuels in recent months, alternative energy sources such as geothermal should become increasingly favorable to potential developers or existing installations.

3.0 SUMMARY OF MAJOR FINDINGS AND RECOMMENDATIONS

The major efforts of the Colorado Geothermal Project during the first half of 1980 were concentrated on the Chaffee County report, geothermal leasing progress, outreach activities and updating resource information. It is evident that Colorado has definite geothermal potential. While the high temperature resources of the state, if any, remain to be proven, the low and moderate

temperature potential is relatively abundant in the mountainous portions of the state (Figure 1). Currently, the state's resources are estimated to contain between 5 and 12 quads of energy (Pearl, 1979). As population increases and resultant growth in the state continue, it is anticipated that geothermal energy play a more important role in energy requirements.

Recommendations: The following recommendations are suggested in order to promote the utilization of geothermal energy in Colorado.

- Continuation of federal funding for the state commercialization and resource assessment programs to provide an information source for interested users and developers within the individual states.
- Issuance of federal leases to enable energy firms to conduct further exploration for potential high temperature electrical power generation sites.
- Provide additional front end funding for feasibility and exploration studies for potential development for primarily industrial and municipal users.
- Additional emphasis should be placed on the heat pump application possibilities for individual residential, commercial and industrial applications.
- Department of Energy geothermal publications compiled by state teams and DOE subcontractors should be distributed on a local basis, where developers and consultants may better utilize the information they contain.
- Continuation of existing Department of Energy funding for prospective geothermal developments (User Coupled Drilling Program, Geothermal Loan Guaranty Program, etc.).

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