

meeting in Reno

- FEB 10 GL00719

GEOTHERMAL FEDERAL BUILDING PROGRAM

Introduction

The Energy Security Act, Public Law 96-294, addresses federal buildings, facilities and installations located in geothermal resource areas. Section 642, Subtitle D of PL 96-294 requires the Federal government to consider the option of using geothermal energy or geothermal energy resource in any new federal building located in these areas in the United States are shown in Figure 1.

This plan presents a program, the Geothermal Federal Building Program, which is designed to implement the referenced Public Law in such a way as to take advantage of the technical expertise of existing geothermal programs. This plan defines the objectives of the program, a breakdown of organizations involved in program implementation and their responsibilities. A task description and flow diagram for the program are also presented. Preliminary schedules and cost estimates are also included.

Objective of the Program

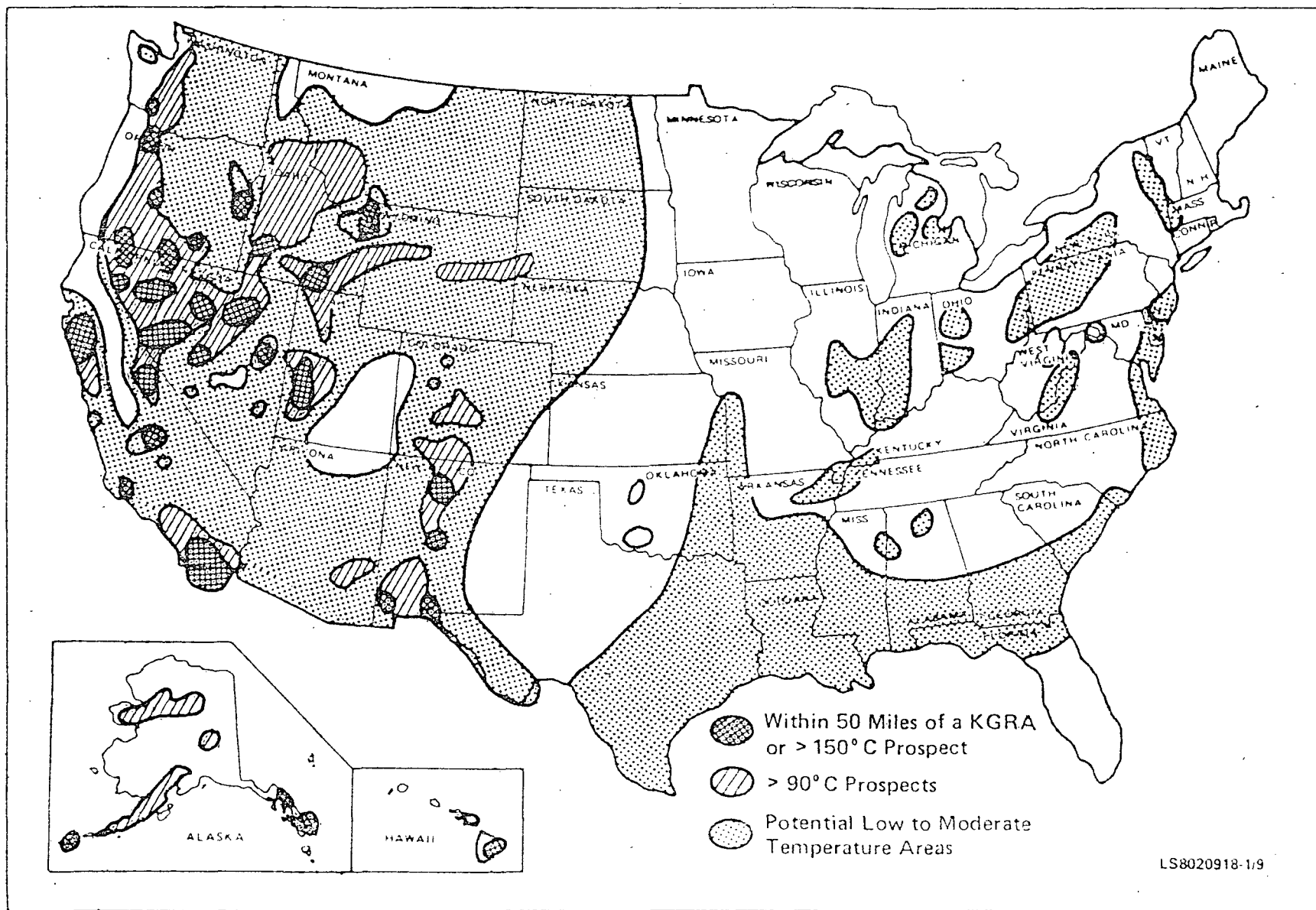
The Geothermal Federal Building Plan's primary objective is to replace the use of fossil fuels in federally owned buildings, facilities and installations with geothermal energy, where such replacement is economically advantageous to the federal agency involved. This objective will be met by determining locations where geothermal resources and federal buildings ^{co exist} both exist, by communicating the co-existence to involved federal agencies and by offering technical assistance to the agencies in evaluating the use of geothermal ^{energy} and in implementing the use of geothermal energy if this option is chosen

Organization and Responsibilities

Primary responsibility for the overall Geothermal Federal Building Program is with the Division of Geothermal Energy (DGE) of the Department of Energy (DOE) in Washington, D.C.

Figure II.1

Known and Potential Hydrothermal Resources



Responsibility for implementing and coordinating the program will rest with the Idaho Operations Office (ID) of DOE. Technical support for ID will be supplied by Idaho National Engineering Laboratory (INEL), the Earth Science Laboratory of the University of Utah Research Institute (UURI), and from the New Mexico Energy Institute (NMEI).

Regional DOE Offices and the State Geothermal Resources and Planning Teams will be utilized as sources of information in their areas, as contact points for Federal Agencies or private sector involvement, and as support for site specific project development.

Program Element Description

Five major program elements are contained in this plan. These elements are shown in Figure 1 and are listed below:

1. Pilot Program
2. Program Implementation
3. Data Base
4. Technical Support
5. Information Transfer

Each of these major elements and their subtasks ^{is} ~~are~~ discussed individually.

PILOT PROGRAM

Primary Functions:

To produce early program results which will be used as "demonstration" projects for the major thrust of the program. The pilot program will also help to get "inputs" from the field as to how the program can best be formulated to assist the federal agencies involved.

Tasks:

- Identify High Potential (Resource) Cities - The experience of the INEL and UURI will be used to identify cities in the United States that are collocated with a geothermal resource considered to have a high potential for use as an energy source. It is expected that approximately 15-20 cities will be identified.
- Match Cities and Federal Buildings - Existing listings of Federal buildings will be matched with the cities identified above. From this matching it is expected that 5-10 potential program participants (agencies with building in the area) will be identified.
- DGE contact with Agencies - DGE, supported by INEL technical expertise, will personally contact the federal agencies involved with the potential sites, explain the Geothermal Federal Building Program, and offer the assistance of the program in performing initial analyses of the technical and economic feasibility of using geothermal energy in their facilities.
- Collect Additional Information - State Resource and Commercialization Teams will be contacted in the areas where positive response is received in the personal contact task. These teams will be used to gather additional information of the local resource, the government facilities and possible additional private sector users of a geothermal development in the area.
- Technical/Economic Scoping Studies - The technical and economic feasibility of using geothermal energy at each selected site will be evaluated. Technical personnel from the INEL and UURI will evaluate the sites using actual facility data (i.e. heat load, weather condition) and all available information on the resource.

*need closer
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of bldg.*

- Present Results to Agencies - The results of the feasibility studies will be presented to the federal agencies involved along with suggestions as to:
 - further studies needed
 - sources of assistance
 - possible scenarios for developing the resource
 - further assistance available through the Geothermal Federal Building Program.
- RFP and Monitoring Functions - Where an agency responds favorably, DGE will offer the assistance of DGE, DOE-ID, the INEL and UURI in such items as: preparing Requests for Proposal (RFP) to developers interested in developing the resource and energy supply system, evaluating responses to the RFP and suggesting candidates for award, monitoring any contracts and work program resulting from the RFP. This work will be funded by the agency involved.

PROGRAM IMPLEMENTATION

Primary Functions:

To develop program implementation options for DOE-HQ review, to implement the Geothermal Federal Building Program, and to monitor individual project status for conformance to program goals and requirements of the Public Law.

Tasks:

- Develop Implementation Options - Program implementation options will be developed under this task. Of primary concern is the source of resource development funding for high potential, economically feasible sites. Should the federal government drill the wells and develop the resource? Are government incentives needed? These are the type of questions that need to be addressed in the option analysis.
- DOE-HQ Alternative - The options prepared above will be presented to the Division of Geothermal Energy with recommendations as to the options that appear to have the greatest potential for bringing geothermal energy on-line.

- Inclusion in Other Federal Programs - Other federal energy programs (such as the Federal Building Conservation Program) will be reviewed. Suggestions as to how the Geothermal Federal Building Program might be integrated into these programs will be prepared for DGE consideration.
- Regulation Preparation - Regulations for the existing Geothermal Federal Building Law (PL 96-294) will be prepared in draft form for review and comment by government agencies and the public sector. Following a comment period, comments will be evaluated, incorporated where appropriate, and final regulations will be prepared and issued. DOE-ID will prepare the draft regulations for Headquarters approval.
- Legislative Support - It is envisioned that some of the implementation options developed above may require new legislative action (i.e. the appropriation of federal monies to aid in the development of geothermal resources). This task shall consist of technical support supplied by DOE-ID to DGE in initiating the legislation, supplying input as needed to the legislative process and the preparation of any regulations needed as a result of new congressional action.
- Program Implementation and Monitoring - Program management functions will be conducted under this task. The management function will serve as overall coordinator of the variety of tasks directly related to specific sites. The manager will coordinate initial feasibility studies and the presentation of data to the agencies involved. RFP preparation proposal evaluation and project monitoring functions will be coordinated under this task.

DATA BASE

Primary Function:

To determine highest priority locations for use of geothermal energy in federal installations.

Tasks:

- ° Resource File - Define what information is needed about individual resources so that they can be cross-matched with federal building energy requirements, i.e., resource characteristics, location, previous development, availability. Collect information.
- ° Building File - Define what information is needed about existing or planned federal buildings so that they can be cross-matched with geothermal resource file, i.e., location, size, number of buildings, heat load, proximity to other potential users. Collect information.
- ° Define Colocation Criteria - Define project priority classifications. Top priority classifications will have characteristics most compatible with overall program goals - reduction of fossil fuel consumption, high potential for further development, high probability of initial development.
- ° Perform Colocation Analysis - Cross-match Resource File with Federal Building File and priority classifications to generate listing of projects for more detailed, site specific feasibility analysis.
- ° Data Base Update and Maintenance - This effort will be aimed at adding new resource information to the data base and monitoring plans for new federal buildings so that the data base is kept current. Colocation analyses will be performed periodically so that new buildings and/or resources are brought into the program.

TECHNICAL ASSISTANCE

Primary Function:

Provide analytical support to Geothermal Federal Building Program.

Tasks:

- Generic Technical/Economic Feasibility Study - Perform analyses necessary to convey technical and economic feasibility overview (generic rather than site specific) of geothermal option to federal agencies and Federal Building Program.
- Site Specific Feasibility Analysis - Perform technical and economic feasibility studies on highest priority projects (determined in Data Base Activities). Additional information needed will be obtained through state resource teams.
- Project Technical Assistance - Provide needed expertise for monitoring commercial contracts during initial development of projects. This task also provides the technical support needed by any federal program developed for the Federal Building Program (i.e., proposal evaluation, contract negotiations, project monitoring).

INFORMATION TRANSFER

Primary Functions:

To establish and maintain a communication system through which Geothermal Federal Building Program Information, including site specific feasibility results, can be transferred to appropriate Federal Agencies and Geothermal Federal Building Program field representatives.

Tasks:

- Develop Communication System - Implementation of the Geothermal Federal Building Program necessitates a two way system of communicating information to and from all Federal Agencies who are responsible for Federal Buildings. Existing channels will be used as much as possible. Where such communication channels do not exist, they will be created.
- General Program Information Transfer - A pamphlet or other forms of documentation describing the Geothermal Federal Building Program's legislated objectives and responsibilities will be produced. The document will be introductory in nature, but will contain results from the generic technical/economic feasibility studies conducted, experiences from the pilot program and recommendations as to how to comply with the intent of the law. The document shall offer the assistance of DGE to any agencies who might want additional information.

The document will be transmitted to all Federal Agencies responsible for Federal Buildings, the regional DOE offices and the State Geothermal Teams.

- Establish Regional Office/State Team Involvement - The intent of this effort is to use the DOE Regional Offices and the State Geothermal Teams as the focal points for information transfer from the Geothermal Federal Building Program to Federal Agencies in the field and from the field to the Program. Responsibilities and operating procedures will be defined with the Regional Office and State Teams (i.e., how to handle questions from the field) and the relationship will be formalized through appropriate documentation. The role of these offices will be communicated to the Federal Agencies contacted through the program.
- Regionalized Information Transfer - Areas or regions of the United States which have recognized high geothermal potential are known or will be identified from the data base. Federal agencies in these areas will be introduced to the existence of the resources and the probable consequences to their building programs due to the intent of the Law. This effort will consist of documenting and communicating this information to the appropriate agencies.
- Project Information Transfer - The results of the feasibility studies conducted on sites identified in the colocation analysis will be communicated to the Federal Agencies (in Washington and the field site) involved. This communication will be both documented and transmitted through direct presentation. Feasibility study results will be presented. Requirements of the Law(s) will be presented as well as the forms of support and assistance available to the agency through the Geothermal Federal Building Program, will also be presented.

Budget Information

The following pages present a cost breakdown for the Geothermal Federal Building Program as developed in this plan. The Pilot Program has a base cost of \$7.8K with additional costs of \$9.3K per project. The Primary Program cost for the first year is \$263.1 with an additional \$11.3K per project. The per project costs in each case mentioned are for technical support and information presentation to the agencies involved. Annual costs after the first year are anticipated to be \$112.5K plus per project costs of \$11.3K (based on unadjusted 1981 dollars).

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	Base	plus	Per Site
Pilot Program	7.8K		9.3K
Program Implementation	105.6K		
Data Base	100.0K		
Technical Support	12.5K		6.3K
Information Transfer	<u>37.2K</u>		<u>5.0K</u>

(Neither program includes Technical Assistance in developing site - \$41K/project.)

*7.8K in Pilot Program from initial planning funds.

Pilot Program - \$7.8K + \$9.3K per project
Primary Program - \$255.3K + 11.3K per project
Total: \$263.1K + project costs

PILOT PROGRAM

◦ Identify Cities	0.5K
◦ Initial Economic Feasibility Study	1.3K
◦ Match Cities, Contact Agencies	6.0K
◦ Collect Site Info (per site)	1.5K
◦ Site Feasibility Study (per site)	6.3K
◦ Presentation of Results (per site)	1.5K
◦ RFP & Monitoring (per site)	41.0K

\$7.8K + 9.3K per site (does not include RFP or project monitoring).

PROGRAM IMPLEMENTATION

°	Develop Implementation Options	14.2K
°	Inclusion in other Federal Programs	8.0K
°	Legislative Support	10.9K
°	Preparation of Regulations for Existing Law	7.5K
°	Program Implementation & Monitoring	<u>65.0K</u>
		105.6K

1st Year - \$105.6K

Each Year - 65.0K

DATA BASE

°	Resource File	40.0K
°	Building File	40.0K
°	Define Colocation Analysis	5.0K
°	Perform Colocation Analysis	10.0K
°	Data Base Maintenance	<u>5.0K</u>
		100.0K

1st Year - 100.0K

Each Year - 30.0K

TECHNICAL SUPPORT

- Generic Feasibility Study 12.5K
- Site Specific Feasibility Study 6.3K
- Project Technical Assistance 41.0K

12.5K + 6.3K/Feasibility Study + 41K/Project Assistance

INFORMATION TRANSFER

°	Develop Communication System	10.9K
°	General Information Transfer	3.8K
°	Workshop for Regional Offices & State Teams	10.0K
°	Transfer of Regionalized Resource Data	12.5K
°	Information Transfer on Individual Sites	<u>5.0K</u>

1st Year - \$37.2K + 5K/project

Each Year - 5.0K/project

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