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SUBMITTED BY THE NEW MEXICO GEOTHERMAL  
COMMERCIALIZATION TEAM

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## Introduction

The New Mexico Geothermal Commercialization Program was developed as a mission-oriented program aimed at accelerating the commercial utilization of geothermal resources. The program provided the U.S. Department of Energy, the State of New Mexico, and the citizens of the state a technical and economic guide for geothermal applications and implementation. This was accomplished by developing market strategies, cultivating public outreach, serving as a broker where appropriate and by providing limited economic and engineering evaluation of specific resource applications.

The State of New Mexico used the Commercialization Program as a means to organize, focus and direct all of the state geothermal research, development and demonstration. This action enhanced geothermal development and was strategic to securing \$1.8 million from the legislature for geothermal demonstrations.

## Prospect Identification

The Commercialization Team identified electrical and direct-use prospects throughout the State. A total of ten sites were classified as inferred electrical grade sites; four sites were classified as potential electrical grade sites; and one site was classified as a proven electrical grade site. Thirty-one sites were classified as direct-use sites: (ten proven, eleven potential and ten inferred).

## Area Development Plans

The Commercialization Team defined one geographical area for which the development and utilization of geothermal energy prospects are likely by the year 2020. The Team developed an Area Development Plan for the Rio Grande Rift throughout its entire length within the state.

### Site Specific Development Plans

The Commercialization Team developed a Site Specific Development Plan for Dona Ana County and identified five other areas as candidates for Site Specific Development Plans.

The Dona Ana Area Development Plan involved the investigation of geography, demography, economy and public perception of geothermal. The energy demand of the area was evaluated for both current and projected needs, and the current and potential geothermal activity was evaluated to these needs.

The five candidate Site Specific Development Areas were evaluated to determine current geothermal applications, anticipated applications, surface and subsurface temperatures, estimated energy potential and estimated geothermal reservoir size.

### Time Phased Project Plans

The State of New Mexico developed and implemented an aggressive geothermal demonstration and commercialization program during the contract period. Over \$1.8 million was appropriated for geothermal demonstrations and over \$1.4 million was expended on geothermal research. The demonstration projects that were funded are:

- Carrie Tingley Hospital
- Senior Citizens Center, T or C
- Rio Del Norte Greenhouse
- SWSH Greenhouse
- L'Eggs Test Well
- University Center
- New Mexico State University Campus Project
- Santa Ana Pueblo Gradient Testing
- Yucca Garden Condominiums
- NMSU Reinjection Well
- Chaffe Geothermal Production Well

Sun Belt Energy's Alcohol Fuel Plant  
Beall Co. of New Mexico Commercial Greenhouse  
Statewide Geothermal Resource Assessment

Final and interim monitoring reports for all completed demonstration projects are on file with the Energy and Minerals Department.

Institutional Analysis

The Commercialization Team reviewed and analyzed numerous institutional issues and constraints including water rights, drilling regulations, environmental regulations and taxes. The Team published "New Mexico Handbook for Geothermal Resource Development - State and Local Government Regulations" in July 1980. The Well Driller's Guide was developed in 1983, but has yet to be published.

The Commercialization Team was instrumental in developing and supporting the New Mexico Geothermal Tax Credit legislation which allows for up to \$60,000 in state tax credit. (Geothermal Tax Credits became effective in 1983.)

Outreach

The outreach efforts of the New Mexico Commercialization Team included identifying geothermal application concepts and potential resource users; identifying potential funding sources by serving as a broker between end-users, government and private resource developers; providing resource and economic feasibility analyses for resource developers and potential end-users; providing engineering and technical assistance to potential end-users; and assisting interested parties in the preparation of research, development and demonstration grant applications. (Detailed outreach information may be found in "State Geothermal Commercialization Programs in Seven Rocky Mountain States", DOE/ID/12101-5, and other semi-annual progress reports filed with DOE).

## Research and Development

The State of New Mexico has been a national leader in the area of state-funded energy research. In the past nine years, New Mexico has funded fifty-one geothermal research projects valued at \$2,340,000. Twenty-five of these projects were either funded or developed during the contract period of the Commercialization Team. Research activities focused mainly upon resource assessment, but also covered environmental and institutional issues, spaceheating, computer modeling, remote sensing and even funding the Regional Operation Research for Development of Geothermal Energy Resources in the Southwest U.S.. The most current research and development activity includes:

Regional Geothermal Exploration in North Central New Mexico  
Monitoring the Environmental Factors Associated with Rankin  
Engines Using Geothermal  
Industry Cost-Shared Resource Evaluation in Dona Ana County  
Remote Sensing as an Exploration Technique  
Geothermal Greenhouse Research Test Facility

Detailed information about New Mexico's geothermal research activities can be requested from the New Mexico Energy Research and Development Institute.

## Conclusions

- The Geothermal Commercialization Program was a success in New Mexico.
- Outreach efforts in New Mexico have raised a positive profile for geothermal direct-use applications and have substantially increased end-user potential.
- A major factor in the Commercialization Program's success in New Mexico was the infusion of state money into resource assessment and demonstrations.

- . The State's Demonstration Program has provided the major impetus to geothermal development in New Mexico.
- . At this time, and in the near future, direct-heat applications are of highest importance to the State.
- . The Commercialization Team's public education efforts helped to temper some of the public's negative views toward the Baca Electrical Generation Geothermal Demonstration.
- . Future federal geothermal commercialization efforts should consider direct funding of the states.
- . The absence of federal geothermal commercialization funds has drastically reduced New Mexico's commercialization efforts.
- . Exploration, well drilling and reservoir delineation technologies have to be improved.
- . Geothermal is currently a viable option for direct use in several regions of New Mexico (especially Dona Ana County) and increased geothermal utilization may be expected once the state's economy improves and the national surplus of natural gas subsides.