Geothermal Energy Leasing on BLM Managed Lands

Geothermal Resource Council 2014
Pre-Meeting Workshop
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U.S. Department of the Interior
Bureau of Land Management
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Presentation Overview

I. Geothermal Laws, Regulations, & Policies

II. Geothermal Leasing
   - Available Land
   - Nomination of Lands
   - Competitive Leasing
   - Noncompetitive Leasing
   - Direct Use Leasing
   - Lease Issuance
### I. Geothermal Laws, Regulations, & Policies

#### Leasing History

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1951</td>
<td>First Geothermal Lease: Property owners convey &quot;Geothermal Kinetics&quot; predecessor interest on 408 acres for all minerals (The Geysers)</td>
</tr>
<tr>
<td>1960</td>
<td>First Electrical Generation: At the Geyser in California. Steam supplied from 1951 Grant of 408 acres.</td>
</tr>
<tr>
<td>1965</td>
<td>First Geothermal Statute: In California to regulate geothermal operations</td>
</tr>
<tr>
<td>1966</td>
<td>Geothermal Steam Act: - Vetoed by Pres. Johnson - DOI rejected Mining Law of 1872 &amp; Mineral Leasing Act as legal basis for exploration &amp; development of geothermal resources - Asserted geothermal resources were water; governed under state water laws</td>
</tr>
<tr>
<td>1970</td>
<td>Geothermal Steam Act: - First Federal Statute providing for geothermal leasing and development - Competitive Leasing in KGRA’s and noncompetitive elsewhere - Identifies resource as geothermal steam, hot water, hot brines et al</td>
</tr>
<tr>
<td>1977</td>
<td>Litigation: ownership of geothermal on SRHA Split-Estate: - U.S. v. Union Oil Company of California - Finds that Geothermal Resources reserved under SRHA as part of “Other Minerals”</td>
</tr>
<tr>
<td>1987</td>
<td>Geothermal Amendments: - Requires DOI – identify significant geothermal features within National Parks</td>
</tr>
<tr>
<td>2001</td>
<td>National Energy Policy: - Earmark $1.2 B from ANWR Leasing to fund renewable energy research - President DOI to determine ways to reduce delays in Geothermal lease processing - DOI &amp;DOE to reevaluate access to federal lands for renewable energy production</td>
</tr>
</tbody>
</table>
I. Geothermal Laws, Regulations, & Policies

- **Geothermal Resource Definition**
  - Natural heat of the earth
  - No real consensus in classification
  - Considered a mineral by federal government but varies from state to state

**Mineral:** Oil, Natural Gas, Helium and Geothermal are classified as minerals (fluid minerals)

**Water:** Transfer medium to bring the resource to the surface where converted

**Sui Generis:** “Constituting a class alone” Cannot be classified as either mineral or water

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**Geothermal Steam Act of 1970**
*(30 USC § 1001 et seq.)*

Geothermal resources means:

1. all products of geothermal processes, embracing indigenous steam, hot water and hot brines;
2. steam and other gases, hot water and hot brines resulting from water, gas, or other fluids artificially introduced into geothermal formations;
3. heat or other associated energy found in geothermal formations; and
4. any byproduct derived from them.
I. Geothermal Laws, Regulations, & Policies

• **National Environmental Policy Act (NEPA)**

• What actions trigger NEPA?
  - Where the BLM manages both surface resources and subsurface resources, as on a BLM geothermal lease, any proposal to develop leasable fluid mineral resources triggers NEPA

• NEPA Requirements
  - NEPA requirements for Geothermal Operations can be different across the BLM
  - There are a variety of ways to comply with NEPA and are dependent on environmental effects and issues associated with the location of the project
  - Either an Environmental Assessment (EA) or an Environmental Impact Statement (EIS) are the most likely instruments
I. Geothermal Laws, Regulations, & Policies

NEPA Compliance

Typical Stages in Geothermal Resource Development Where BLM Conducts Environmental Analysis Required Under The National Environmental Policy Act (NEPA)

**Land Use Plan:** EIS (EA for some limited amendments)
- Broad landscape level analysis focused on planning area

**Leasing:** DNA (based on LUP) or EA

**Exploration Activities** usually EA

**Drilling Permit:** EIS, EA, or DNA

**Field Development:** EIS or EA
- Analysis may focus on overall development proposal with siting of roads, transmission lines, or
- Site-specific analysis focused on development proposals

**Utilization and Production:** Usually EIS
- Power Plant Construction/Operation
I. Geothermal Laws, Regulations, & Policies

• **Programmatic EIS**

BLM and the USFS prepared a joint Programmatic Environmental Impact Statement (PEIS) to analyze and expedite the leasing of BLM- and FS-administered lands with high potential for renewable geothermal resources.

• Covered 11 Western States and Alaska

• Land determined to be open or closed:

<table>
<thead>
<tr>
<th>Land Owner</th>
<th>OPEN (million acres)</th>
<th>CLOSED (million acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLM</td>
<td>113 (81%)</td>
<td>26 (19%)</td>
</tr>
<tr>
<td>NFS</td>
<td>78 (76%)</td>
<td>24 (24%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>191 (79%)</strong></td>
<td><strong>50 (21%)</strong></td>
</tr>
</tbody>
</table>

• **Record of Decision**
  • signed by the Assistant Secretary for Lands and Minerals (DOI) on December 17, 2008
  • amends 114 BLM land use plans

• **Instructional Workshops (Spring 2009)**
  • hosted by BLM and NFS
  • for local offices, state agencies, and stakeholders

**Geothermal Leases – post PEIS**

<table>
<thead>
<tr>
<th>State</th>
<th>Leases Offered</th>
<th>Additional Documents</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DNA</td>
<td>EA</td>
</tr>
<tr>
<td>CA</td>
<td>15</td>
<td>12</td>
</tr>
<tr>
<td>CO</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>ID</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>NV</td>
<td>222</td>
<td>201</td>
</tr>
<tr>
<td>UT</td>
<td>21</td>
<td>4</td>
</tr>
</tbody>
</table>

I. Geothermal Laws, Regulations, & Policies

**NEPA Planning Process**

- **Pre-Plan**
  - Identify issues
  - Develop planning criteria
  - Estimate budget, schedule

- **Collect Inventory Data**

- **Issue NOI to start scoping**

- **Analysis of the Management Situation**
  - Document resources, conditions, uses & current management

- **Scoping Report**
  - Refine issues & planning criteria
  - Develop objective statements & alternatives

- **Draft RMP/EIS**
  - Formulate alternatives
  - Estimate impacts
  - Select preferred alternative

- **Proposed Final RMP/EIS**
  - Incorporate comments
  - Refine as needed

- **Issue NOA for proposed final RMP/EIS**

- **60-day Protest Period; Governor & EPA Review**

- **Resolve Protests**
  - (may issue notice of significant change)

- **Record of Decision**
  - Incorporate comments
  - Refine as needed
  - State Director approves

- **Implement & Manage Adaptively**

**FLOW CHART KEY**
- Public Notice
- Activity
- Public Review
- Analysis/Decisions
II. Geothermal LEASING

Available Land

Geothermal Potential Map of the PEIS Area

Compiled by BLM and Forest Service, in partnership with DOE and US Geological Survey to evaluate leasing on lands with moderate to high potential.

Yellow: BLM
Green: USFS
Orange: NPS
Black: Closed to Leasing
National Geothermal Lease Sales
June 2007 – September 2014

<table>
<thead>
<tr>
<th>State</th>
<th>Number of Leases</th>
<th>Acres</th>
<th>Accepted Bonus Bids ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>California</td>
<td>25</td>
<td>23,970</td>
<td>8,166,366</td>
</tr>
<tr>
<td>Idaho</td>
<td>12</td>
<td>28,170</td>
<td>5,770,992</td>
</tr>
<tr>
<td>Nevada</td>
<td>262</td>
<td>737,197</td>
<td>50,537,511</td>
</tr>
<tr>
<td>Utah</td>
<td>68</td>
<td>216,738</td>
<td>9,547,218</td>
</tr>
<tr>
<td>Oregon</td>
<td>11</td>
<td>41,362</td>
<td>702,755</td>
</tr>
<tr>
<td>Colorado</td>
<td>1</td>
<td>799</td>
<td>29,600</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>379</strong></td>
<td><strong>1,048,237</strong></td>
<td><strong>$74,754,442</strong></td>
</tr>
</tbody>
</table>

First Competitive Sale - June 20, 2007, Salt Lake City
Geothermal Energy

- 17% of U.S. renewable electricity generation
- 0.4% total U.S. electricity supply
- 3,086 MW total installed capacity in U.S.
- 1,300 MW capacity from Federal leases

Geothermal Leases (09/25/2014)

<table>
<thead>
<tr>
<th>State</th>
<th>Leases</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nevada</td>
<td>360</td>
<td>664,165</td>
</tr>
<tr>
<td>California</td>
<td>93</td>
<td>113,089</td>
</tr>
<tr>
<td>Oregon</td>
<td>77</td>
<td>90,542</td>
</tr>
<tr>
<td>Utah</td>
<td>36</td>
<td>86,945</td>
</tr>
<tr>
<td>Idaho</td>
<td>20</td>
<td>51,217</td>
</tr>
<tr>
<td>New Mexico</td>
<td>5</td>
<td>11,670</td>
</tr>
<tr>
<td>Colorado</td>
<td>2</td>
<td>8,353</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>593</strong></td>
<td><strong>1,025,981</strong></td>
</tr>
</tbody>
</table>
Geothermal Leases Issued
FY 1997-2011*

* As of 09/30/2011
GEOTHERMAL LEASE ACREAGE IN EFFECT (000) FY 1997 – 2011*

* As of 09/30/2011
II. Geothermal LEASING

• **Nomination of Lands**

**Nomination Form:** 3203-10
  • One nomination per form

**Maximum Nomination Size**
  • 5,120 Acres (unless includes irregular subdivision)

**Description of Lands Nominated**
  • Public land system (T,R,S, & aliquot part)
  • Fractional interest lands (US mineral ownership as %)

**Nomination Filing Fee** *(43 CFR 3000.12)*
  • $115 per nomination + $0.11 per acre (10/01/2013)

**Block Nominations**
  • Parcels may be sold as a block that could be produced as 1 unit

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**Geothermal Steam Act of 1970**

*Sec. 3 (30 USC 1002)*

• Authorizes DOI (BLM) authority to issue leases for the development of geothermal resources

• Gives right to lessee to develop and utilize the geothermal resources under the provisions of the Geothermal Steam Act
II. Geothermal LEASING

Pending Geothermal Nominations

as of 09/25/2014

<table>
<thead>
<tr>
<th>State</th>
<th>Nominations</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nevada</td>
<td>54</td>
<td>156,924</td>
</tr>
<tr>
<td>California</td>
<td>28</td>
<td>82,902</td>
</tr>
<tr>
<td>Utah</td>
<td>27</td>
<td>65,296</td>
</tr>
<tr>
<td>Oregon</td>
<td>8</td>
<td>20,862</td>
</tr>
<tr>
<td>Idaho</td>
<td>1</td>
<td>3,685</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>118</strong></td>
<td><strong>329,669</strong></td>
</tr>
</tbody>
</table>
II. Geothermal LEASING

• **Competitive Leasing**

**Lands Offered**
- publically nominated lands
- lands identified by BLM motion

**Lease Sale Notice**
Includes:
- Lease sale format
  - oral bidding (competitive bidding)
  - offered to highest qualified bidder
- Lease procedures
- Time, date and place of the lease sale
  - may be held in conjunction with oil & gas lease sale
- Stipulations applicable to each parcel

**Published:**
- 90 days prior to sale
- Notice is posted in the BLM office
  - having jurisdiction over the lands to be offered

**Lease Payments**
Leases will not be issued if any payments are late or incomplete, and the bid is lost. Any money paid will be lost. The parcel may be offered at next lease sale. Payments due include:

Due close of official business on day of sale:
- Competitive Lease Application Fee (43 CFR3000.1)
- First year’s rental
- 20% of bonus bid

Due within 15 calendar days after the last day of the sale:
- Balance of bonus bid
II. Geothermal LEASING

• **Non-Competitive Leasing (Other than Direct-Use)**

Lands Not Sold at Competitive Lease Sale

• **Availability**: period of two years (2-year window)
  
  *Beginning from first business day following sale*

• **Parcel Integrity**: For first 30 days after the sale, applications only accepted for parcels as configured in “Notice of Competitive Geothermal Lease Sale”
  
  *After 30 day (parcel integrity) period applicant may file for any available lands within 2-year window*

• **First-Day Applicants**: All applications for a specific parcel received on first business day after the sale are considered to be simultaneously filed. Successful applicant determined by lottery at end of day

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**Non-Competitive Leasing to a Mining Claimant**

• Submit Form 3200-24a: *Offer to Lease and Lease for Geothermal Resources*
  
  • two copies (one with original signature)

• Provide documentation:
  
  • Mining claim ownership
  
  • Current approved plan of operations for the mine
II. Geothermal LEASING

• **Geothermal Direct Use Leasing**

  • Secretary of Interior may identify lands exclusively for direct use
  
  • File noncompetitive lease application (Form 3200-24a)
  
  • Acreage no larger than reasonably necessary to accommodate intended use
  
  • BLM posts application for 90 days
    
    *If competitive interest or nomination is received for competitive leasing, lands will be offered for competitive sale*
  
  • State, tribal or local governments
    
    *May acquire geothermal leases and use the resource without sale & for public purposes other then commercial generation of electricity* for a nominal fee
II. Geothermal LEASING

• **Lease Issuance**

Applicant must:
- Accept all lease terms
- Make all required payments
- Sign joinder or waiver (if applicable)
- Comply with maximum limit on acreage holdings
  
  51,200 acres in any one state (acreage included in an approved unit agreement, drilling contract, or development contract is not counted)

BLM Must:
- Determine land is available (Obtain consent from USFS if on NF lands)
- Determine that lease will not have a significant adverse impact on any significant thermal feature in specific units of the National Park Service

Lease issued:
- Day BLM signs lease, goes into effect first day of following month.

<table>
<thead>
<tr>
<th>Federal Geothermal Lease Terms</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lease Terms</strong></td>
</tr>
<tr>
<td>Rental</td>
</tr>
<tr>
<td>1st Year</td>
</tr>
<tr>
<td>Years 2 thru 10</td>
</tr>
<tr>
<td>Years 10+</td>
</tr>
<tr>
<td>Royalty</td>
</tr>
<tr>
<td>Years 1 thru 10</td>
</tr>
<tr>
<td>Years 10+</td>
</tr>
<tr>
<td>Direct Use Fee Schedule</td>
</tr>
<tr>
<td>ONRR Regulations</td>
</tr>
<tr>
<td>Inlet Temp - Millions of BTUs</td>
</tr>
<tr>
<td>Inlet Temp - Millions of Gallons</td>
</tr>
<tr>
<td>Sale of Resource</td>
</tr>
<tr>
<td>Byproduct</td>
</tr>
<tr>
<td>Royalty described in MLA or 0% if not listed</td>
</tr>
<tr>
<td>Lease Duration</td>
</tr>
<tr>
<td>10 years</td>
</tr>
<tr>
<td>Lease term extension</td>
</tr>
</tbody>
</table>
BLM Web Sites

Programmatic Geothermal EIS (regulations, maps, etc.)

LR-2000

Geothermal Regulations on Leasing, Development, and Unitization