

**MINERALS MANAGEMENT SERVICE  
WORKSHOP ON VALUATION OF FEDERAL GEOTHERMAL RESOURCES  
SACRAMENTO, CALIFORNIA  
OCTOBER 7, 1999**

**AGENDA**

**Introduction (C. Brook)**

**Purpose of Workshop**

- An open forum for discussion of methods to value geothermal resources that are not subject to a sales transaction—the “no sales” resources
- Modify regulations in 30 CFR § 206.350 *et seq.*

**Reasons for Rulemaking**

- Deregulation of the electric power market
- Concerns of Congress and local governments about reduced royalty receipts
- Assure the public a fair return for its resources

**Rulemaking Procedure**

- Advanced Notice of Proposed Rulemaking
- Notice of Proposed Rulemaking
- Final Rule

**Other MMS Geothermal Initiatives**

- Audits to assure compliance with current valuation regulations
- Geothermal Operational Model to test end-to-end compliance processing (part of MMS’s reengineering effort)
- Geothermal Royalty Compliance Team
  - Members: MMS, BLM, California State Controller’s Office
  - Functions: Review and analyze comments on rulemaking, conduct audits, and develop Geothermal Operational Model

**Example Valuation Methods**

- Modify the existing netback procedure
- Percentage of revenue
- Rate of return (R. Estabrook)
- Equivalent value of displaced conventional fuel

**Participant Presentations**

**Open Discussion**

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3	Christian Okoye	Cal. State Controller's Office	916-327-5055
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5	Roger Henneberger	Geothermex, Inc.	510-527-9876
6	David Kaplan	NCPA	916-446-7979
7	Bill Smith	NCPA	707-987-3101
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11	Kevin Wallace	NCPA	916-781-4230
12	Vincent Donnelly	MMS	303-231-3507
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15	Harry Corley	MMS	202-208-3819
16	Jerry McClain	Cal. State Controller's Office	916-323-1573
17	Rich Estabrook	BLM	707-468-4052
18	Karl Gawell	Geothermal Energy Association	202-944-8564
19	Tom Sparks	Calpine	559-561-0406
20	Jan Smutny-Jones	Independent Energy Producers	916-448-9499
21	Bob Maynard	Perkins Coie-GEA	208-343-3434
22	Frank Misseldine	Oxbow	775-850-2232
23	Dick Thomas	Cal. DOGGR	916-323-1787
24	Brad Onorato	Congressman Thompson	707-226-9898
25	Stever Ponder	FPL Energy	916-449-9596
26	R.D. McCutchen	Caithness Corp.	760-449-2300
27	Barbara LeVake	Calpine	530-673-5237
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29	Ed Robey	Lake Co., CA	707-263-2368
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32	Charles Brook	MMS	303-275-7250
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**GEOHERMAL VALUATION WORKSHOP  
OCTOBER 7, 1999  
SACRAMENTO, CALIFORNIA**

**MINUTES**

The geothermal valuation workshop was held as part of the public comment process in conjunction with Minerals Management Service's (MMS) Advance Notice of Proposed Rulemaking (64 FR 45213, August 19, 1999) on valuing Federal geothermal resources. Its purpose was to provide an open forum for the discussion of methods to value, for royalty purposes, those Federal geothermal resources that are not subject to a sales transaction; that is, the "no-sales" resources. The workshop was announced in the September 15, 1999, *Federal Register* (64 FR 50026).

Thirty-two (32) people attended the workshop, including representatives from industry and industry trade organizations; the Lake County, California, Board of Supervisors; California State Controller's Office (SCO); Bureau of Land Management (BLM); and MMS. All of the industry attendees represented electrical generation interests; no one represented direct use interests.

Charles Brook (MMS) opened the workshop with an explanation of the reasons for the rulemaking and the purpose of the workshop:

- The rulemaking is largely in response to a July 30, 1999, letter to the Secretary of the Interior from 46 members of Congress expressing concern about declining royalties and asking MMS to revisit the current valuation rules. The declining royalties are caused by the operation of the netback valuation procedure on low electricity prices; the low electricity prices are due to deregulation of the California electrical power market beginning in April 1998 and termination of incentive prices under SO-4 contracts.
- The purpose of the workshop was to provide an open forum for the discussion of methods to value the "no-sales" geothermal resources.

Brook also reviewed the goals of new valuation methods--

- the method should derive a value that reflects the resource's market value
- the method should be easy to apply and verify
- the method should ultimately assure the public a fair return for its resource

and the steps involved in promulgating new rules--

- Advance Notice of Proposed Rulemaking with public comment period
- Notice of Proposed Rulemaking with public comment period
- Final Rule

He indicated that the rulemaking could take from 1 to 3 years. He also cautioned that any new rules would be prospective only from their effective date and the current rules would remain in effect until then.

Lake County representatives commented on the serious impact of declining royalties to their county and indicated that netback valuation is no longer reasonable.

Brook then reviewed the other MMS geothermal initiatives (audits and the Geothermal Operational Model) and introduced the interagency Geothermal Royalty Compliance Team.

To begin discussion of alternative valuation methods, Brook offered three example options:

- modify the existing netback procedure
- a percentage of revenue
- equivalent value of displaced conventional fuel

Rich Estabrook (BLM) gave a detailed explanation of a fourth option, the “rate-of-return” method. This method uses iterative discounted cash flow analyses for each the field side and the power plant side of an integrated geothermal/electrical generation project to determine a resource value that yields the same rate of return for both the production field and electrical generation portions of the project. The method establishes the proportional relationship between resource value and price of electricity. The resource value is ultimately expressed as a percentage of electricity price.

An industry representative wanted to know if the “rate-of-return” could be used now under the current regulations. The answer was that it could be used if approved by MMS, but only if the netback was unworkable.

The floor was next turned over to attendee presentations.

Jan Smutney-Jones, representing the Independent Energy Producers, described changes in the electric market and the current market volatility, particularly the causes of the reduced electricity prices in California (expiration of incentive prices under SO-4 contracts, market prices trending towards short-run avoided costs based on cost of natural gas). He urged that any new valuation method incorporate simplicity and transparency.

Bill Smith of Northern California Power Agency (NCPA) reviewed royalty payments at The Geysers, showing the relationship between royalty decline and declining steam production rates and the seasonal fluctuation of royalties owing to seasonal swings of electricity prices (high in summer, low in winter). He commented that the current fears of royalty decline under netback valuation may not be realized in the future.

Don Dame of NCPA discussed the burgeoning NYMEX futures market for electricity. To avoid the sharp fluctuations in monthly electricity prices, he proposed using annual average California-Oregon Border (COB) futures prices to value electricity under the netback procedure.

Steve Eney of NCPA showed that current netback valuation responds well to high electricity prices, thereby generating increased royalties during summer months. He also indicated that the COB futures appears to emulate the California market and stressed that the current drop in royalties results from declining electricity prices. He compared geothermal royalties in California with the state's oil and gas royalties and found that the geothermal effectively pays a greater royalty rate than oil and gas.

Karl Gawell of the Geothermal Energy Association stressed that MMS needed a reasonable basis for a rule change. While sensitive to local governments' royalty losses, he hoped that MMS would not change the current (netback) regulations because they are market-related. He recommended that MMS evaluate the fundamental causes of the royalty decline before initiating a rule change.

The workshop was then opened for general discussion.

Lake County representatives favored the rate-of-return method because of its predictability (it yields more stable royalties). They argued that the netback was too sensitive to electricity prices, particularly low prices, to yield a reasonable value of the resource. They thought that the rate-of-return method would derive values that would otherwise be negotiated in arm's-length geothermal sales contracts and would be easy to verify.

A discussion of netback vs. rate-of-return followed. Comments included:

- The rate-of-return method is similar to the proportion-of-profits method proposed by industry in comments on the current rules. Both relate to netting back to a resource value from the price of electricity.
- The netback is disproportionate to electricity price, whereas the rate-of-return is more linear. A one-half drop in electricity price under netback can result in a 95 percent or more drop in royalties, whereas a one-half drop in electricity price under rate-of-return results in a one-half drop in royalties (confirming Lake County's concerns about the netback).
- The rate-of-return method might lock in a percentage that doesn't reflect actual performance. This problem could be mitigated by periodically recalculating the method, say once every 5 or 10 years.

Other comments revolved around valuation flexibility, with some attendees suggesting abandoning the current ordered benchmark system in favor of more open, even perhaps negotiated, alternative methodologies.

The workshop ended with a brief discussion on extending the comment period to allow time for further analysis and maybe hold another workshop.