DEPARTMENT OF THE INTERIOR

Minerals Management Service

30 CFR Parts 202, 206, 210, 217, and 218

RIN 1010–AD32

Geothermal Valuation

AGENCY: Minerals Management Service (MMS), Interior.

ACTION: Proposed rule.

SUMMARY: The MMS is proposing new regulations implementing the provisions of the Energy Policy Act of 2005 (EPAct) governing the payment of royalty on geothermal resources produced from Federal leases and the payment of direct use fees in lieu of royalties. The EPAct provisions amend the Geothermal Steam Act of 1970 (GSA). The new regulations would amend the current MMS geothermal royalty valuation regulations and simplify the royalty calculations for geothermal resources for leases issued under the EPAct and leases whose terms are modified under the EPAct. The new regulations would also amend various related provisions in the MMS rules.

DATES: Comments must be submitted on or before September 19, 2006.

ADDRESSES: You may submit comments on the rulemaking by any of the following methods listed below. Please use the Regulation Identifier Number (RIN) 1010–AD32 in your message. See also Public Comment Procedure under Procedural Matters:

- Federal eRulemaking Portal: *http://www.regulations.gov*. Follow the instructions on the Web site for submitting comments.
- E-mail: *mrm.comments@mms.gov*. Please include "Attn: RIN 1010–AD32" and your name and return address in your Internet message. If you do not receive a confirmation that we have received your Internet message, call the contact person listed below.
- Regular U.S. Mail: Minerals Management Service, Minerals Revenue Management, Chief of Staff Office—Denver, P.O. Box 25165, MS 302B2, Denver, Colorado 80225–0165.
- Overnight mail, courier, or hand-delivery: Minerals Management Service, Minerals Revenue Management, Building 85, Room A–614, West 6th Ave. and Kipling Blvd., Denver Federal Center, Denver, Colorado 80225.

Information Collection Request (ICR) Comments: Submit written comments by either fax (202) 395–6566 or e-mail (*OIRA_Docket@omb.eop.gov*) directly to the Office of Information and Regulatory Affairs, Office of Management and Budget (OMB), Attention: Desk Officer for the Department of the Interior [OMB Control Number ICR 1010–NEW) as it relates to the proposed geothermal valuation rule].

Please also send a copy of your comments to MMS via e-mail at *mrm.comments@mms.gov*. Include the title of the information collection and the OMB control number in the "Attention" line of your comment. Also include your name and return address. If you do not receive a confirmation that we have received your e-mail, contact Sharron Gebhardt at (303) 231–3211.

You may also mail a copy of your comments to Sharron Gebhardt, Lead Regulatory Specialist, Minerals Management Service, Minerals Revenue Management, P.O. Box 25165, MS 302B2, Denver, Colorado 80225. If you use an overnight courier service or wish to hand-deliver your comments, our courier address is Building 85, Room A–614, Denver Federal Center, West 6th Ave. and Kipling Blvd., Denver, Colorado 80225.

FOR FURTHER INFORMATION CONTACT: Sharron Gebhardt, Lead Regulatory Specialist, Minerals Revenue Management (MRM), MMS, telephone (303) 231–3211, fax (303) 231–3781, or e-mail *sharron.gebhardt@mms.gov*. The principal authors of this rule are Sarah L. Inderbitzin of the Office of the Solicitor and Herb Black of MRM, MMS, Department of the Interior.

SUPPLEMENTARY INFORMATION:

I. Background

A. Pre-EPAct Statutory Provisions and Current Regulations

Under the GSA (30 U.S.C. 1001 *et seq.*) before its amendment by the EPAct (Pub. L. No. 109–58, 119 Stat. 594), geothermal leases were issued with a reserved royalty of not less than 10 percent and not more than 15 percent "of the amount or *value of steam*, or any other form of heat or energy derived from production under the lease and sold or utilized by the lessee * * *." 30 U.S.C. 1004(a) (emphasis added). The leases further provide for a royalty of not less than 5 percent "of the value of any byproduct derived from production under the lease * * *." 30 U.S.C. 1004(b). The GSA further grants the Secretary broad rulemaking authority. 30 U.S.C. 1023. The lease instruments also reserved to the Secretary the authority to establish the value of geothermal production or byproducts for royalty purposes. Under these provisions, the current rules for valuing geothermal resources for royalty purposes at 30 CFR 206.350–206.358 were promulgated in 1991.

Currently, there are 50 producing Federal geothermal leases in Utah, New Mexico, California, and Nevada. These leases comprise 15 electrical generation projects and 2 direct use projects (an onion drying plant and a project that uses geothermal heat to preheat boiler water). Royalty revenues from Federal geothermal leases totaled approximately $11,000,000 in 2004. Fifty percent of those revenues go to the states in which the leases are located (30 U.S.C. 191(a)).

The current royalty valuation methods for geothermal resources are grouped first by usage, *i.e.*, electrical generation, direct use, and byproducts. Within each usage category, valuation methods are grouped by the method of disposition of the resources, *i.e.*, arm's-length (unaffiliated) sales, non-arm's-length sales, and no sales.

In an earlier effort to streamline the MMS geothermal regulations, on October 28, 2004, MMS's Royalty Policy Committee (RPC) formed the Geothermal Valuation Subcommittee (Subcommittee) to address the MMS geothermal royalty valuation regulations in an effort to simplify the regulations and reduce administrative costs to the geothermal industry. The Subcommittee was comprised of members from one industry association, several geothermal producers, two of the major states affected, and MMS employees. A representative of the Bureau of Land Management (BLM) served as technical advisor to the Subcommittee. The RPC requested that the Subcommittee work together to develop more efficient royalty valuation methods that will ensure a fair return to the Federal Government as well as encourage geothermal development. The Subcommittee prepared a report and submitted it to the RPC, and on May 26, 2005, the RPC accepted the Subcommittee's recommendations.

B. The EPAct

On August 8, 2005, the President signed into law the EPAct, Pub. L. 109–58, 119 Stat. 595. Sections 221 through 237 of the EPAct, entitled the "John Rishel Geothermal Steam Act Amendments," amended the GSA, 30 U.S.C. 1001 *et seq.* (1970). Congress enacted the EPAct geothermal amendments to encourage geothermal production through regulatory streamlining and incentives. S. Rep. No. 78, 109th Cong., 1st Sess. (2005).

This proposed rule would implement the EPAct provisions. It also would incorporate most of the Subcommittee's concepts, with modifications necessary to comply with the EPAct. This proposed rule:

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How do I calculate royalty due on geothermal resources I use for direct use purposes? (Proposed § 206.356).

This section would explain how a lessee must calculate royalty on a geothermal resource it uses itself for direct use purposes, i.e., that it does not sell. The Subcommittee recommended that for existing leases, MMS, in consultation with BLM, should develop and publish a royalty schedule every 3 years for lessees to use to determine the royalties due on direct use operations. The Subcommittee also recommended that the royalty schedule be based on the wellhead (inlet) temperature and an "assumed" fixed outlet temperature of 130 °F. In addition, the Subcommittee recommended that the lessee would meter wellhead (inlet) temperature and monthly production and use the published royalty schedule to determine monthly royalties due.

The Subcommittee used the following equation to develop a royalty schedule for determining royalty due as a function of temperature of the geothermal resource used for direct use: where:

$$R_{Tin} = \frac{\rho \times (T_{in} - T_{out})}{e} \times P_{prbc} \times F_{rr}$$

R_{Tin} = royalty due as a function of inlet temperature, $/10^6 gallons
ρ = water density at inlet temperature, lbms/gallon
T_{in} = measured inlet temperature, °F
T_{out} = established proxy outlet temperature 130 °F
e = boiler efficiency factor for coal (75 percent)
P_{prbc} = 3-year historical average of Powder River Basin coal ($/MMBtu)
F_{rr} = lease royalty rate.

However, in the EPAct, Congress did not change the royalty provisions for existing leases. Therefore, for Class I leases, we are proposing to keep the existing regulations with minor plain English modifications.

In § 223(a) of the EPAct, for Class II leases, and § 224(e), for Class III leases, Congress did direct the Secretary to:

Establish a schedule of fees, in lieu of royalties for geothermal resources, that a lessee or its affiliate—

(A) Uses for a purpose other than the commercial generation of electricity; and

(B) Does not sell.

Congress also stated that the schedule of fees:

(A) May be based on the quantity or thermal content, or both, of geothermal resources used;

(B) Shall ensure a fair return to the United States for use of the resource; and

(C) Shall encourage development of the resource.

Thus, in paragraph (b), for Class II and Class III leases, we are proposing that lessees calculate the fee for geothermal resources they use for direct use by multiplying the appropriate fee from the following schedule in subparagraph (b)(1) of this section by the number of gallons or pounds they produce from the direct use lease each month.

DIRECT USE FEE SCHEDULE

[Hot water]

If your average monthly inlet temperature (°F) is		Your fees are . . .	
At least . . .	But less than . . .	($/million gallons)	($/million pounds)
130	140	2.524	0.307
140	150	7.549	0.921
150	160	12.543	1.536
160	170	17.503	2.150
170	180	22.426	2.764
180	190	27.310	3.379
190	200	32.153	3.993
200	210	36.955	4.607
210	220	41.710	5.221
220	230	46.417	5.836
230	240	51.075	6.450
240	250	55.682	7.064
250	260	60.236	7.679
260	270	64.736	8.293
270	280	69.176	8.907
280	290	73.558	9.521
290	300	77.876	10.136
300	310	82.133	10.750
310	320	86.328	11.364
320	330	90.445	11.979
330	340	94.501	12.593
340	350	98.481	13.207
350	360	102.387	13.821

Under subparagraph (b)(1)(i), for direct use lease geothermal resources with an average monthly inlet temperature of 130 °F or less, you would have to pay only the lease rental.

This proposed fee schedule uses the methodology the Subcommittee recommended to develop the schedule of fees, but updated the schedule to reflect current Powder River Basin coal prices. The MMS, in consultation with BLM, also made two modifications to the formula the Subcommittee recommended. First, we expressed royalty due in dollars ($) per million ($10^6$) *gallons* and dollars ($) per million ($10^6$) *pounds* to correspond with BLM geothermal resource measurement requirements in 43 CFR part 3275. We also changed the boiler efficiency factor from 75 percent to 70 percent to correspond to MMS regulations at 30 CFR 206.355(c)(1)(ii). In addition, rather than updating the schedule every 3 years, MMS is retaining the flexibility to, in consultation with BLM, develop and publish a revised fee schedule in the **Federal Register** as needed.

In addition, as the Subcommittee report stated, BLM did a further study

The Subcommittee discussed using binary, coal, and wood chips prices to value geothermal resources. Attachment 4 shows a direct use hypothetical example (10,000 MMBtu/month) that compares the value of Powder River coal spot prices to wood chips and natural gas prices for sample months from 1997 through 2002. After further deliberations, the Subcommittee recommends that the 3-year historical average of published Powder River Basin coal spot price be used to develop the royalty value in the royalty schedule for direct use basically because of its continuity of value and public availability. However, the minimum total royalty paid in any year must be at least the minimum royalty ($2/acre/year (43 CFR § 3211.10)).

The following equation, used to develop the royalty schedule on page 8, shows an example of the calculations for determining royalty due as a function of temperature of the geothermal resource used for direct use:

$$R_{Tin} = \frac{\rho \times (T_{in} - T_{out})}{e} \times P_{prbc} \times F_{rr}$$

where:

R_{Tin} = royalty due as a function of inlet temperature, $/10^6 gallons
ρ = water density at inlet temperature, lbms/gallon
T_{in} = measured inlet temperature, °F
T_{out} = established proxy outlet temperature, °F
e = boiler efficiency factor for coal (75%)
P_{prbc} = 3-year historical average of Powder River Basin coal ($/MMBtu)
F_{rr} = lease royalty rate

Non-arm's-length or no sales situations: (new producing leases): For the first 5 years of production, the lessee would pay royalties on the minimum royalty due ($2/acre). After 5 years, the lessee would determine royalties using the same royalty schedule described above. The minimum royalty payment for the first 5 years would be an incentive to encourage the direct use of geothermal resources. Under this recommendation, the BLM may have to change the lease terms for new geothermal leases to reflect the new minimum royalty requirement for the first 5 years that a lease is in producing status.

Pros:

- Can be accomplished through the regulatory process in approximately 1 year time period;
- Eliminates outlet temperature metering for geothermal resources and thus, reduces metering costs for the lessees. Outlet temperature probes and recorders cost approximately $500 to $2000 each;
- Reduces operating costs--up to $15,000 per computer system/operation--to lessees in direct use operations involving intermittent flow (common in greenhouse or space heating applications). Using the fixed outlet temperature in the royalty

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schedule simplifies thermal energy calculations and largely eliminates the need for a computerized system;

- Provides the lessee a simplified royalty reporting process using a published royalty schedule;
- Makes it easier to verify royalties due and identify possible problems outside of the audit process;
- Reduces audit costs for both companies and the government;
- Establishes more predictable royalty requirements for industry to plan on;
- Produces a more predictable revenue stream for Federal, state and local governments to plan on;
- Encourages development for new leases due to minimum royalty the first 5 years the lease produces;
- May result in increased development for direct use operations and thus, may result in higher revenues to the U.S. Treasury, states and counties in the long term;
- Uses publicly available Powder River coal spot prices to value the geothermal resources. The Powder River coal spot prices are relatively stable;
- Encourages efficient utilization of geothermal resources because of a constant outlet temperature; and
- Encourages the development and use of geothermal resources on public lands for direct use purposes – greenhouses, fish farming, mine operations, building heating, and similar uses.

Cons:

- Using 2004 historical royalty data, this option would reduce royalty revenues by $33,800 to the U.S. Treasury, states, and counties from existing leases;
- May reduce royalty revenues to the U.S. Treasury, states, and counties for new leases during the first 5 years of production due to minimum royalty ($2 per acre per year); and
- Doesn't account for comparable arm's-length sales of geothermal resources to the same direct use facility when the lessee uses geothermal production under non-arm's-length or no sales situations in that same facility.

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Sample Royalty Schedule For Direct Use Geothermal Operations

Assume Lease Royalty Rate: 10%
Royalty Schedule Effective Through: May 31, 2008

If your average monthly wellhead temperature (°F) is above…	*But not more than…*	*Your royalty ($/million gallons) is…*
120	130	1.640
130	140	4.920
140	150	8.200
150	160	11.480
160	170	14.760
170	180	18.040
180	190	21.320
190	200	24.600
200	210	27.880
210	220	31.160
220	230	34.440
230	240	37.720
240	250	41.000
250	260	44.280
260	270	47.560
270	280	50.840
280	290	54.120
290	300	57.400
300	310	60.680
310	320	63.960
320	330	67.240
330	340	70.520
340	350	73.800
350	360	77.800

Royalty due will be the greater of the royalty calculated from this table above or the minimum royalty of $2/acre/year (43 CFR §3211.10). For direct use operations where the average producing wellhead temperature is 120°F or less, minimum royalty is due.

Assumptions:
- Outlet temperature = 120°F
- Value = $0.30/MMBtu (approximate Power River Coal value over past 3 years)
- Boiler efficiency = 75%

Note

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