

## Chapter 2

### Valuation Overview

Royalty valuation of Federal geothermal resources draws its authority from the Geothermal Steam Act of 1970 (30 U.S.C. 1001 *et seq.*) as amended by The Energy Policy Act of 2005 (EPAAct 2005, Sections 221 through 237). The acts provide for payment of royalties to the U.S. Government on the amount, or value, of geothermal resources derived from production under the lease and sold or used, or reasonably susceptible to sale or use, as determined by the BLM. For practical reasons, and unless otherwise permitted by lease arrangements, you pay royalties on the value of produced geothermal resources as follows:

$$\text{Royalty} = \text{Royalty Rate} \times \text{Value of Production}$$

#### NOTE

*For Class 1 leases, the royalty rate provided in the lease term is reduced by 50% for four years on any new production or qualified expansion projects for current leases that do not modify their lease terms to the new calculation method. (See BLM regulations at 43 CFR 3212.18-3212.24.)*

### 2.1 New Royalty Provisions Under the 2007 Regulations

The new regulations in 2007 changed to a new “percentage of gross proceeds from the sale of electricity” royalty method. (43 CFR 3211.17)

- Class 2 and converted non-producing Class 3 leases royalty rates are 1.75% of gross proceeds for the first 10 years, and 3.5% thereafter.
- Current lessees at the time had the option of staying on the current royalty calculation method or converting to the new percentage of gross proceeds method within 18 months of the effective date of the new regulations. This election has expired.
- BLM assigned a lease royalty rate to producing converted Class 3 leases.
- The new lease royalty rate for converted Class 3 producing leases was calculated by BLM such that the royalty revenues received by ONRR should be the same as what would have been received under the former regulations’ valuation methods for 10 years as mandated by the EPAAct 2005.
- Allow all classes of lessees a credit against royalties owed on geothermal resources for delivery of electricity “in-kind” to states and counties that receive a portion of royalty revenues rather than full payment in monies. (30 CFR 1218.306)
- For Class 2 and Class 3 leases that converted their royalty terms, allow credits against royalty payments for annual rentals paid before the first day of the year for which the rental is due. Rentals always due. (30 CFR 218.303) There is no minimum royalty for Class 2 and 3 leases. (43 CFR § 3211.21)
- For Class 2 and Class 3 leases that converted their royalty terms, require payment of advanced royalties for cessation of production. These payments will be credited against royalties owed once production starts again. (30 CFR 218.305)
- For Class 1 lessees only, provide for a 50 percent reduction in royalty, for four

years, on any new production or qualified expansion projects for current lessees that do not modify their lease terms to the new calculation method. (30 CFR 1218.307)

- For Class 2 and Class 3 leases that converted their royalty terms, establish a fee schedule, in lieu of royalties, for lessees that do not sell the geothermal resource and use it for a purpose other than the commercial generation of electricity (direct use lessees). (30 CFR 206.356)
- Lessees have the option to stay on the current royalty method or convert their lease terms to the fee schedule method within 18 months of the effective date of the fee schedule. (43 CFR 3212.25)

You determine the value of production by the regulations in 30 CFR 1206.350–1206.366 and the instructions in this handbook. As used in this handbook, *value of production*, *royalty value*, or simply *value* all have the same meaning and always refer to the value on which you pay royalties.

## 2.2 Applicability of Valuation Standards

The valuation standards and procedures we describe in this handbook apply to the following:

Geothermal resources that you produce from Federal leases that the Bureau of Land Management (BLM) issued under the Geothermal Steam Act.<sup>1</sup>

- Indian minerals agreements that you entered into under the Indian Mineral Development Act of 1982 (25 U.S.C. 2101-2108), by default unless otherwise addressed in the agreement. (See 25 CFR Part 225).

Use these standards and procedures to determine the royalty value of all geothermal production.

“Geothermal Resources,” which the Geothermal Steam Act calls “geothermal steam and associated geothermal resources,” are as follows:

- All products of geothermal processes, including indigenous steam, hot water, and hot brines.
- Steam and other gases, hot water, and hot brines resulting from water, gas, or other fluids artificially introduced into geothermal formations.
- Heat or other associated energy found in geothermal formations.
- Byproducts: Minerals (exclusive of oil, hydrocarbon gas, and helium), found in solution or in association with geothermal steam, that no person would extract and produce by themselves because they are worth less than 75 percent of the value of the geothermal steam or because extraction and production would be too

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<sup>1</sup> The Geothermal Steam Act authorizes the Department of the Interior to issue geothermal leases only on certain Federal lands, namely public domain lands, acquired lands, and lands with minerals reserved to the Federal Government; the act excludes issuance of geothermal leases on Indian lands.

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## 2.3 Geothermal Production Requiring Royalty Valuation

You must determine the value of, and pay royalties on, all geothermal resources—including byproducts—that are either: a) produced from a Federal geothermal lease and sold or used, or reasonably susceptible to sale or use, (see 30 CFR 1202.351) as determined by the BLM or b) avoidably lost, wasted, or drained from a lease.

You also must determine the royalty value of geothermal resources that you avoidably lost, wasted or drained from a lease in the same manner as if you sold or used them, using the valuation standards in 30 CFR 1206.350-1206.366.

You must also pay royalty on insurance or other compensation received for geothermal resources that are unavoidably lost.

You don't determine the value or pay royalty on geothermal resources that are as follows:

- Unavoidably lost, as BLM determines (unless you receive insurance or other compensation as indicated above).
- Reinjecting, as BLM approves.
- Used to generate electricity for internal operations (parasitic electricity) in your own or your affiliate's power plant, or to generate electricity returned to the lease for lease operations; however, if a power plant uses geothermal resources from more than one lease, or uses unitized or communitized production, you may use only that proportionate share of each lease's production—either actual or allocated—royalty free.
- Commercially de-mineralized water used for power plant operations or for lease or unit operations.
- Byproducts placed in stockpiles, added to inventories, or otherwise disposed of without financial benefit to you; byproducts disposed of without financial benefit to you generally include those that are not reasonably susceptible to sale or utilization and those classified as hazardous waste.

### NOTE

*You have an implied obligation to market or use geothermal resources, including byproducts, to the mutual benefit of yourself—as the lessee—and the Federal Government—as the lessor. Disposal of geothermal resources without financial gain to you will incur a royalty obligation when they are reasonably susceptible to sale or utilization. Thus, if you give away geothermal resources for the convenience of disposal, and the recipient secures financial gain or benefit from the disposed resource, you must pay royalty on the value of that disposed resource. Contact ONRR at the address given in Appendix A for a royalty determination if you encounter this circumstance.*

Regulations covering royalty-bearing production appear at 30 CFR 1202.351.

## 2.4 Timing of Valuation and Royalty Payments

Once you place a lease into production, you must report and pay royalties on Form ONRR-2014 for each month's production. Except as described in the following note, this means that you determine value for each calendar month's cumulative production attributable to each sales type code reported on Form ONRR-2014. You must pay royalties by the end of the month following the month of production (30 CFR 1210.353); see Chapter 7 of the *Minerals Revenue Reporter Handbook* for further details.

You do not have to submit a Form ONRR-2014 for months during which you do not produce.

## 2.5 Minimum Royalty

You must satisfy the minimum royalty requirement that the geothermal lease established (usually \$2.00 per acre) each lease year (30 CFR 1202.352). If the royalties paid on monthly production during the lease year are less than the minimum royalty, you must pay the difference to ONRR on or before the expiration date of the lease year (see Geothermal Resources Lease at Sec. 2 and BLM regulations at 43 CFR 3211.21). We allow a grace period only to the last day of the month of the lease year. Report minimum royalty payments on Form ONRR-2014 using transaction code 02.

If near the end of the lease year your projected royalties are less than the minimum royalty you may make an estimated minimum royalty payment to ONRR, and you may recoup any overpayment resulting from the estimated minimum royalty payment. Contact your designated ONRR representative at 1-800-525-0309 for further information regarding minimum royalties and recoupments.

## 2.6 Reporting Codes

When reporting geothermal royalties on ONRR Form 2014, there are product codes, sales type codes, and transaction codes that you must use. Refer to *The Mineral Revenue Reporter Handbook*, Chapter 7 (Geothermal) for detailed reporting instructions.

### 2.6.1 Product Codes

Use the following product codes to report geothermal fluids used to generate electricity (electrical generation resources).

Product code	Description
31	Electrical generation, kWh
32	Electrical generation, thousands of pounds (generally applicable only to dry steam resources)

33	Electrical generation, MMBtu
34	Electrical generation, other measurement unit approved by ONRR
35	Direct use, MMBtu
36	Direct use, hundreds of gallons
37	Direct use, other
38	Commercially demineralized water, reported in hundreds of gallons
41	Sulfur, reported in long tons (replaces product code 19 for geothermal sulfur)
42	Carbon dioxide, reported in thousands of cubic feet (Mcf)
43	Silica, reported in pounds
44	Other geothermal byproduct not listed above; contact MMS for unit of measure
45	Direct use, millions of gallons
46	Direct use, millions of pounds

### 2.6.2 Sales Type Codes

Use the following sales type codes to report royalties on geothermal production

Sales type code	Description
ARMS	Geothermal resources sold under an arm's-length sales contract
NARM	Geothermal resources not sold under an arm's-length contract

You can use sales type codes singularly or in combination, depending on the resource's disposition. Report different sales type codes on separate lines.

### 2.6.3 Transaction Codes

Use the following transaction codes to report geothermal royalties on the value of production or on proceeds associated with production:

Transaction Code	Description
01	Royalty on value of production
02	Minimum royalty payment
03	Estimated royalty payment
04	Rental
05	Recoupable rent
10	Compensatory royalty on value of drained, avoidably lost, or wasted production
11	Byproduct transportation allowances

14	Royalty on severance tax and other production tax reimbursements
16	Direct use fees
32	Advanced royalty payment
33	Advanced royalty recoupment
C1	100% Federal Credit Burden
C2	Shared Credit Burden
C3	State in Lieu Of
C4	County in Lieu Of
53	Royalty on payments or reimbursements for effluent and other fluid injection
54	Royalty on payments or reimbursements for geothermal field operations, other than effluent and other fluid injection

## 2.7 Units of Measurement

The units of measurement used to report royalties are dependent on how the resource is used.

### 2.7.1 Units of Measurement for Electrical Generation

For geothermal resources used to generate electricity and valued under an arm's-length contract, you report production quantities on Form ONRR-2014 in the following units (30 CFR 1202.353(a)):

Contract-Specified Unit of Measurement	Quantity Measured	Sales Volume Reported to ONRR
Thousands of Pounds (Mlb)(PC 32)	1,192,573(lbs)	1,192.57(1000's lbs)
Millions of Btu (MMBtu)(PC33)	34,197,054(Btu)	34.1974(MMBtu)

*Sales Volume Reported to ONRR is in thousands of pounds (Mlb) of steam to the nearest whole thousand pounds, if the contract specifies payment in terms of mass or weight.*

If you use the geothermal resources in your own power plant to generate electricity, you report production quantities on Form ONRR-2014 in the following units (30 CFR 1202.353(b)):

Contract-Specified Unit of Measurement	Quantity Measured	Sales Volume Reported to ONRR
kilowatt-hours(kWh)(PC 31)	38,755.257(mWh)	38,755,257 (kWh)

*Kilowatt-hour (kWh) to the nearest whole kilowatt-hour if the contract specifies payment in*

terms of the generated electricity.

## 2.7.2 Units of Measurement for Direct Use

For geothermal resources used in direct-use processes, you use the following units of measurement to report production quantities on Form ONRR-2014 (30 CFR 1202.353(b)):

Contract-Specified Unit of Measurement	Quantity Measured	Sales Volume Reported to ONRR
Millions of Btu (MMBtu)(PC 35)	34,197,053 (MMBtu)	34,197,053 (MMBtu)
Hundreds of Gallons (PC 36)	57,892,345 (gal)	58 (MMgal)
Geothermal Direct Use Other (PC 37)	None	None

- *Millions of Btu (MMBtu) to the nearest whole million Btu if valuation is in terms of thermal energy used or displaced; this includes the amount of thermal energy displaced for valuation under the alternative fuels method.*
- *Hundreds of gallons to the nearest whole hundred gallons of geothermal fluid if valuation is in terms of volume.*
- *Other measurement units sales contracts might identify or that alternative valuation methods may use; however, you must contact ONRR at the address given in Appendix A for approval of other measurement units.*

## 2.7.3 Units of Measurement for Byproducts

For byproduct minerals **except** sulfur, you use the units of measurement (such as ounces, pounds, or tons) given in ONRR's *Minerals Revenue Reporter Handbook* (30 CFR 1202.353(c)). You report sulfur on Form ONRR-2014 in long tons (2,240 lb.) using product code (PC) 41, carbon dioxide in thousands of cubic feet (Mcf) PC 42, silica reported in pounds (lbs) PC 43, other geothermal byproducts PC44.

## 2.7.4 Units of Measurement for Commercially De-mineralized Water

You report the quantity of commercially de-mineralized water, on which royalty is due, on Form ONRR-2014 in hundreds of gallons to the nearest hundred gallons (PC 38) 30 CFR 1202.353(d).

## 2.8 Quality Measurements

Quality refers to the physical and chemical properties of the resource. You do not report quality measurements to ONRR for geothermal resources or byproducts (30 CFR 1202.353(e)). However, you must maintain quality measurements for audit and valuation purposes, particularly if valuing alternative fuels for direct use resources. Quality measurements include—but are not limited to—temperatures, pressures, enthalpies, and chemical analyses of geothermal fluids or chemical analyses, weight percent, or other purity measurements of byproducts.

## 2.9 General Valuation Principles

Royalty valuation's basis comes from the concept that the best determination of value is the gross proceeds that you generate under an arm's-length contract for the sale or purchase of the resource in marketable condition. Because prevailing market forces determine prices in arm's-length contracts, we view arm's-length prices as the best measure of market value. As a general rule, the prices that you establish in your arm's-length sales contracts—and the gross proceeds that you derive from them—are acceptable for royalty valuation.

If you cannot sell either electricity or the geothermal resource through an arm's length contract you must refer to 30 CFR 1206.352 for the sale of electricity, or 30 CFR 1206.357(b)(2 or 3) for byproduct materials.

If you cannot calculate royalties using gross proceeds from arm's length sales, you can calculate royalties using several methods. For most not-arm's length sales situations in geothermal energy on Federal leases, you will use the netback method, which is explained in detail in Chapter 4. If your situation does not fit into the arm's length or netback category, you may request a valuation determination from ONRR regarding any geothermal resource produced from a federal lease.

### NOTE

*When you sell the resource under a contract, value for royalty purposes can never be less than your gross proceeds accruing under that contract, regardless of the value you compute.*

### 2.9.1 Arm's-Length Contracts

An "arm's-length contract" is a contract or agreement arrived at in the marketplace between independent, non-affiliated persons with opposing economic interests regarding that contract. To be considered arm's length for any production month, a contract must satisfy this definition for that month, as well as when that contract was executed. (30 CFR 1206.351). An Affiliate means a person who controls, is controlled by, or is under common control with another person. Persons who are related either by blood or by marriage are also affiliated. The determination of the term "control" comes from the percentage of ownership of the entity's voting securities or other forms of ownership, as follows:

1. Ownership or common ownership in excess of 50% of the voting securities, or instruments of ownership, or other forms of ownership constitutes control.
2. Ownership of 10-50% of the voting securities, instruments of ownership, or other forms of ownership of another person. ONRR will use the following factors to determine whether there is control under the circumstance of a case:
  - a) The extent of common officers or directors
  - b) With respect to voting securities, or instruments of ownership, or other forms of ownership:, the percentage of ownership in common or common ownership, the relative percentage of ownership or common ownership compared to the percentage(s) of ownership by other persons, whether the person is the



- greatest single owner, or whether there is an opposing voting block of greater ownership
- c) Operation of a lease, plant, pipeline or other facility
  - d) The extent of participation by other owners and day-to-day management of a lease, plant, pipeline, or other facility
  - e) Other evidence of power to exercise control over a common control with another person
3. Ownership of less than 10% creates a presumption of non-control, which ONRR may rebut.
  4. Persons who are related either by blood or by marriage are also affiliated.

If the sales contract fails the arm's-length criteria, then it is "not-arm's-length." You have the burden of demonstrating that your contract is arm's-length. ONRR may require you to certify that the provisions of your arm's-length contract include all of the consideration that your buyer will pay, either directly or indirectly, for the geothermal resource (30 CFR 1206.361(d)).

If you have questions about whether your sales contract is arm's length, contact the ONRR royalty valuation mailbox at [royaltyvaluation@onrr.gov](mailto:royaltyvaluation@onrr.gov).

### 2.9.2 Gross Proceeds

"Gross Proceeds" is the total monies or other consideration that you receive for any disposition of the geothermal resource (30 CFR 1206.351). Gross proceeds includes not only the revenue received under your sales contract, but also non-cash benefits (consideration) accruing both within and outside the sales contract. Thus, gross proceeds includes—but is not limited to—the following:

- Payments to the lessee for certain services such as effluent injection, field operations and maintenance, drilling or workover of wells, or field gathering to the extent that the lessee is obligated to perform such functions at no cost to the Federal Government;
- Reimbursements for production taxes and other taxes. Tax reimbursements are part of gross proceeds accruing to a lessee even though the Federal royalty interest may be exempt from taxation; and
- Any monies and other consideration, including the forms of consideration identified in this paragraph, to which the lessee is contractually or legally entitled but which it does not seek to collect through reasonable efforts.

"Gross Proceeds" can have multiple meanings depending on its context. In most cases, gross proceeds is the product of contract price and quantity (that is, your revenue), as follows:

$$\text{Gross Proceeds} = \text{Contract Price} \times \text{Quantity}$$

In some cases, gross proceeds may refer to a contract price, such as dollars or mills per kilowatt-hour (a mill is one-thousandth of a dollar, or \$0.001). Gross proceeds can also refer to a computed, weighted average price. When you receive other consideration

which would normally be the responsibility of the producer, gross proceeds includes the other consideration; for example:

$$\text{Gross Proceeds} = \text{Contract Price} \times \text{Quantity} + \text{Other Considerations provided to you}$$

You may agree to a reduced price in your sales contract in exchange for the purchaser's maintenance of lease facilities negotiated in a separate agreement. In this situation, your gross proceeds determined from your contract price would be adjusted upwards to reflect the services provided by the purchaser.

If you are aware of any additional consideration occurring outside the sales contract, or you have questions regarding reimbursements or other consideration received under your sales contract, please contact the Royalty Valuation mailbox at [royaltyvaluation@onrr.gov](mailto:royaltyvaluation@onrr.gov). Explain the circumstances under which the consideration occurs, and either propose a valuation procedure or request guidance.

### **2.9.3 Exceptions to Acceptance of Arm's-Length Gross Proceeds**

You are obligated to negotiate contracts in a prudent manner and receive the best possible price to the mutual benefit of yourself and the Federal Government. Although a contract may be arm's-length, two exceptions may negate the acceptance of gross proceeds as value:

1. The contract does not reflect the total consideration passing between the buyer and seller.
2. The gross proceeds does not reflect the reasonable value of the resource because of misconduct by or between you and your purchaser, or because you have otherwise breached your duty to market the production to the mutual benefit of yourself and the Federal Government. Misconduct or breach of duty may include, but is not limited to, collusion between you and your purchaser, negligence in negotiating contracts, or pricing practices found by a court or regulatory authority to be incorrect or fraudulently manipulated.

We may direct you to use other valuation methods if we encounter either of these exceptions. Regulations addressing the acceptability of arm's-length gross proceeds appear at 30 CFR 1206.361 (b)-(f)

### **2.9.4 Marketable Condition and Marketing**

You must place geothermal production in marketable condition at no cost to the Federal Government. *Marketable condition* means lease products that are sufficiently free from impurities and otherwise in a condition acceptable to a purchaser under a sales contract typical for the disposition from the field or area of such lease products.

Placing production in marketable condition includes, but is not limited to:

- Measuring
- Gathering

- Delivery to a power plant, direct use facility, or purchase point
- Liquid-vapor phase separation
- Condensate or moisture removal
- Purification
- Any other physical handling and treatment of the resource necessary to meet the delivery specifications of the contract.

You cannot deduct the costs of placing production in marketable condition.

A sales contract may require you to deliver steam to the inlet of the purchaser’s power plant with specified minimum moisture content. To meet the contract specifications, you construct pipelines to gather and deliver the steam and install moisture separators to purify the steam. Because you are placing the produced geothermal resource in a (marketable) condition acceptable to the purchaser, you cannot deduct the costs of these services from the value.

If your purchaser or another party performs services for you and reduces your gross proceeds accordingly, either through a lower sales price or some other mechanism, you must adjust your gross proceeds upward to offset the reduction.

### Example 2-1

Your contract establishes the following prices and fees per Mlb:

Sales price of steam delivered to the inlet of the purchaser’s power plant	\$ 1.500
Less fees for condensate removal	– 0.050
Less fees for metering and well-control services	– 0.005
<u>Less fees for gathering to the power plant</u>	<u>– 0.150</u>
Net price per Mlb delivered	\$1.295

Although net price (\$1.295) determines your sales revenues, the purchaser’s fees are not allowable deductions in determining your gross proceeds. Thus, the unit value of production for royalty purposes in this example is the full contract sales price of \$1.500/Mlb. Calculate your gross proceeds as follows:

$$\text{Gross Proceeds} = \$1.50/\text{Mlb} \times \text{Mlb Delivered}$$

You cannot deduct the costs of brokering or marketing your geothermal resources from royalty value, whether you perform these services yourself or pay someone else to do them for you.

## 2.10 Audits and Record Keeping

All royalty payments and the information on which you calculate them are subject to audit, review, reconciliation, and monitoring (30 CFR 1206.361). You must maintain

sufficient, verifiable records and data to support your value determinations and royalty payments (30 CFR 1212.351).

### **2.10.1 Approvals**

In situations where you use your own geothermal resources from your lease in your power plant, ONRR must approve any changes you make to depreciation methods and depreciation periods, which are part of your generation and/or transmission deductions under the gross proceeds less deductions royalty calculation method. More information about this method can be found in Chapter 4. You may also request value determinations regarding geothermal resources produced (30 CFR 1206.364), please contact the Royalty Valuation mailbox at [royaltyvaluation@onrr.gov](mailto:royaltyvaluation@onrr.gov).