# "THE ECONOMICS OF ROYALTIES IN THE CASE OF HARD ROCK MINERALS ON PUBLIC DOMAIN LANDS"

STATEMENT OF

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BEFORE

THE SUBCOMMITTEE ON ENERGY AND MINERAL RESOURCES

HOUSE COMMITTEE ON NATURAL RESOURCES

HEARING ON H.R. 2262,

THE HARDROCK MINING AND RECLAMATION ACT OF 2007

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Mr. Chairman, and Members of the Subcommittee:
My name is Salvatore Lazzari. For 28 years I have been an economist at the Congressional Research Service, specializing in energy and natural resource economics and policy, focusing on energy tax policy. Before that I was a business economist for a major corporation in Michigan. I am honored to be here to discuss H.R. 2262, the Hardrock Mining and Reclamation Act of 2007, specifically the proposal to impose an 8% ad-valorem royalty on production of locatable minerals on public domain lands, effective after the date the bill becomes law. As you requested,

I will address the economic aspects of this issue, but keep in mind that CRS takes no position on any legislative options. My statement today addresses the following issues:

- What is a royalty?
- Assuming that a royalty is to be imposed, what is the best way to structure such a royalty? Should the royalty be an ad-valorem type, a fixed unit based royalty, or based on net income or profit? If there is to be an ad-valorem royalty, at what stage should value (or price) be measured, and what deductions, if any, should be allowed?
- What should the royalty rate be? And how do we decide what a fair royalty rate is?
- Finally, what taxes and fees does the hardrock mineral industry pay, and do they have any bearing or implications for royalty determination?

## WHAT IS A ROYALTY?

Part of the problem in deciding how to structure a royalty is confusion over just what a royalty is and what it is not. Economics is very clear on this: A royalty is a factor payment, part of the rent paid, or the return, to land as both a marketable capital asset and input to production. It is a voluntary payment made by the renter of the land to the landowner (whether private or public) in exchange for the flow of services provided by that land over time. Thus, the royalty is analogous to the wage rate, which is a payment for the services of labor, or the interest rate, which is a payment for the services of capital.

Mineral producers, as business organizations, require land, as well as labor, capital, energy, and other materials, in order to establish their enterprise and produce goods and services — minerals that provide utility to consumers. In the typical economic model, just as mineral producers must pay for the services of factors of labor, capital, and other inputs, they must pay landowners for the services of land that contains a mineral deposit. The exception to this rule, of course, has been the case of locatable minerals on public (or federal) lands in the United States, on which royalties are not paid.

In the case of mineral lands, rents could be paid in various forms such as a bonus bid, annual rentals, or a royalty, or in various combinations of these depending on the type of mineral, and whether there is a lease or not, and the contractual agreement between a developer of the resources and landowner. For example, under the Outer Continental Shelf Lands Act of 1953, as amended, the federal government leases the lands for oil and gas development in return for a bonus bid, annual rents, and royalties. Lease sales are conducted through a competitive bidding process, and leases are awarded to the highest bidder, who makes an up-front cash payment called a bonus bid in order to



secure the lease. Annual rents range from $5-$9.50 per acre, with lease sizes ranging form 2,500 to nearly 6,000 acres, and royalty rates are either 12.5% or 16.67%.[1]

These mineral rents are an attempt to capture the returns to the land above and beyond the returns paid to labor (wages), capital (interest), entrepreneurship (profits), and other factors, and above any taxes that have to be paid to government. With perfect knowledge and no risks, for example, the rents resulting from mineral lands could be captured by the landowner as up-front payments — as the price of the mineral rights, for example. However, mineral production, like all business, is risky; it is difficult to know in advance of production precisely the quantity and

[1] U.S. Library of Congress. Congressional Research Service. *Royalty Relief for U.S. Deepwater Oil and Gas Leases.* CRS Report RS22567, by Marc Humphries. August 1, 2007.

quality of the mineral, or the market price that it will sell for in the future. There are long lead times between exploration, discovery, and actual production, and it is difficult to project what mineral prices will be upon production and sale. These and other uncertainties make it risky for both the producer and landowner to predict up front what rents would be earned by mineral lands, and therefore what the mineral producer should pay the landowner. In general, the precise division between a royalty or bonus bids and annual rentals depends primarily upon how production risk is shared between landowner and mineral producer. The royalty becomes a way of allowing for mineral land rents to be paid, for the landowner to earn a return on the land, in a way that simultaneously minimizes the risk of either overpayment or under payment. As a land rental, then, an ad valorem royalty protects the mineral producer against excessive royalty payments (overestimation of rents) and the government against underestimation of economic rents.

Being a factor payment, then, a royalty is not a tax, which is a compulsory levy on individuals and businesses to finance the cost of government for the common welfare and not a return to a factor of production in exchange for specific services provided. This is an important point, one that might be used, for example, to argue against proposals to impose a royalty based on net profits, which would make the royalty more of an income tax rather than a factor payment.[2]

## WHAT WOULD BE THE STRUCTURE OF AN ECONOMICALLY EFFICIENT (AND FAIR) ROYALTY ON HARD ROCK MINERALS FROM PUBLIC DOMAIN LANDS?

As a type of rent, then, the type of royalty that most closely is intended to capture the rents from mineral lands whose future productivity cannot be precisely determined due to risk — variability in price, unknown quality and quality of mineral, etc. — is the ad-valorem royalty. Under such a royalty, all of the rental payments are made in installments over the life of the mine, rather than partially up front, and the rent amounts are based on the amount of the mineral produced, and the market value or price of the mineral at the mine. Lands producing minerals of higher quality and value, gold for instance, pay a higher royalty amount; those producing lower quality or value minerals, lead for example, pay a lower amount. The economic concept of a royalty as a factor payment implies that the payment should be based on the market value of the producer's output, whether it be hard rock minerals, coal, or oil and gas. It would be inconsistent with the concept of sharing and with the concept of a factor payment in a competitive market for a royalty to be based on other than market value minus the costs of obtaining it. For example, if instead of payments in



kind (deer or crops or precious metals) the landowner were to be paid in money, one would expect him to receive the monetary equivalent of the value of the output. Rational landowners would not settle for less than what the deer, crop, or metal is worth because they could always have the deer, crop, or metals taken to market and sold for at least market value. If they wanted less rent, then presumably that would have been negotiated as a smaller share (instead of 1 deer out of 5, it would perhaps be 1 out of 6). Likewise it would not be rational for the renter to pay to the landowner a royalty based on more than market value.

In addition, assessing the royalty on value as determined under present federal income tax laws means that the industry compliance and government administration apparatus would already be in place. Under H.R. 2262, the proposed 8% ad-valorem royalty would be applied to a base called the “net smelter return,” which is defined as the gross income from the property for purposes of determining percentage depletion allowance under IRC§613(c), one of the tax preferences or subsidies available to the mining industry under the federal income tax laws. Under IRC§613, mining companies are allowed percentage depletion, at varying rates, based on the gross income from the property. Under IRC§613(c), gross income for depletion purposes is generally defined as "the actual price for which the ore or mineral is sold where the taxpayer

[2] There are examples of profit sharing, instead of revenue sharing, such as in the movie business. But these reflect the reality that the return to labor (wages) could be paid in different forms.

sells the ore or mineral as it emerges from the mine before application of any processes other than a mining process or any transportation, or after application of only mining processes, including mining transportation." Thus, gross income allows deductions for any costs of non-mining processes but does not allow for deductions for the costs of mining processes, the idea being to arrive at a price or value of the mineral as close to the mine mouth as possible. However, in the event that the firm applies non-mining processes before the mineral is sold, so that the price is not available, then IRS regulations §1.613-4 stipulate the use of the representative market or field price (RMFP, basically the first sales price less all non-mining costs) as an approximation to the actual price. Finally, if an RMFP is not determinable, regulations stipulate one of various other methods to estimate the mine mouth price.

Thus, conceptually, not only is the tax concept of gross income consistent with the concept of mine value or price for purposes of the ad-valorem royalty, it facilitates royalty compliance and administration.

## WHAT WOULD BE THE APPROPRIATE ROYALTY RATE?

With regard to the specific royalty rate, economic theory is less clear beyond the implication that the royalty rate determined in the competitive marketplace is generally the most economically efficient rate — the rate that is most likely to maximize social welfare. In the case of privately owned mineral lands, markets already exist that determine the royalty type and rate for a wide variety of minerals. In most types of private royalty arrangements in the early 1990s (the latest data readily available), the most common type of royalty was the ad-valorem royalty at rates ranging from 2-8%, with an average rate of 5%.[3] In the case of publicly owned lands, laws determine the return on the resources, although competitive market rates may be a determining factor in establishing such rates. Most states with mineral resources imposed ad-valorem royalties at rates ranging from 2-10%.[4] For leasable energy minerals on federal lands, the statutory royalty rates range from 5%-16.67%. For oil



and gas, the royalty rate is either a 1/8 (12.5%) or 1/6 (16.67%) share of the price of the mineral, depending upon whether the oil or gas is shallow (1/6 share because costs are lower) or deep (a 1/8 share because costs are higher). On some leases, the rate could be higher than 1/6. Also, the royalty could be paid "in-kind" (either a 1/8 or 1/6 share of the output rather than of the price). For coal, the royalty rate is either 12% (surface mines) or 8% (underground mines). Note that the 8% ad-valorem rate proposed in H.R. 2262 is the same as the royalty rate on underground coal mines. Even for hardrock minerals on acquired lands (as opposed to public domain lands, which are governed by the 1872 Mining Law), the Congress has established an ad-valorem royalty rate of 5%.[5] Finally, in international lease transactions, mineral royalties are predominantly of the ad-valorem type with rates ranging typically from 2-12%, depending on the country, and the mineral type.[6]

## THE FEDERAL TAX TREATMENT OF THE HARD ROCK MINING INDUSTRY

The U.S. hard rock minerals industry is, in general, subject to the same income tax laws which apply to all other for-profit businesses. In addition, there are three special tax preferences available to the hardrock mining industry generally, as well as to coal mining. First, mining firms are permitted to expense (to deduct in the year paid or incurred) rather than capitalize (i.e.,

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[3] U.S. Department of Interior. *Economic Implications of A Royalty System for Hardrock Minerals.* August 16, 1993.

[4] U.S. General Accounting Office. *Mineral Royalties: Royalty in the Western States and in Major Mineral Producing Countries*. GAO/RCED-93-109. March 1993.

[5] U.S. Department of the Interior. Minerals Management Service. *Mineral Revenues 2000: Report on Receipts from Federal and American Indian Leases.* p.134.

[6] Otto, Andres, Cawood, Doggett, Guj, Stermole, Stermole, and Tilton. *Mining Royalties: A Global Study of Their Impact on Investors, Government, and Civil Society.* The World Bank. 2006.

recover such costs through depletion or depreciation) certain exploration and development (E&D) costs; second, mining firms are also permitted to claim an allowance for depletion based on a fixed percentage of the "gross income" — i.e., sales revenue — from the sale of the mineral rather than on the basis of the actual investment in the mine. For hard rock minerals, these percentages range from 5% (for clay, sand, gravel, stone, etc.) to 22% (for sulfur, uranium, asbestos, lead, etc.). Metal mines generally qualify for a 14% depletion, except for gold, silver, copper, and iron ore, which qualify for a 15% depletion allowance. Under this method, total deductions typically exceed the capital invested. In addition to these two tax subsidies (which are also available for oil and gas production), mining qualifies for a third subsidy. Under IRC §468, mining companies are allowed to deduct the costs of mine closing and land reclamation in advance of the actual closing and reclamation, i.e., before the occurrence of the activity giving rise to the expenses. This provision is contrary to the general tax rule under both the cash method of accounting and the accrual method of accounting, which state that expenses to be incurred in the future cannot be deducted currently.

These special tax preferences or subsidies, combined with accelerated depreciation (a significant tax benefit for highly capital intensive business such as hard rock mining) have historically resulted in relatively low effective average and marginal tax rates. Thus, firms that mine hard rock minerals on public domain lands pay no royalty, and benefit from fairly significant tax subsidies. In addition to reducing federal tax revenues, from an economic point of view, these subsidies have further distorted the economy's allocation of resources. H.R. 2262 does not address the tax subsidies, and the question of whether to impose a royalty is independent of whether to continue to provide or whether to reduce or eliminate these tax subsidies. It is fair to say there is no economic justification, absent a market failure, and based on efficiency considerations, for not



assessing competitive market royalty rate on locatable minerals on public lands.[7] While the royalty question and tax subsidies are separate policy issues, if a royalty is imposed, then the percentage depletion deduction would be reduced. This is because, under IRC§613, royalties and rents are deductible against percentage depletion. To illustrate, at a 22% percentage depletion deduction, and an 8% royalty, the effective percentage depletion deduction would be 20.24%; at a 15% percentage depletion deduction, and an 8% royalty, the effective percentage depletion deduction would be 13.8%. Also, it should be noted that royalties are a tax deductible expense, a cost of doing business, against income, which reduces the effective burden of the royalty.

FEES PAID BY THE HARD ROCK MINING INDUSTRY

Finally, mining companies pay a variety of claims fees (location fees, Bureau of Land Management processing fees, annual maintenance fees). These are charges for specific type of administrative services provided by the BLM. In cases where the title to the lands are conveyed, patent fees (improvement fees and purchase fees) also apply.

[7] Arguments have been made for royalty forgiveness and tax subsidies based on national security. These non-economic considerations are not addressed in this statement.