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## An Outline for Development of Cost-Based State Severance Taxes

Lee Peters

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# AN OUTLINE FOR DEVELOPMENT OF COST-BASED STATE SEVERANCE TAXES

Let there be no mistake—the West will not become an energy colony for the rest of the nation. We will not sacrifice our greatest assets—our blue skies and clear streams, our unblemished plains and mountains—to an endless national thirst for energy.

—Former Governor Jerry Apodaca, State of New Mexico

## I. INTRODUCTION

Energy supply problems in the United States are becoming critical and the national political tempo borders on panic. Crash programs of energy development are being proposed and implemented, many centered on the virtually untapped energy resources of the Rocky Mountain and northern plains states.<sup>1</sup> Energy-consuming states are demanding energy and other resources from these “resource states,”<sup>2</sup> and the resource states are making demands in return. They recognize their responsibility to provide resources to the nation as a whole, but are requiring that the consuming states help in paying for the governmental facilities and services required in the production and conversion of resources. There are considerable direct and indirect costs in the areas of environmental protection, human services, and long-range effects on the economies of the resource states.

The resource states used to be content with the “progress” resulting from development of the resource extraction industry in these states. In recent years, a new states’ rights movement has grown in the resource states, centering on adequate compensation to the citizens of these states for exported resources. A key reason for seeking this compensation is to insure that residents of the resource states do not inordinately foot the bill for resource development. One tool governments of the resource states are beginning to use to meet this goal is the severance tax. Some states are gradually increasing their severance taxes while others have imposed dramatic increases. The state of Montana in the mid-1970s enacted a 30 percent severance

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1. *E.g.*, S. 932, 96th Cong., 1st Sess. (1979).

2. “Resource states” are those which export significant amounts of non-renewable natural resources to other states. Included in this group are Louisiana, Texas, New Mexico, Wyoming, Montana, and North Dakota.

tax on coal,<sup>3</sup> and the neighboring northern plains state of North Dakota enacted a similar tax.<sup>4</sup>

Large increases in severance tax levels will receive close scrutiny by the courts. The Montana tax is presently facing a constitutional challenge by several coal producers.<sup>5</sup> As discussed in the adjoining Comment, the United States Supreme Court appears to be heading in the direction of upholding only a severance tax based on the costs incurred by a state due to resource extraction and conversion.<sup>6</sup> It is not likely that states will be allowed to impose taxes solely for the purpose of acquiring some of the "windfall" to be gained from increasing prices of resources.

This Comment outlines major issues in severance taxation. It touches on purposes, types, effects, administration, imposition, and the incidence (ultimate burden) of severance taxes. The discussion of these topics is not intended to be conclusive, but only to be an introduction to the area. Most of the discussion concerns cost-based severance taxes intended to give states a framework for such a tax in order to withstand constitutional challenges based on violation of the Commerce Clause. There is also a discussion of which costs should be included in the amount to be recompensed by a severance tax.

## II. REASONS FOR SEVERANCE TAXES

A severance tax is levied upon the person extracting a natural resource from the ground, and is imposed at the time and place of extraction.<sup>7</sup> Generally, the tax applies to all resources subject to the tax regardless of the ownership of the land or mineral rights.<sup>8</sup> Most severance taxes take one of two forms. A specific, or per unit, severance tax places a set dollar amount of tax on each unit (ton, barrel, etc.) of the resource mined.<sup>9</sup> An ad valorem excise tax utilizes the sales

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3. Mont. Code Ann. §§ 15-35-101 to -111 (1979). The tax is 30% of the contract sales price for coal of 7,000 or more Btu per pound. *Id.* § 15-35-103.

4. N.D. Cent. Code §§ 57-61-01 to -10 (Supp. 1979). The tax is 85¢ per ton, plus 1¢ per ton for every four point increase in the U.S. Department of Labor's wholesale price index for all commodities.

5. Commonwealth Edison Co. v. Montana, No. 42657 (1st Jud. Dist. July 27, 1979). The court's dismissal of the case, for failure to state a claim, is on appeal to the Montana Supreme Court.

6. In many resource states, energy resources are converted into other forms of energy within those states. Conversion, as well as extraction, produces many adverse consequences and costs.

7. See, e.g., N.M. STAT. ANN. § 7-26-2 to -3, -29-2, -4 (Repl. 1980).

8. See, e.g., *id.* §§ 7-29-2, -4.

9. Steele, *Natural Resource Taxation: Resource Allocation and Distribution Implications*, in EXTRACTIVE RESOURCES AND TAXATION 233, 246 (M. Gaffney, Ed., 1967).

price of the resource as the basis of the tax.<sup>10</sup> Once the sales price is determined, a set percentage tax is applied. Severance taxes are usually levied as set percentages or amounts because of the simplicity of tax administration. Using other methods, such as net income of the extracting firm, can be very complicated because of the amount of data needed for computations of the tax.

Historically, severance taxes have been utilized as a simple payment to the state for the extraction of the state's resources. In the past, severance taxes in the resource states have been relatively low<sup>11</sup> and not related to the financial burden placed on the state from that extraction. Low taxes likely have been more a result of political decisions than of economics. In many situations, states probably imposed severance taxes which were palatable to the extractive industry—high enough to provide some income to state government, but low enough to preclude strenuous objection from mining firms.<sup>12</sup> Severance taxes which are considerably higher than historical levels are a recent development. Resource states are beginning to shun the idea of development at any cost and are turning their attention to protecting their quality of life and to having development pay its own way. A major problem in the past has been that the costs of resource development may have been subsidized by the host state.<sup>13</sup> The resource states neglected to consider long-term economic problems as well as the enormous short-run costs created by extractive activity. Resource states should now expand the purpose of severance taxation to include these costs.

A recent theory of severance taxation, developed for the New Mexico Energy Institute by Professor Charles T. DuMars of the University of New Mexico School of Law and Dr. Lee Brown, Director of the Bureau of Business and Economic Research at the University of New Mexico<sup>14</sup> (hereinafter referred to as the DuMars and Brown study), suggests a state base the tax on current and future costs to the state of resource development, including asset replacement costs. Utilizing this theory would insure that the state of extraction receives sufficient revenue from the severance tax, along with other taxes, to pay those expenses of state and local governments created by the re-

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10. *Id.*

11. Generally, they have been several percent of the value of the resource, or less.

12. See Link, *Political Constraint and North Dakota's Coal Severance Tax*, 31 NAT'L TAX J. 263 (1978).

13. See C. DUMARS & L. BROWN, *LEGAL ISSUES IN STATE TAXATION OF ENERGY DEVELOPMENT* 114 (1979).

14. C. DUMARS & L. BROWN, *LEGAL ISSUES IN STATE TAXATION OF ENERGY DEVELOPMENT* (1979).

source extraction. It would also assure the state adequate compensation for the permanent loss of the irreplaceable resource. This compensation takes, in part, the form of a permanent fund for the state to create other productive economic activity to replace that lost by the removal of resources.

### III. TYPES OF SEVERANCE TAXES AND THEIR EFFECTS

A major problem with the use of a severance tax is the distortionary effect it will have on production and allocation of natural resources. Severance taxes affect the decisions of mining firms as to exploration and development.<sup>15</sup> These taxes may also cause resources to be allocated in a different manner than they would be without the tax. Allocation distortions could occur in the uses of the resources or in the regional distribution of the resources.<sup>16</sup> The effects of a severance tax will differ depending upon the method of imposing the tax.<sup>17</sup>

A specific severance tax will provide a strong incentive for exploitation of high-grade resource deposits, because this type of tax is imposed on the unit amount of mineral or ore extracted.<sup>18</sup> A very simple and unrealistic example will help illustrate this point. Assume a state applies a tax of five cents on each pound of copper. If a high-grade copper ore deposit consists of 1½ percent copper and a low-grade deposit consists of one percent copper, the mining company will usually extract the high-grade deposit first. This process is termed "high-grading." The 1½ percent ore will yield 30 pounds of copper, while 20 pounds will be produced from the one percent ore. Assume that it costs the mining firm \$15 per ton to process the ore to extract the copper from it. (This disregards the possibility that processing costs may be higher for lower quality ores.) The firm's processing cost for the 1½ percent ore is 50 cents per pound of copper, and for the one percent ore is 75 cents per pound. When the tax is added, the result is that it has cost the firm 55 cents per pound for the 1½ percent copper, and 80 cents per pound for the one percent copper. The primary feature of a specific severance tax is that it is imposed on a unit quantity of a resource regardless of the quality of the ore and of

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15. See Lockner, *The Economic Effect of the Severance Tax on Decisions of the Mining Firm*, 4 NAT. RES. J. 468 (1965).

16. *Id.*

17. For a discussion of the economic effects of severance taxes, see Steele, *supra* note 9.

18. *Id.* at 246.

the cost of extracting the resource from the ore.<sup>19</sup> In this example, the amount of tax could make lower grade ores unprofitable to mine. If so, mining companies would bypass lower grade ores for higher grade ores. Lower grade ores may be developed later (when technology or prices rise) or perhaps not at all. If the specific severance tax is applied to a unit of ore extracted rather than mineral processed, the mining firm would consequently pay a higher tax per pound of copper processed from low grade ores than on copper from higher grade ores.

An ad valorem severance tax based on the sales price of the resource will not create the high-grading effects of a specific severance tax.<sup>20</sup> Regardless of the grade of ore from which a resource is processed, the tax per pound of resource is the same. Therefore, as the resource price rises, the ad valorem tax rate is unchanged, but actual revenues collected will rise.<sup>21</sup> Revenues collected under a specific tax depend on quantity produced and are unrelated to price. The rate of a specific tax, as a percentage of value of the resource, will decrease as price of the resource increases.<sup>22</sup> Although the ad valorem and specific severance taxes have different effects on high and low grade ores, they both will encourage the mining of lower-cost ores of equal grade.<sup>23</sup>

A severance tax can be levied in a graduated manner. New Mexico has implemented a multi-tiered tax on uranium, the tax rate depending on the sales price of the uranium.<sup>24</sup> Taxes could be geared to other factors, such as ore grade or processing costs. The same effect of a graduated tax may be obtained through use of a deduction from the taxable base for costs of processing, or similar costs. The effect of a properly set graduated tax would be to lessen the distortionary effects created by a flat amount or percentage tax.

Severance taxes historically have been levied by simple methods, usually as a flat amount per unit or as a flat percentage of value. These simple methods produce revenue with the least administrative ex-

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19. The same principles apply to extraction of other resources. For example, some types of oil pools are easier to recover than others because of the types of rock formation in which they are located, or because of other geologic characteristics.

20. Steele, *supra* note 9, at 246.

21. *Id.*

22. *Id.*

23. *Id.*

24. N.M. STAT. ANN. § 7-26-7(A) (Repl. 1980). One of the reasons for New Mexico's graduated tax was to lessen adverse effects of the tax on existing contracts which set the sale price of uranium at a much lower amount than the market price at the time the new tax rate was enacted.

pense. Much of the problem in setting a severance tax rate arises out of the great variety of production costs incurred by firms in the extraction of the same resource. Unlike manufacturing or other business operations which have fairly uniform costs within the particular industry, the costs of mining natural resources are widely divergent.<sup>25</sup> Mining costs depend primarily on the location and quality of ores and the rate of extraction.<sup>26</sup> An ideal severance tax would account for these cost factors in the rate of amount of tax for each mining firm. Firms with several mines or operations incur different costs among them, and an ideal tax should treat the product of those mines differently. Imposing severance taxes in this manner, however, would be extremely difficult because it would require much administrative time and a vast amount of information.<sup>27</sup> For many reasons, mining companies are reluctant to release information about the costs and profitability of their operations. In order to operate such an ideal severance tax, the state would have to statutorily force mining firms to release financial data.

As a general species of tax, the severance tax tends to produce two major effects—increasing the price of the resource and reducing the amount of resource extracted.<sup>28</sup> The latter is particularly true where another resource can be substituted for the resource taxed.<sup>29</sup> Severance taxes tend to retard extraction because they increase costs of the extracting firms.<sup>30</sup> Therefore, they can be used as a tool to conserve a particular resource unless the market is willing and able to pay the additional costs. The extent of unextracted resources will depend on the tax rate, present and future resource prices, and the cumulative decisions, in response to the tax rate, of mining firms to extract or not to extract. Conservation could produce a social benefit in that resources are left for future generations. Future technology may be able to produce those resources cheaper than present technology.

Severance taxes also operate more harshly against firms with mar-

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25. See Steele, *supra* note 9, at 242-44.

26. Lockner, *supra* note 15, at 469-70.

27. The problems of administering a severance tax imposed on the profitability of each mine, rather than on the quantity of production, could be similar to those of administering the federal income tax. Many statutes, rules, and regulations would be required because of the complexity of determining income and profits.

28. Steele, *supra* note 9, at 246-47.

29. Basic economics dictates that when two resources can be substituted for each other, a substitute resource will be used in place of the original when the cost of the original exceeds that of the substitute. Where there is no reasonable substitute, the resource will have to be used regardless of cost.

30. Steele, *supra* note 9, at 246-47.

ginally profitable mining operations than against firms with lower costs of production.<sup>31</sup> For a marginal firm, the amount of a severance tax could mean the difference between profitable production and going out of business.<sup>32</sup> From a social policy viewpoint, perhaps an inefficient mining operation should be shut down. However, some firms provide a social benefit by producing hard-to-mine resources or using innovative technology, such as tertiary recovery of oil, to produce resources. They should not be harshly penalized by a severance tax.

#### IV. TAXING WINDFALL AMOUNTS FROM MINING OPERATIONS

A prime inducement for increasing severance taxes has been the rapid increase in energy prices in the 1970s. Energy prices in the United States had been artificially depressed for many years through federal legislation. Some claim that energy prices are only now reaching their true market price levels. Others assert that energy companies are receiving large, unearned profits.<sup>33</sup> The possibility of capturing windfall amounts resulting from higher prices motivates many mining firms to extract resources. Any windfall to be gained will vary depending on the costs of producing the resource. This will depend on the type of resource and the method of its production. A low-cost resource may produce a large windfall while a low-grade ore may produce only a small windfall.

A windfall, as used here, is a benefit received beyond the cost or price paid.<sup>34</sup> It is usually in the form of money but it frequently occurs in the form of the benefit received without one's having paid the full price for the item. Resource states are now attempting to capture some of the windfall amounts from their natural resources which have previously gone to private businesses or to out-of-state consumers. Mining firms receive a windfall when they sell a resource at a price greater than their costs plus a reasonable profit. Out-of-state consumers receive a windfall when they pay a smaller price for a re-

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31. *See id.* at 247.

32. If a marginal firm cannot pass on a severance tax through the price of the resource, the severance tax may affect the profitability of the mining operation. Some firms would shut down for this reason.

33. Congress, in April 1980, passed the Crude Oil Windfall Profit Tax Act of 1980, Pub. L. No. 96-223, 94 Stat. 229, in order to capture the unearned amount created by the decontrol of oil prices domestically.

34. This definition of a windfall is akin to an "economic rent" as used by economists. Scarcity of a resource, such as energy fuels, which is fixed in supply may cause the price to increase. The economic rent is the unearned increment that goes to the resource owner. See R. MCKAUS, BASIC ECONOMICS 580-84 (1972). For a discussion of economic rents, see Steele, *supra* note 9.



source than its "real" or market price. When the federal government regulated the price of energy, consumers received a windfall by paying less for energy than they would have if the price had not been regulated. Consumers in energy-producing states also received some windfall amounts, but to a lesser degree than non-producing states' consumers.<sup>35</sup>

The federal government has recently displayed its willingness and ability to exercise its power to tax windfall amounts from resource production. The Crude Oil Windfall Profits Tax of 1980<sup>36</sup> is designed to take windfall profits gained by oil companies and distribute them to the people of the nation through federal programs. Congress determined that oil companies were going to gain huge, unearned profits due to oil price deregulation,<sup>37</sup> and concluded that those profits belonged not to the resource producers but to the "owners" of the resources, the citizens of the nation. In a similar manner, a state could seek to acquire windfall profits from producers, through exercise of its sovereign powers over the resources of the state. In the Windfall Profits Act, Congress allowed the subtraction of state severance taxes on oil from the amount determined to be the "windfall."<sup>38</sup> However, no more than the amount of a state severance tax equal to 15 percent of value is deductible.<sup>39</sup> Furthermore, Congress apparently intended to prohibit state "Mini-Windfall Profits Taxes" on oil.<sup>40</sup> Congress may be indicating that it feels states are entitled to some windfall from resources, but that the amount should be reasonable and limited.

## V. INCIDENCE OF SEVERANCE TAXES

The incidence of severance taxes is an issue currently being debated. The question is who will ultimately bear the burden of a state imposed severance tax. The resource states claim that the tax will be passed on by the mining companies to the ultimate consumers of the

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35. Residents of states in which resources extracted from within their own borders were consumed received the windfall from their own resources. There is only a handful of states which are *net* energy exporters; New Mexico is among them. If residents of a state (e.g., California, Colorado) use more energy than the state produces in the aggregate, then they may receive a windfall from energy originating in other states.

36. Pub. L. No. 96-223, 94 Stat. 229 (1980) (to be codified in scattered sections of 7, 19, 26, 31, 42 U.S.C.).

37. See S. REP. NO. 394, 96th Cong., 2d Sess. 6-7, reprinted in [1980] U.S. CODE CONG. & AD. NEWS 1011, 1015-16.

38. Pub. L. No. 96-223, § 101(a) (§ 4988(a)(2), 94 Stat. 231 (1980) (to be codified as 26 U.S.C. § 2988(a)(2)).

39. *Id.* § 101(a) (§ 4996(c)(3)(A)), 94 Stat. 248 (to be codified as 26 U.S.C. § 4996(c)(3)(A)).

40. See § 101(a) (§ 4996(c)(3)(B)), 94 Stat. 248 (to be codified as 26 U.S.C. § 4996(c)(3)(B)).

resource.<sup>41</sup> The mining industry may claim it will not be able to pass on the amount of the tax in its price for the resource and will be forced to bear the tax, or a significant part of it. The companies may also claim that a high severance tax will severely curtail exploration and development, cause nonextraction of low-grade ores, and possibly put them out of business.<sup>42</sup> If the tax is passed on to consumers, the companies could argue that the resource from the taxing state will become economically uncompetitive with the same resource from other states.<sup>43</sup>

The concept of tax "exporting" has encouraged resource states to set higher taxes on natural resources. Tax exporting occurs when taxes of one state are paid by residents of other states.<sup>44</sup> Therefore, a resource state's residents receive benefits paid for by others. The ability to export a tax is closely tied to the incidence of that tax. A severance tax will generally be paid by consumers, extractors (mining firm owners), or owners of the resource in the ground.<sup>45</sup> The tax burden may fall more on one group than another, depending on the particular situation. Consumers bear the tax burden if the tax is passed on through the cost of the final product derived from the resource. If the tax cannot be passed on, it will be borne by the extractor and by the owner of the resource.<sup>46</sup> When the tax is borne by the owners of the mining firms, the tax could be exported if most of those owners are non-residents of the taxing state.<sup>47</sup> When the tax burden is on the owners of privately-owned land, the tax could be similarly exported.

When a state seeks to export the burden of a tax, it may want to try to determine who will ultimately pay it. A tax borne by extractors could seriously affect mining operations, possibly adversely to the state's interests. However, in some situations it is impossible to determine the incidence of the tax. The state may decide that it is not important who carries the ultimate burden of the tax. It may assume that the tax will be passed on to consumers.

## VI. A MODEL FOR DEVELOPING A COST-BASED SEVERANCE TAX

When considering increasing existing severance taxes or enacting new severance taxes, a state must proceed carefully and with thor-

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41. 1 NEW MEXICO LEGISLATIVE ENERGY COMMITTEE, LEGISLATIVE ENERGY REPORT NO. 2, at 96-98 (1976).

42. *Id.* at 98.

43. *Id.*

44. For a discussion of the theory of tax exporting, see McLure, *Economic Constraints on State and Local Taxation of Energy Resources*, 31 NAT'L. TAX J. 257 (1978).

45. *Id.* at 257.

46. *Id.* at 258-59.

47. *Id.* at 257.

ough deliberation. The state should consider the possibilities and problems discussed in the first part of this Comment. In determining a rate of tax, the state needs to conduct studies and acquire data, thereby building a record sufficient to calculate a tax level. This record will be valuable in defending a legal challenge to the tax.

In order to be constitutionally valid, a state tax appears to have to meet several requirements as set out in decisions of the Supreme Court.<sup>48</sup> In the 1979 DuMars and Brown study,<sup>49</sup> the authors concluded that

[t]he modern constitutional test requires that resource taxes (a) be applied to an activity with a substantial nexus with the taxing state; (b) be fairly apportioned; (c) do not discriminate against interstate commerce; and (d) be fairly related to the protections, benefits and opportunities provided by the state or to the costs imposed on the state. . . .<sup>50</sup>

The study also concluded that

[u]nder the applicable legal standards, the state can base its tax on (a) the actual governmental costs associated with extractive activities, (b) the aesthetic and other damage not compensated for by the actual costs, and (c) the replacement value of the nonrenewable resource being depleted. . . .<sup>51</sup>

DuMars and Brown recommend that state governments gear their severance tax schemes to these requirements and establish a clear and complete factual record of the bases for the tax.<sup>52</sup> The study suggests that a federal court, following the tests set out by the Supreme Court, will require a fairly stringent factual presentation by the state, if a severance tax is challenged on constitutional grounds.<sup>53</sup>

The DuMars and Brown study specifies three types of costs to state government created by resource extraction.<sup>54</sup> First are the direct costs of providing required services, presently and in the future, after the extractive industry is gone but the mining legacy remains.<sup>55</sup> Aesthetic losses and other less tangible "public damages" make up the second type of costs.<sup>56</sup> The most controversial element in deter-

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48. For a full discussion of these cases, see *Comment, Constitutional Limitations on State Severance Taxes*, 20 NAT. RES. J. 886 (1980), *supra*.

49. C. DUMARS & L. BROWN, *supra* note 14.

50. *Id.* at vi.

51. *Id.*

52. *Id.*

53. *Id.* at iv-vii.

54. *Id.* at 82-83.

55. *Id.* at 84-115.

56. *Id.* at 82-83.

mining costs is "asset replacement," based on a "sinking fund" or capital recovery theory.<sup>57</sup>

#### A. Direct Costs Incurred by State and Local Governments

To develop a factual record, DuMars and Brown recommend that a state conduct studies to determine,

- (1) which costs should be compensated;
- (2) what share of those costs should be attributed to the particular mining activity; and
- (3) the extent to which the attributed costs have been paid for through general, nonresource-specific taxes.<sup>58</sup>

Usual costs of governmental operations are not contemplated here, but only the special costs associated with resource development. It may be difficult to allocate many special costs among their sources, but the factual record need not be exact.<sup>59</sup> Taxes levied on mining companies need only be reasonably related to the services provided. Typical special costs are environmental monitoring, highway construction, and special impact problems and services.

Environmental monitoring involves regulation and control of air and water pollution and of solid waste and reclamation of land. Extraction of each particular resource creates its own special environmental problems. Coal and uranium mining create massive air, water, and land reclamation problems which extend far beyond the period of extraction.<sup>60</sup> State government is responsible for dealing with these problems after the resources have been used and the mining industry has left the state. Therefore, a proper cost, in addition to the present costs of control and management, is the present value of future control and management of environmental damage.<sup>61</sup>

Highway construction amounts to a considerable investment by state government.<sup>62</sup> All types of resource extraction involve highway construction and maintenance in order to move people, equipment and ore. Many highways received extensive use and wear due to heavy equipment and loads.

57. *Id.* at 83-84, 115-27.

58. *Id.* at 85.

59. *Id.* at 79-80.

60. 2 NEW MEXICO LEGISLATIVE ENERGY COMMITTEE, LEGISLATIVE ENERGY REPORT NO. 2, at 174-226 (1976). The stripmining of coal in the arid West creates unique and difficult problems of land reclamation. Such costs can be high in dollar terms but, as a percentage of the value of, and benefit from, the coal extracted, may be relatively small.

61. C. DUMARS & L. BROWN, *supra* note 14, at 84-85.

62. *Id.* at 97-103.

Impact costs include schools, hospitals, police and fire protection, water and sewage, and social service needs created by "boomtowns."<sup>63</sup> Rapid development in an area, such as recent exploitation of coal and uranium resources in the West, creates a huge increase in demand for services. Providing these services requires considerable capital expenditures.<sup>64</sup> Local governments must sell bonds, such as general obligation bonds or revenue bonds, to finance many capital projects. The bonds are repaid with local tax revenue or service fees. This type of financing is difficult for many local governments because of revenue limitations.<sup>65</sup> There is also a problem of lag time. While the services and facilities are needed immediately, because of the rapid influx of people, they cannot be provided that quickly.<sup>66</sup> Rapid development also increases the costs of financing capital projects because of risks involved and the demand for capital.<sup>67</sup>

Associated with the boomtown situation are the high costs of vital human services. Probably the largest expense is for public schools, which require both large capital outlay and considerable ongoing expenditures. Hospitals, police, and fire protection must also be provided by the local government. Boomtowns create an unusually high demand for other services, such as welfare payments, child care, and crisis treatment for such problems as drugs and alcohol.<sup>68</sup> State and local governments must provide the necessary services to meet the needs created by the influx of people into the boomtowns.

### B. Public Costs or Damages

Although public damages are felt by everyone in the mining area, this type of cost is difficult to quantify. A major component of public damages is present and future loss of aesthetic value.<sup>69</sup> Damage, temporary and permanent, occurs to the air and the land. Costs of reclamation of land and stabilization of mine wastes can be quantified fairly accurately, once technology is developed.<sup>70</sup> The precise aesthetic losses due to air pollution are elusive,<sup>71</sup> but are no less real.

63. 2 NEW MEXICO LEGISLATIVE ENERGY COMMITTEE, *supra* note 60, at 195-98.

64. C. DUMARS & L. BROWN, *supra* note 14, at 103-09.

65. For example, New Mexico's constitution sets limitations on the bonding capacity of local governments. See N.M. CONST. art. IX, § 10-13.

66. 2 NEW MEXICO LEGISLATIVE ENERGY COMMITTEE, *supra* note 60, at 195-98.

67. See C. DUMARS & L. BROWN, *supra* note 14, at 109-15.

68. See NEW MEXICO STATE PLANNING OFFICE, THE GRANTS URANIUM BELT (1976).

69. C. DUMARS & L. BROWN, *supra* note 14, at 82-85, 115.

70. *Id.* at 93.

71. Measurement of a loss of aesthetic value is subjective in nature. The dollar loss depends on the value people place on clean air, unpolluted water, etc. The aesthetic losses in many areas of the West are intensified because of the proximity of national parks, monuments, and recreation areas.

The pure skies of the West are among the region's greatest assets, both to native people and to visitors from other areas. Destruction of the West's air quality is no less a loss than destruction of the forests or beaches of the eastern states. All users of the natural resources produced in the West should share in the costs of pollution abatement, just as all consumers share in the costs of pollution control equipment at major industrial areas in the nation.

Air, water, and land pollution create far-reaching hazards to the health of area residents. For example, uranium mining releases airborne particles of unknown, but possibly serious, detriment to human health.<sup>72</sup> These adverse effects are also difficult to quantify, but are surely costs to the people of the area. These public damages also should be compensated for. State governments are responsible for providing public health facilities now and in the future. Many of the direct future health costs for state residents will be borne by state government.

### C. Future Costs

When resources are extracted and exported, the resource state also has continuing responsibilities to maintain the mined areas. This is especially true in the case of coal and uranium development. Coal stripmining requires long-term reclamation and maintenance to insure the future productivity of the affected land.<sup>73</sup> The burning of coal to produce electricity, much of which occurs near the strip mines in the West, creates problems of air quality and damage to nearby lands.<sup>74</sup> Uranium mining creates huge amounts of mine tailings, which must be maintained and monitored for many years, as well as substantial air, land, and water quality problems.<sup>75</sup>

### D. Lost Opportunity Costs

Resource extraction is an economic opportunity which delays or forecloses other opportunities. When determining costs for purposes of fixing a severance tax level, lost opportunity costs should be considered. Only those foreclosed opportunities which create actual losses should be recompensed by a tax. In some cases, such as reclamation of stripmined land, the post-mining economic opportunities may be greater than before mining.<sup>76</sup>

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72. See C. DUMARS & L. BROWN, *supra* note 14, at 88-97; 2 NEW MEXICO LEGISLATIVE ENERGY COMMITTEE, *supra* note 60, at 191-94.

73. U.S. ENVIRONMENTAL PROTECTION AGENCY, MONITORING ENVIRONMENTAL IMPACTS OF THE COAL AND OIL SHALE INDUSTRIES 85-92 (1977).

74. 2 NEW MEXICO LEGISLATIVE ENERGY COMMITTEE, *supra* note 60, at 179-80.

75. C. DUMARS & L. BROWN, *supra* note 14, at 86-97.

76. This could occur where lands are reclaimed in such a manner that they are improved.

Uranium mining in the arid West presents a prime example of lost opportunities. In New Mexico, uranium is found primarily in a belt of rock which also contains one of the area's most important aquifers.<sup>77</sup> Before mining occurs the uranium-bearing formation must be dewatered—the water must be pumped out.<sup>78</sup> The mine water is frequently released into previously dry arroyos or other underground formations.<sup>79</sup> Most of this water cannot be put to effective present use in the predominantly agricultural (almost exclusively ranching) area. If the aquifer water is not naturally replaced at the rate it is removed, the effect could be a permanent loss of valuable water to the state. Mining operations occasionally cause aquifers to connect, mixing high quality water with polluted water.<sup>80</sup> The future use of this water could be greatly impaired. The extent of impairment or permanent loss of water, and its effect on future possibilities of economic development,<sup>81</sup> should be recompensed. Uranium consumers presently are benefiting from removing this water.

The demand from other states for energy forecloses other economic possibilities for the resource states. Temporary delays in alternative economic development will not create losses for the resource state. But to the extent resource development permanently forecloses alternatives, the permanent loss should be measured and paid for by consumers of the resources presently extracted.

### *E. Asset Replacement<sup>82</sup> as a Factor in Tax Levels*

The extraction of a non-renewable resource permanently reduces the natural wealth of a state. This permanent reduction is fundamentally different from a renewable resource. A tree cut for lumber will be replaced by another tree. Production of an automobile in Michigan does not permanently reduce the natural wealth of that state. The loss attributable to the extraction of natural resources creates an additional need for reimbursement through the severance tax.

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77. TENNESSEE VALLEY AUTHORITY & U.S. DEPT. OF INTERIOR, FINAL ENVIRONMENTAL STATEMENT, CROWNPOINT URANIUM MINING PROJECT 26 (1979).

78. *Id.* at 65.

79. *See generally* NEW MEXICO ENERGY AND MINERALS DEPT., AN OVERVIEW OF THE NEW MEXICO URANIUM INDUSTRY 96-97 (1979).

80. *Id.* at 97, 104.

81. *See generally*, N. WOLLMAN, THE VALUE OF WATER IN ALTERNATIVE USES (1962).

82. Compensation to the state for asset replacement differs from that for lost opportunity costs. Asset replacement repays the state for the permanent reduction in the value of natural wealth of the state because of the extraction of resources. Compensation for lost opportunities involves the economic development losses resulting from the loss of those resources presently extracted, or from the loss of other resources consumed in that extraction (such as water, air, etc.).

A state is responsible for providing for the well-being of its citizens. One of the methods for doing so is by creating and insuring economic opportunities within the state. The natural wealth of a state is in itself an economic opportunity. When those non-renewable resources are gone, the state must depend on a renewable source of economic opportunity. The creation of non-exhaustible economic opportunities takes money.

A private business firm will use various methods to insure its own continuity. The modern, diverse corporation is a prime example of this. Once an initial capital investment is made, a firm will recoup that investment through the item's lifetime.<sup>83</sup> In recouping the investment, the firm will either reinvest in capital to continue the same business operations or invest in another item or area.<sup>84</sup> A firm may also set aside the recouped investment in a special fund, sometimes referred to as a "sinking" fund, which will be used for capital in a new venture when the present business activity ceases.<sup>85</sup> These methods of replacing capital insure a private firm economic existence and continuity.

The federal income tax incorporates a similar concept in the depletion allowance for mining firms.<sup>86</sup> The tax laws allow an annual deduction from gross mining income to compensate the mineral owner for the gradual reduction of that natural resource. Depletion allowances are usually fixed percentages unrelated to the taxpayer's actual investment in the property.<sup>87</sup> Individual owners of economic interests in a mine's production are entitled to take the depletion allowance to the extent of their interests.<sup>88</sup>

DuMars and Brown state that the natural resources of a state are like its capital stock.<sup>89</sup> Those areas blessed with renewable resources do not have the problem of developing new economic activities. States with economies heavily dependent on non-renewable resource extraction face "ghost town" prospects when those resources are depleted or become uneconomical to mine. The people of the resource states are allowing the resource to be mined. They seek an economic return on that sale just as a private owner receives a return on a resource property she owns.

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83. See C. DUMARS & L. BROWN, *supra* note 14, at 116-18.

84. See *id.*

85. R. ECKAUS, *supra* note 34, at 142.

86. 26 U.S.C. §§ 611-614 (1976 & Supp. II 1978).

87. For major oil companies which produce oil and gas, the depletion allowance depends on adjusted basis in the property. Depletion allowances for other minerals are percentages. See *id.*

88. See *id.*

89. C. DUMARS & L. BROWN, *supra* note 14, at 116.



### F. Accounting for Other Tax Revenues

When determining the costs to be recompensed by a severance tax, the state should account for revenues raised by other taxes on the extractive industry. For example, New Mexico imposes a resources excise tax,<sup>90</sup> an oil and gas emergency school tax,<sup>91</sup> a natural gas processors tax,<sup>92</sup> an oil and gas conservation tax,<sup>93</sup> an oil and gas ad valorem production tax,<sup>94</sup> an oil and gas production equipment ad valorem tax,<sup>95</sup> and property taxes.<sup>96</sup> Some of these taxes are limited in scope and raise funds only for special needs. A state should calculate the revenues collected from other taxes and determine the costs of state and local governments which are paid by these revenues. It is important that severance taxes are not used to cover costs already paid for by other tax revenues. The state should also account for funds received from other governments. The most important of these is the receipt by the state of 50 percent of the royalties received by the federal government on federal lands located in that state.<sup>97</sup>

### G. Allocation of Severance Tax Revenues

The funds raised by the severance tax level representing replacement cost should go to a special permanent fund and should not be used for current expenses of state government. The remaining portion of the severance tax funds should be allocated to current state expenses, since the tax level is partially based on expenses created by resource extraction. The level of the permanent fund created from the severance tax is variable. The DuMars and Brown study recommends that the annual income produced from investment of the permanent fund equal the income lost to the state because the resource is no longer being extracted.<sup>98</sup> In other words, depletion of the resource will reduce the amount of income received by state government. Estimates of lost state income can be made by comparing state revenue with the extractive industry in operation and state revenue without that industry.<sup>99</sup> The resulting amount is the income figure state government must have in order to continue operating at the same level. Of course, many adjustments to this simple income-calcu-

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90. N.M. STAT. ANN. §§ 7-25-1 to -9 (Repl. 1980).

91. *Id.* §§ 7-31-1 to -25.

92. *Id.* §§ 7-33-1 to -22.

93. *Id.* §§ 7-30-1 to -26.

94. *Id.* §§ 7-32-1 to -27.

95. *Id.* §§ 7-34-1 to -20.

96. *Id.* §§ 7-36-22 to -25 (1978).

97. 30 U.S.C. § 191 (1976).

98. D. DUMARS & L. BROWN, *supra* note 14, at 119.

99. *Id.* at 118-21.

lating procedure need to be made. One example of an adjustment is the lesser demand for services because of population which has moved out of the state after resource extraction ends.

Some resource states have already established permanent funds. New Mexico's severance tax permanent fund includes, by statute, all receipts from taxes levied upon natural resource products except the amount necessary to maintain a bonding fund.<sup>100</sup> Other severance tax revenues are used in a fund for capital projects of state government.<sup>101</sup> The moneys in the severance tax permanent fund are invested.<sup>102</sup> The income from these investments is placed into the state general fund to be used for current costs of state governments.<sup>103</sup> The corpus of the permanent fund cannot be used for any other purpose but income-producing investments.<sup>104</sup> This system implements the ideas of allocating some revenues to current expenses while retaining revenues for future permanent uses.

## VII. CONCLUSIONS

Severance taxes are a valuable tool of the resource states in raising state revenue from resource extraction. These states are being tempted to use severance taxes to acquire part of the windfall created from production of resources. This temptation should be resisted in favor of carefully constructed cost-based severance taxes.

Taxation of natural resources should raise funds sufficient to cover the present and future, and direct and indirect, costs created by extraction and production of natural resources. A state should analyze its expenses to determine the bases for setting a severance tax level. Costs to be considered include environmental monitoring, highway construction and maintenance, impact costs of "boomtowns," health and other human services, aesthetic losses and other public damages, and lost opportunity costs. An essential element of recompensed costs is an amount for asset replacement. Asset replacement would implement the concept of repaying the state for its permanent loss resulting from resource extraction. It is necessary in order for the state to adequately provide future economic opportunities and viability for its citizens.

In determining severance tax levels, states should not forget the revenues created by other direct and indirect taxes on the extractive

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100. See N.M. STAT. ANN. § 7-27-2 to -8 (Repl. 1980).

101. *Id.* § 7-24-4.

102. *Id.* §§ 7-27-4 to -5.

103. N.M. CONST. art. VIII, § 10.

104. *Id.* However, the legislature can make appropriations from the severance tax permanent fund by a three-fourths vote of both houses.

industry. Resource states should also consider adverse consequences of a severance tax on the extractive industry. Although it is difficult to predict what adverse effects will result, a state would normally not wish to cause the closure of mining operations due to the level of a severance tax. The state should keep in mind that extractive industries are likely to pass on any taxes they incur. In addition to raising revenue, a severance tax can be used by a state to conserve resources or to slow the rate of extraction, but care must be taken to insure that a severance tax does not render some resources unrecoverable because they are bypassed by the industry through high-grading of ores.

Resource states must bolster their severance taxes against legal attack by basing the taxes on data supported by research and analysis. As discussed in the adjoining Comment, courts will likely require a clear showing that taxes are based on actual costs to the state. Otherwise, a tax may be struck down as unconstitutionally discriminatory, in that a state is held to be unfairly seeking to shift its tax burden to out-of-state residents. It is not likely that an arbitrarily set tax will withstand the constitutional tests. Therefore, it is essential that resource states put considerable effort into developing an adequate record and background for its severance taxes.

There is no claim by the resource states that severance taxes should pay for more than what is attributable to resource development. The problem faced by citizens of the resource states is that they are carrying much of the tax burden of resource development—probably a greater burden than the proportion of benefits flowing from the resources received by those residents. Resource states do not seek to unfairly export their tax burden but only seek to have the costs of resource development paid by those who receive the benefits of the resources. Those benefits are enjoyed by the nation as a whole, and the costs should be allocated accordingly. Governor Arthur Link of North Dakota expressed the concern of the resource states:

We do not have an obligation at our expense to help keep consumers' electricity and gas bills at a minimum in Detroit or Chicago.

...

... [T]he citizens of [the resource states] are making great sacrifices to help this country produce enough energy for the remainder of this century and into the next. . . . The only real security for this state during the era of energy development and beyond is in the form of fiscal stability. On that basis and that basis alone, have we developed a program to tax North Dakota coal.<sup>105</sup>

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105. Link, *supra* note 12, at 267-68.

Fairness is embodied in the Constitution, laws, and people of the United States. Those who benefit from natural resources must pay their fair share of costs, and those who provide the resources should insure that the costs are allocated fairly.

LEE PETERS