
Externalities, Conflict, and Offshore Lands

Resolution Through the Institutions of Private Property

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How should coastal ocean lands be used? The answer to this question has been the source of intense political and legal conflict in recent decades. The ostensible cause of the conflict is the external costs (*externalities*) associated with offshore petroleum development. An externality occurs when petroleum producers engage in activities for which they do not bear the full opportunity costs of their actions. The legitimate concerns about *environmental externalities* are focused most directly on the risks of oil spills arising from blowout accidents on offshore petroleum facilities. Oil spills such as the 1969 Santa Barbara accident are matters of historical record, but it is important to note that since that event most spills have occurred in connection with transportation of crude oil rather than with offshore production operations (Anderson and Leal 2001, 82). Moreover, no serious accident has occurred in connection with exploration and production since the use of blowout-prevention technology has become part of standard universal practice.

A second type of externality appears to account for much of the conflict over the use of these lands. Here, too, one segment of the public is engaging in activities for which the actors avoid bearing the full opportunity costs of their actions: *political externalities* occur because political stakeholders bear little of the opportunity cost of the policies they advocate and succeed in implementing with respect to the use of offshore lands. Thus, government ownership and control have fostered institutions that

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facilitate and aggravate discord. This article proceeds from the premise that both categories of externality are a source of discord and that a reasonable resolution to both can be found in the institutions of private-property rights.

Government Ownership and the Discordance of Current Policy

One might reasonably make the case that modern-day conflict over offshore lands has its origins in the Santa Barbara oil spill, an event that is generally recognized to have imposed genuine environmental externalities. Since that spill, public policy with respect to public offshore lands has been directed toward the implementation of stringent sanctions on petroleum leasing designed to prevent the repetition of such an accident. First, the five-year leasing programs implemented by the federal government include cost-benefit analyses ostensibly to ensure that the social costs do not outweigh the social benefits of leasing. Second, stakeholder participation has been designed to deal with the possibility that the rights and preferences of affected constituencies are not ignored in leasing decisions. The leasing procedure that emerged from this process is routinely implemented within Five-Year Plans mandated by the 1978 Amendments to the Outer Continental Shelf Lands Act (OCSLA). These procedures are designed to assure maximum political participation by all possible stakeholders at the federal, state, and local levels. Also, the Five-Year Plan must satisfy the requirements of Coastal Zone Management Consistency as mandated under the Coastal Zone Management Act. Third, although the petroleum industry has a good record on environmental issues since the Santa Barbara oil spill, legislatures and courts have resorted to broad, sweeping moratoria on leasing in several regions of federal offshore lands, including the federal waters off California.

Cost-Benefit Analysis: Issues of Scientific Legitimacy and Rights

The 1969 National Environmental Protection Act mandates that federal agencies must prepare an environmental impact statement (EIS) “for any major federal action significantly affecting the quality of the human environment” (42 USC Sec. 4321). The Five-Year Plan mandated under the OCSLA lays out planned leasing activity for a particular five-year period—an obvious example of a federal action requiring an EIS. A central element in each EIS done for federal offshore leasing is the assessment of benefits and costs. In principle, cost-benefit analyses are intended to provide decision makers with a supposedly scientifically legitimate estimate of the extent to which the present value of benefits exceeds the present value of estimated social costs. Notice, however, that cost-benefit analysis has never been applied with any particular vigor or rigor to the sweeping moratoria on federal offshore leasing.

In actual practice, cost-benefit analysis tends to serve two distinct purposes: first, it is a pro forma political requirement that must be satisfied before the government

can proceed on some major effort, such as the leasing of federal offshore lands; second, it provides purportedly scientific evidence to support what the government has already decided to do.

Hardly any part of this process, however, is immune from sharp criticism. Issues bearing on the choice of discount rates and methods of aggregation have been perennial sources of controversy in attempts to apply cost-benefit analyses to public decision making (Formaini 1990, 39–65; Lind et al. 1982). Amid this unresolved controversy and criticism, there can be no reasonable assurance of scientific legitimacy. Such assurance can be provided only if the time streams of benefits and costs are objectively measurable. By definition, however, the projects the government undertakes are those that presumably would not be undertaken in response to market incentives, and they necessarily involve sacrifices and presumed benefits that are inherently subjective in nature. James Buchanan observes: “The cost-benefit expert cannot have it both ways. He cannot claim ‘scientific’ precision for his estimates unless he restricts himself rigidly to objectively-observable magnitudes. But if he does this, he cannot claim that his estimates reflect reasonable norms upon which ‘social’ choices should be based” (1969, 60).¹

The blunt reality identified by Buchanan becomes painfully clear when one honestly considers the application of cost-benefit analysis to the presumed benefits associated with activities designed to protect the environment. Environmental amenities, as may be affected by offshore petroleum operations, cannot be defined with sufficient operational precision to warrant the imposition of sweeping regulatory sanctions. Each individual’s reaction to certain features of the environment will define the individual’s perception of what constitutes an environmental amenity. These reactions range from subjective responses to sensory experiences to subjective interpretation of quantitative information. Some individuals may view the absence of unpleasant smells as the principal amenity. Others may focus on some minimum standard of coastal water quality and evidence that subsea wildlife in the area is thriving. For others, the major concern may be the absence of visual blight in the form of offshore facilities. At the same time, certain people may take comfort primarily from an assurance that there will be restitution for damage to property. In other cases, the major source of value may be the knowledge that the risk of an environmental accident has somehow been reduced. Some individuals may find ease of mind in an assurance that no offshore operations exist within so many hundred miles of a certain location. For yet other

1. In *Cost and Choice*, Buchanan catalogs the strict and essentially impossible equilibrium conditions that must be satisfied simultaneously before opportunity cost can be objective and measurable. These conditions include the following: (a) decisions must be made at the margin; (b) decisions must be made on strictly economic or pecuniary grounds (no noneconomic considerations can prompt decisions); (c) no unexploited profit or arbitrage opportunities can exist anywhere in the economy; (d) future prices, costs, and interest rates are viewed with certainty; and (e) decision makers must have no sense of uncertainty regarding the nature of their utility functions (1969, 49–50). The practical implications of Buchanan’s observations are that opportunity costs are always a matter of valuation and, hence, are always subjective in any context.

individuals, environmental enjoyment may be impossible as long as the petroleum industry continues to exist. Where individuals stand in this array of concerns determines what the amenity is for them. Obviously, no objective value with any validity in cost-benefit analyses can emerge from these subjective reactions.²

Moreover, cost-benefit analysis has been criticized because of the conflict between individual rights and the utilitarian ethic that dominates its application. If cost-benefit analyses yield positive results, the property rights of those directly affected by the governmental decision are given, at best, secondary weight. “The doctrine underlying cost-benefit analysis is ethically flawed . . . for its willingness to ‘tradeoff’ values that should be considered absolute. . . . A right is not something that can be assigned on ‘efficiency’ grounds; a right is precisely an individual’s trump against the claims of efficiency, his protection against social utility monsters. . . . [T]he logic of conceiving the regulatory problem as an *ad hoc* ‘social decision’ is very much refractory to the logic of rights” (Langlois 1982, 280, 283, 289). Whether one accepts or rejects criticism of this sort, it is clear that policies undertaken on the basis of cost-benefit analyses can engender social antagonism. Do these issues arise in the context of governmental management of offshore lands, and do attempts to involve so-called stakeholders in public decisions resolve the issue of ignored individual rights?

Political Self-Selection of Stakeholders and Their Participation

One might argue that efforts to involve stakeholders in the offshore leasing process represent attempts to deal with the possibility that individuals’ rights tend to be ignored or overridden by government policies sanctioned on the basis of cost-benefit analyses. For present purposes, however, the important question is: Who is a stakeholder with respect to the use of public lands? Does the category *stakeholder* include all those who feel that they are affected in some way by land-use decisions? Unfortu-

2. One may be tempted to argue that new valuation techniques have overcome this empirical barrier. These techniques have been categorized as *incentive-compatible demand revelation devices* (Mitchell and Carson 1989, 129). Contingent valuation purports to elicit valuations of public goods not traded in markets. The technique employs questionnaires that confront individuals with hypothetical alternatives and ask about willingness to pay or willingness to accept compensation. Murray Rothbard critically observes: “One of the most absurd procedures based on a constancy assumption has been the attempt to arrive at a consumer’s preference scale . . . through quizzing him by questionnaires. *In vacuo*, a few consumers are questioned at length on which abstract bundle of commodities they would prefer to another abstract bundle, etc. Not only does this suffer from the constancy error, no assurance can be attached to the mere questioning of people. Not only will a person’s valuations differ when talking about them than when he is actually choosing, but there is also no guarantee that he is telling the truth” (1997a, 217). *Demand revelation* is intended to disclose the demand for a public good by imposing on the individual voter the net marginal cost to others of including his preference for the good in the collective decision. The charge to cover this marginal cost has been labeled the Clarke Tax (Clarke 1971). However, because costs are subjective, such demand revelation has no hope of being operational. This verdict is borne out by the fact that, in practice, the Clarke Tax has never been used (Foldvary 1994, 19). These barriers to valuation also invalidate the application of pollution taxes or judicial assignment of property rights; both are devoid of an operational foundation on which to deal with the trade-off at issue.

nately, there is no unambiguous answer to these questions. Does the category refer to peoples' mental state of being traumatized by the loss or the prospective loss of property or amenities? Or does it refer to the irritation, petulance, or anger experienced by people who simply harbor negative feelings toward the petroleum industry? Inclusion of the latter category of people in the allocative decisions for offshore lands may and often does embroil an electorate in political conflict over alternative uses of offshore lands. Once a large number of people define themselves as parties who care about an issue or as affected parties, politicians and policymakers feel assured that they are dealing with a public-good issue that requires sweeping sanctions (Hoppe 1993, 7–8). The more people care about the actual or possible consequences of an event and express that caring through political agitation, then the more clearly policymakers feel justified in viewing the issue as one that warrants government intervention (Lewin 1982, 207).³

Federal legislation not only has fostered the creation of institutions that facilitate public participation by stakeholders, but also has created its own legal framework within which political conflict over the uses of government-owned offshore lands is waged. The Coastal Zone Management Act of 1972 assures significant participation by the residents of the respective coastal states. The act provides grants-in-aid to coastal states for development and implementation of coastal zone management programs. But the act also has provided these states with a means to impede or delay federal offshore leasing. For example, lessees must obtain a federal consistency certification to undertake activities that may affect land or water use in the area designated as its "coastal zone." The certification establishes that the activity to be undertaken by the lessee accords with the program established by the respective states. Not surprisingly, the programs established by the states are necessarily tailored to the political demands of constituent stakeholders.

Unfortunately, no criteria other than political self-selection are used to determine who has a legitimate stake in policy decisions. The ranks of stakeholders are populated by voters with diverse and subjective views on what constitutes an environmental amenity and the way in which they are affected by its presence or absence. Does this political process take the focus off actual environmental issues and, instead, motivate allocative decisions on the basis of the political unpopularity of fossil energy sources or ill will directed at the petroleum industry? Is this approach to environmental policy aimed at dealing with external costs or with the mollification of a certain self-selected political constituency? The answers to these questions seem obvious. Although the approach to policy just described would seem to embrace the essence of democratic participation, the discussion here notes that this participatory process has

3. The theory of public goods seems to necessitate an interventionist role for government in dealing with environmental externalities affecting large numbers of people. According to Hülsmann, "The original purpose of public-goods theory was to establish a rational criterion for government intervention. The whole point of the public-private distinction was to delimit the conditions under which it is useful or necessary that government take action" (1999, 17).

little to do with rational environmental policy or with the commitment of resources to their highest valued use.

Leasing Moratoria as Acts Imposing Externalities

Environmental conflicts involving petroleum development have been dealt with but not necessarily settled by sweeping moratoria involving hundreds of thousands of acres. Unfortunately, political advocates of these policies are unencumbered by the opportunity costs of these sanctions. In this sense, the moratoria impose major political externalities. In other words, the economic experience of choosing and hence forsaking the value of the next most highly valued opportunity never impinges on the actions of nonowning bureaucrats, politicians, or environmentalists seeking to foreclose certain uses of public lands (Anderson and Leal 2001, 79). Political conflict arises because the weighing of opportunity costs plays no role in settling environmental disputes arising between stakeholders who endeavor to foreclose petroleum development and those who would voluntarily bear the opportunity costs of developing offshore petroleum resources. Hence, self-selected stakeholders have incentives to become extremist in that they have an incentive to exaggerate preferences and overstate claims because whatever the benefits of foreclosing exploration and development, these benefits are provided as a “free good” through the process of political control (Epstein 1995, 301). “[I]f a person can gain by blocking socially useful resource moves through governmental means, then his gain is society’s loss. Similarly, if potential users can gain access to the resource through government without paying the opportunity costs of the resource, then low-valued uses may dominate at the expense of more highly valued uses” (Stroup and Baden 1983, 9).

Through a political process, prospective voters define themselves as stakeholders whose notions about appropriate federal-land use become the object of pandering behavior by hopeful politicians seeking election. Because the trade-off between petroleum development and so-called environmental amenities is dealt with through a political process, the actual nature or extent of this trade-off is largely ignored. What is being expressed through the political process often has little to do with demonstrable or provable damage to person or property. Rather, what is expressed is an attitude vented as adversarial political pressure brought to bear on the legislative and regulatory organs of government. This attitude has taken the form of general animosity toward the petroleum industry as a whole rather than of an objection to particular activities in the industry. Because leasing moratoria cover large regions with no allowance for even small amounts of development, political free riders can easily impose external opportunity costs on society. In the case of leasing moratoria, “the present process of decision making treats the value of [the] first acre of public land as the same as the value of the last, making it impossible to acquire information as to the *marginal value* of each acre in its alternative uses” (Epstein 1995, 302, emphasis in original).

The political externalities imposed through political mandates are an ethical red flag with respect to the impact on the rest of economic society. Although this article

focuses on the uses of federal offshore lands, it is certainly no exaggeration to note that all lands under federal control are potential or actual objects of environmental conflict because those who advocate and impose so-called protective measures for the most part escape the burdens associated with prescriptive regulatory policies. Moreover, these conflicts are not unique to federal lands. Any government-owned land inherently becomes the object of conflict with respect to its alternative uses.⁴ In other words, the nature of the conflict explored here pertains to government-controlled lands in general and is not limited to environmental issues.

Costly sanctions are imposed without any framework for ranking uses of public land and for assuring that the moratoria represent the highest valued use for the offshore lands. How might the federal government make such choices in a way that actually weighs opportunity costs? The short but complete answer to this question is that it cannot. Because the land is under government ownership and control, the question has no coherent or operational answer. The actual opportunity costs can never become part of the decision to commit resources to a particular use rather than to another. The requisite sacrifice associated with chosen uses of these resources cannot be borne fully by those presuming to impose decisions with respect to alternative uses. One need scarcely note that if political proponents of moratoria were to bear the opportunity costs of these actions, offshore tracts of land would assuredly be allocated to their highest valued use. But because proponents of leasing bans do not have to bear opportunity costs, no means exist by which to determine whether or not the antileasing burdens are less than or in excess of any realistic assessment of damage to persons or property caused by offshore production facilities.

Under current procedures, even where offshore petroleum development is politically welcomed, no clear assurance exists that such development necessarily represents the highest valued use of these lands. Moreover, the types of land-use decisions that emerge from the political process mean that the data necessary to adapt to change are simply never generated.⁵ The leasing moratoria reflect political sentiment but cannot reliably reflect anything about the nature of an economic trade-off and how that trade-off might change over time. Shifts in political sentiments are not and cannot be reliable indicators of such changes. Experience has clarified the need for alternative institutional arrangements for the management of these lands and for revealing the environmental trade-offs associated with competing uses. Government ownership and politically motivated regulatory sanctions provide no prospect of any allocative efficiency free of social conflict. Trade-offs become operational information only as the most valued uses are translated into prices or compensation paid by those who accept the responsibility and opportunity costs associated with ownership.

4. Issues surrounding environmental conflict certainly extend, for example, to the state ownership of oil and gas lands in offshore state waters.

5. Another way of stating this idea is to say that the uses of these public lands are never truly exposed to the test of economic calculation (Mises 1990, 26–33). Economic calculation requires secure private-property rights and the emergence of prices through a process of monetary exchange of such rights.

Toward Complementary Actions of Property Owners to Internalize Opportunity Costs

Both energy services and environmental amenities require the use of scarce resources and hence are scarce themselves by definition. Desired environmental amenities may be scarce also because of what is relinquished to maintain and enjoy them. Society's recognition of a trade-off between these valued things reflects the reality of that scarcity, the fact that obtaining more of one thing requires a marginal sacrifice in the availability of another thing. But how scarce are these valued things, and how are these scarcities to be reflected in information used to make choices? Current land policy has at least highlighted what means are useless to the attainment of this end.

Conflict arising from the use of any resource usually is attributable to unresolved issues pertaining to the absence of private-property rights. With respect to alternative uses of offshore lands, political decisions are always made by persons without secure property rights in the affected areas. The absence of private-property rights is a clear inducement to conflict because individuals with ostensibly incompatible preferences with respect to use are prompted to utilize political and administrative means to secure certain employments of the land or to preclude others. If lands are under private ownership, conflict is mitigated or eliminated because owners can sell their interest in the lands to those who value alternative but undesired uses more highly. For public offshore lands, such sales are impossible because no citizen has any baseline interest that can be relinquished in an exchange. The reality of scarcity combined with public ownership makes conflict inevitable (Epstein 1995, 300–301).

Clearly, different people perceive differently the scarcities implied in the trade-off between petroleum development and environmental amenities. Whether stakeholders or not, different individuals attach different degrees of significance to this trade-off, which inevitably becomes a matter of subjective valuation. With private-property rights, "external" costs become opportunity costs that must be reckoned in a decision to choose one employment of resources over another because restitution for invasive damage is an implied right of ownership, as is the right to dispose of property through mutually beneficial exchange. In a monetary economy, exchanges between property owners lead to the emergence of prices that facilitate a rational calculation of the respective costs and benefits associated with alternative actions (Bradley 1996, 47; Mahoney 2002, 39).

Viewed more broadly, under institutions defining and enforcing private-property rights, the opportunity costs associated with environmental trade-offs have calculable meaning only through one or all of the following strategies: (1) enforcement of strict liability and payment of restitution by damaging parties to parties incurring damage, (2) contractual easements between property owners, and (3) acquisition of ownership to control alternative uses. As the basis for public policy, these alternatives must not be viewed as mutually exclusive; rather, they are complementary with respect to internalizing externalities from offshore petroleum development. Property

owners may employ all three strategies, depending on the situation they face. As individuals pursue their respective objectives within the institutions of private property, no “social efficiency” is necessarily achieved (Rizzo 1979, 84–86), but these institutions do accommodate conflict-free transactions even between property owners who have ostensibly incompatible objectives or preferences.

Internalizing External Costs through Tort Action for Demonstrable Damage

The Santa Barbara oil spill of 1969 provides a painful example of the damage that can be inflicted on a community when offshore petroleum producers do not take adequate measures to prevent such damage. Even a commonly held understanding of historical events such as oil spills, however, cannot assure a shared perspective of the likelihood of future accidental damage. Environmentalists are likely to regard such risks as very high and therefore to favor strict and costly prohibitions on the development of offshore lands. Developers, although acknowledging environmental risks, assess the probabilities differently and appreciate the need to keep development and production costs as low as possible. In a traditional regulatory setting, no rational resolution of these conflicting perspectives is achievable. A successful policy must accomplish two tasks in the face of these opposing interests. First, means must be devised by which those who may cause damage are induced to take precautionary measures that reduce the likelihood of accidents. Second, policy must establish institutions within which those who experience actual harm are assured of restitution from those responsible for the harm. Private-property rights provide the only framework within which these tasks can be accomplished simultaneously. Application of this principle to offshore lands necessitates the establishment and enforcement of rules of strict liability on petroleum developers. Some observers take the view that opposition to offshore drilling will never be allayed until affected parties have some assurance that strict liability will be enforced and that restitution will be forthcoming from those responsible for damage (Anderson and Leal 2001, 80).

Several economists have noted the inadequacy of the law of liability and indemnification for damages. In *Human Action*, Ludwig von Mises observes that “where a considerable part of the costs incurred are external costs from the point of view of the acting individuals or firms, the economic calculation established by them is manifestly defective and their results deceptive” ([1949] 1998, 650–51). Walter Block acknowledges the deficiencies in the law as noted by Mises and calls attention to a jurisprudential trend away from the awarding of injunctive relief for property owners who sustain damage because of the actions of others. For Block, the upshot of this historical trend has been that government has been called on to impose prescriptive measures such as legal mandates and regulation (1990, 285). Concordant with the views expressed by Mises and Block, Murray Rothbard expands on the requisite features of the laws with regard to environmental liability. For Rothbard, the principles of justice

are grounded on the primacy of self-ownership. On this foundation, his theory of strict liability treats pollution as an act of invasion or aggression by one party against the property, and hence against the person, of another party (1997b, 127). Robert Bradley has examined the application of strict liability to air pollution issues as they arise in connection with petroleum refining. He notes: “To close the loopholes responsible for pollution externalities is to apply—or more accurately, to reapply—tort law to pollution nuisances, be they air, noise, smell, radiation, flare, glare or water. This approach recognizes damage to property and person as invasion and provides restitution to victims, while discouraging—and if need be, enjoining—future occurrences” (1996, 1268).

Rothbard insists on strict causal liability in the case of uncertainties surrounding “environmental risk.”⁶ With rules of strict liability for damage, incidents inevitably will occur in which environmental damage is sustained. These situations can ultimately be resolved through a process of adjudication in which the damage caused is viewed under appropriate tort law as aggression against another party’s property or person. However, under strict liability, the ground rules are defined with some precision. Damage must be proved and shown to have been caused by the actions of a particular party (Rothbard 1997b, 141–42). Under this exacting criterion, the “reasonable man” standard as applied in tort evidence would not be valid, nor would notions of presumptive guilt.

How effectively would the standard of provable responsibility function in the case of external damage imposed by offshore petroleum operators? In the case of the Santa Barbara oil spill, discerning the responsible party was a simple, straightforward matter. A single operator caused the coastal damage.

Moreover, under strict liability as outlined here, the courts would not be called upon to assign property rights in the name of “economic efficiency,” as is the case with judicial application of the Coase theorem (Coase 1960). Rather, because pollution is an invasion of another’s property, the rights of the respective litigants are already settled prior to litigation.

The ethical principles of self-ownership and the original appropriation (homesteading) of unowned resources have dual implications regarding activities that may affect the environment.⁷ What individuals legitimately own must be taken into account when we are considering the nature and extent of tort damage that individuals may sustain. The rights to engage in certain polluting activity may be homesteaded

6. “Risk is a subjective concept unique to each individual; therefore it cannot be placed in measurable, quantitative form. Hence, no one person’s quantitative degree of risk can be compared to another’s, and no overall measure of social risk can be obtained. As a quantitative concept, overall or social risk is as meaningless as the economist’s concept of ‘social costs’ or social benefits. . . . Individuals could voluntarily pool risk as in various forms of insurance. . . . Or speculators may voluntarily assume risk . . . as in the case of performance and other forms of bonding. What would not be permissible is one group getting together and deciding that another group should be forced into assuming their risk” (Rothbard 1997b, 136).

7. In explaining the logical foundation of original appropriation, Rothbard observes: “man owns what he uses and transforms. . . . His property in land and capital goods continues down the various stages of production. . . . [A]ll ownership reduces ultimately back to each man’s naturally given ownership over himself and the land resources that man transforms and brings into production” ([1982] 1998, 34–40).

as a “pollution easement,” which would then have to be considered in the adjudication of alleged tort damage. A party such as a petroleum developer may have homesteaded a right to a certain minimal level of polluting activity and hence would not be held liable for damage sustained from the activity confined to this “homesteaded level.” However, liability would be absolute for proved damage to others from polluting activity exceeding that level. Homesteaded rights to engage in some minimal level of environmental damage should not be a significant concern with respect to offshore petroleum operators. Although accidental oil spills sometimes (actually, rarely) occur, offshore petroleum operations involve no perpetual or continual dumping of effluent into the oceans. The only homesteaded environmental damages would be what some may consider “visual blight” and small amounts of air pollution.⁸

The advantages of reliance on tort law over traditional command and control of regulatory sanctions are clear. First, as noted earlier, the regulatory process is ethically compromised by free-riding constituencies that seek strong sanctions on others but are unwilling to bear the opportunity costs of the mandates they advocate. Case-by-case adjudication avoids much of the influence of parties who are advancing special political interests. Second, direct victim-victimizer confrontations can lead to rational determinations of actual damage, apportionment of liability, and restitution to injured parties (Bradley 1996, 1242). Of these considerations, restitution is usually not provided at all in the regulatory process.

Reducing Perceived Risks of Prospective Externalities Through Voluntary Contractual Easements

The strict causal-liability approach to internalizing external costs provides the assurance that restitution will be forthcoming from parties responsible for demonstrable damage. In addition, the prospect of liability provides damaging parties with an economic incentive to undertake measures that reduce the likelihood of future accidents that may cause damage. Strict liability may not satisfy fully the concerns of those who may be uncomfortable with existing pollution easements or who may simply fear the prospect of property damage as a consequence of future accidents. As a complementary or augmenting strategy, property owners may enter into *contractual easements* with offshore petroleum developers who may accidentally and inadvertently impose damage. The contractual easement illustrates a type of preemptive action to deal with concerns about possible future accidents.⁹ It may take the form of reciprocal contrac-

8. The principal environmental concern with respect to air pollution relates to ozone deterioration that may arise from the aggregate of facilities operating in the Gulf of Mexico. To date, no significant problem has emerged (personal communication with Dirk C. Herkof, air-quality specialist with the Minerals Management Service, Herndon, Virginia, December 11, 2002).

9. Under private-property rights, coastal property owners also may seek an easement agreement with offshore petroleum developers for another reason: if offshore petroleum developers were to have a homesteaded right to a small level of polluting activity, coastal property owners may seek to contract for a reduction of that level.

tual arrangements involving payments to petroleum developers in a position to reduce the likelihood of an environmental accident. The reciprocity would arise because payments would presumably be conditioned on the developers' performing some agreed actions to reduce the probability of an accident. The installation of certain equipment or the adoption of precautionary procedures, for example, might satisfy the terms of the easement agreement. In rare cases, the contractual agreement might even include a mutually agreed stipulation that the prospective explorer-developer completely desist from exploration and development activities that pose environmental risks.¹⁰

Such easement contracts represent one way in which the "bargaining version" of the Coase theorem might function in practice. How realistic are such contractual easements in relation to offshore petroleum development? This approach to dealing with environmental externalities has been criticized because of the assumption that such agreements cannot be successfully consummated where many people may be affected. In such circumstances, the transaction costs are assumed to be too high to allow an agreement that accommodates the interests of all affected parties. Because the transactions costs are presumed to be too high for successful bargaining, some argue that a governmentally imposed regulatory sanction is necessary. The "public-good" aspect of the environmental externality, they assert, forecloses practical reliance on contractual easements. Free-rider issues certainly may reduce the number of cases in which such easements can be workable. Also, with a large number of coastal property owners and a significant number of offshore operators, the transaction costs of contractual easements may preclude their practicality in some cases. Conditions inevitably would arise in which the marginal costs of obtaining the participation of more property owners and more offshore operators would exceed the subjectively reckoned benefits perceived by those seeking to consummate an easement agreement. However, the fact that some property owners may choose to be free riders and some offshore operators may decline participation does not mean that in all such cases insufficient net benefits would be generated so that the effort to arrive at an agreement would not be warranted. Partial participation may well make the easement agreement worthwhile in the minds of those who seek an accord. A functional approach to developing property law for offshore lands would accommodate such easements and enforce the terms of such voluntary contracts.

As noted earlier, the political expression of caring about the real or imagined externalities associated with offshore development is essentially free to a voter. Under current federal control, any political expression of caring is viewed as evidence that significant externalities must exist. Unfortunately, the political process is necessarily ineffective in making distinctions between genuine concerns over demonstrable damage and political expression that has no regard for the opportunity cost of sweeping regulatory sanctions. However, contractual actions undertaken by those who fear environmental harm represent legitimate evidence of the psychic dimensions associ-

10. Such contractual agreements exist in other contexts. For example, in numerous cases, the Nature Conservancy is "paying ranchers, farmers and others to use more environmentally friendly practices" (Wilson 2002, 2).

ated with a possible externality. In other words, such actions identify the nature of the environmental externality to which they are responding. Inaction on the part of others reflects the degree to which they are not affected by perceived prospects of environmental externalities. Hence, this contractual process can accomplish important changes. First, the contractual easement provides an empirical distinction between the parties who are sufficiently affected by the externality and other parties who are not affected or who may seek to be free riders with regard to incremental environmental amenities. Those who may be motivated by nothing more than attitudes or ideologies that are adversarial to the interests of offshore petroleum operators would probably refuse participation in a contractual easement. Second, for the parties who voluntarily seek the contractual easement, the actions ultimately performed are obviously worth the cost. If preferences are not actually demonstrated through acts of exchange, then no scientifically legitimate means can be applied to impute those preferences (Herbener 1997, 84–106; Rothbard 1997a, 212). In any event, this contractual strategy should be available to coastal property owners.

Internalizing Externalities Through Acquisition of Full Ownership

Private-property rights allow scarce resources to be used and exchanged without conflict among members of society; conflict-free interaction is achieved by establishing mutually binding norms of behavior regarding the use and disposition of these scarce resources (Hoppe 1989, 8). What means should be pursued in establishing private-property rights with regard to federal offshore petroleum resources? Property rights should be sufficiently broad to accommodate the trade-offs between petroleum development and preservation of desired amenities. In other words, the property owner must have complete discretion within the limits of tort law to choose a use for the property that promises to yield the highest value. Should a privatization solution be accomplished through an expansion of the lessees' property rights within a significantly amended OCSLA? Or should the privatization be based on an abandonment of the federal government's presumptive property claim to offshore lands and to the resources those lands may contain?

The Experience of Applying Ownership to Environmental Tradeoffs

Before we can consider these questions, the following questions require our attention: If privatization were allowed, would environmental organizations acquire offshore lands to forestall, control, or foreclose petroleum exploration and development? Can property acquisition also serve the needs of those whose principal interest is environmental protection? In answering no to these questions, critics of privatization have advanced three reasons. First, they claim that those interested in preserving environmental amenities cannot compete with petroleum-producing companies in

acquiring ownership of lands bearing petroleum resources. Second, they assert that a market price cannot be placed on the amenities that environmental resources yield. Third, they claim that free-rider problems prevent a full expression of market demand for environmental amenities.

One can counter the first argument by observing that as early as 1995 the funds raised annually by major environmental organizations exceeded \$500 million (Epstein 1995, 304). Moreover, as of the years 1997 and 1998, the largest environmental organizations had more than a billion dollars in annual revenue that could be used for acquisition of properties.¹¹ The charge that amenity value cannot be expressed in market prices must be countered with the observation that federal actions such as the sweeping moratoria of offshore leasing implicitly impose genuine opportunity costs reflected in undeveloped petroleum resources. With respect to the free-rider issue, Anderson and Leal note that membership in and financial contributions to environmental organizations refute the claim of free-rider behavior (2001, 85–86).

Moreover, the property acquisitions of environmental organizations strongly suggest the viability of ownership as a means to internalize external costs. For example, Dwight Lee observes that in situations in which environmental groups have acquired full ownership of “environmentally sensitive areas,” they have internalized the costs and benefits associated with alternative uses of the land. Lee presents the example of the Audubon Society’s ownership of the Rainey Wildlife Sanctuary, a 26,000-acre preserve in Louisiana. Recognizing that the use of the wildlife preserve has valuable competing uses, the society has allowed some petroleum drilling and production without compromising its fundamental commitment to environmental concerns. He notes: “obviously the Audubon Society appraises the benefits from drilling as greater than the costs, and it acts in accordance with that appraisal” (2001, 218–19). Lee goes on to emphasize, however, that the Audubon Society has taken a much less balanced approach to the alternative use of public lands in which it has no direct property interest, such as the Alaskan National Wildlife Reserve. Lee convincingly makes the case that the key to an efficient and balanced use of the reserve lies in private-property rights by which the true opportunity costs of owners can be reflected in market interactions between those who bear the costs. This conclusion applies with equal validity and force to alternative uses of the resources on the outer continental shelf. Without private-property rights, opportunity costs cannot be manifested in a way that accommodates rational choice from among alternative uses of these offshore lands.

The Audubon Society’s management of the Rainey Sanctuary is not an isolated example of aberrant behavior. Another example is provided by the Nature Conservancy’s ownership and control of a small but productive oil field in Texas that happens

11. The organizations surveyed include the Nature Conservancy, Ducks Unlimited, the National Wildlife Federation, the National Audubon Society, the Sierra Club and its subsidiaries, the Natural Resources Defense Council, the Environmental Defense Fund, Greenpeace USA, the National Park and Conservation Association, the Wilderness Society, Defenders of Wildlife, Trout Unlimited, and the Izaak Walton League (Anderson and Leal 2001, 86).

to be one of the last-known breeding grounds for the Attwater prairie chicken, a species that is considered highly endangered.

Rather than shutting off the petroleum spigots, the conservancy drilled new natural gas wells and let cattle continue to graze on the land—and reaped about \$5.2 million in royalties over the last seven years. The Nature Conservancy claims that careful management is allowing it to protect the prairie chicken while working the land to raise money for other conservation efforts. The Texas oil field isn't an exception; nearly half of the 7.2 million acres that the conservancy said it is protecting in the United States is now being grazed, logged, farmed, drilled or put to work in some fashion. (Wilson 2002, 1–6)

A Variation on Mead's Proposal for Privatization

By what institutional means might privatization of public lands be undertaken? As noted earlier, the answer to this question hinges on how one views the ethical legitimacy of federal property claims to the resources over which ownership has been established by political decree. Acknowledgment of the validity of federal ownership implies that an appropriate solution can be achieved by revamping existing institutions and amending the statutes that authorize the leasing of federally held offshore lands. When Walter Mead and his research associates outlined their proposed changes to the OCSLA, they did not consider the possibility of adapting the auction process to deal with the trade-off between environmental amenities and petroleum development.¹² With this environmental objective in mind, one notes that the leasing process might be modified to include bidders with alternative objectives. Under their proposed changes to the OCSLA, the winning bonus bid would be the lessee's sole payment to the government for the right to acquire and hold the lease; royalties and rental payments would be abolished (Mead et al. 1985, 46–47). Also, the OCSLA would be amended to accommodate the issuance of leases in perpetuity with no limit on the length of time that the lease could be active (Mead et al. 1985, 113).

The Mead proposal would be ideally adaptable to the competitive issuance of leases in which individuals and organizations with strictly environmental concerns would compete directly with oil companies for the ownership of the lease. The modification of the lease agreement would be such that the lessee would also have the option of not exploring or developing the tract during the entire duration of the leasehold. In formulating their respective bids, the bidders would take into account their

12. In *Offshore Lands*, Mead and his colleagues observe: "When the air or water is polluted, it is because no one owns these resources. . . . One way to internalize externalities is to define property rights in such a way that they are enforceable at a relatively low cost" (1985, 38). However, the authors develop no property-based approach to environmental externalities generated by offshore petroleum development.

judgment of the opportunity cost of foreclosing alternative uses of the tract.¹³ At any time, an oil company might sell a lease to an environmental organization, or vice versa. What would such an adaptation of the Mead proposal accomplish? First, the process by which private property is exchanged would generate price signals that would indicate which alternative uses of these lands are most highly valued. Second, the process would allow owners to choose alternative employments of offshore land in what some may view as mutually exclusive uses. Third, it would provide a conflict-free mechanism for transferring the lands between different uses as environmental perceptions and economic conditions change (Brätland 2000, 17–21).

This variation of the Mead proposal appeals to what is probably a false working premise regarding the behavior of environmental organizations. The assumption implicit in much of the preceding discussion is that if environmental organizations were to acquire offshore tracts in perpetuity, those organizations presumably would not develop the tract for oil and gas production; in other words, environmental amenities and petroleum development must necessarily be mutually exclusive. However, as suggested earlier, there is more compatibility between the two objectives than commonly assumed. The examples of the Audubon Society and the Nature Conservancy suggest that either-or decisions would not necessarily prevail. Both organizations have fostered petroleum production in conjunction with their efforts to attain environmental objectives. Their decisions as owners reflect a careful balancing of benefits and opportunity costs—a balancing of alternative uses that is highly unlikely to occur unless environmental organizations own the natural settings that are the objects of their concerns.

Original Appropriation of Petroleum Reservoirs and Repeal of the OCSLA

Repeal of the OCSLA has a compelling logic that arises from a challenge to the federal government's property claim to offshore petroleum resources. The state's edicts never constitute a legitimate means to establish ownership (Epstein 1985, 10). Moreover, "possession does not come about without an expenditure of resources, and their expenditure makes clear the exclusivity of ownership" (Epstein 1985, 61). A logical inference from these premises is that the federal government does not have proper title to the so-called federal lands, even though its monopolistically held coercive power to enforce ownership claims is clearly acknowledged. The principle of property that one applies in making this latter inference is that title to previously unowned assets, such as petroleum resources, can be established only by an act of original appropriation. The discovery and delineation of a petroleum reservoir would constitute such an act (Bradley 1996, 69–74).

13. Of course, joint bidding should be permissible in such a system.

Application of original appropriation to the petroleum resources of the outer continental shelf would involve the complete scuttling of federal offshore leasing as it has been conducted under the OCSLA. The proposal springs from a criticism of U.S. property law and its adoption of the notion that legitimate ownership of the surface necessarily implies some type of conditional claim to all subsurface resources.¹⁴ No surface owner (in this case the federal government) has performed any act of original appropriation that would establish a presumptive property claim to any petroleum resources ultimately produced from these lands. The lack of a just property claim to subsurface resources necessarily implies the absence of any rights to a royalty share of any subsequent production. In other words, the resource defined by the land surface should be recognized as a separate resource distinct from in situ petroleum; the same legal principles of original appropriation that apply to land surface should apply to in situ petroleum.

Under an application of this proposal, offshore public “lands” would be open to explorers as though the lands had never been under public control. The approach would involve the adoption of a process of original appropriation in which an entire reservoir becomes the exclusive property of its first discoverer, free of royalty obligations or any regulations of production. The discoverer would be obligated to delineate the reservoir fully before unattenuated ownership could be established.

Such a means of securing ownership certainly would meet the requirement that firms seek efficient conservation of petroleum. Choosing to leave the pool unexploited would be a perfectly legitimate decision in connection with economic conservation of the resource. The owner might simply be waiting for the optimal time to develop—an allocative option that is awkwardly foreclosed to lessees under the leasing procedure mandated under the OCSLA.¹⁵ However, the same process of original appropriation would overcome many of the most fundamental policy barriers to

14. “Little did early American jurists realize that their acceptance of this conception of mineral-right ownership would lead to a bevy of problems in the unique case of oil and gas. . . . In the case of first title [original appropriation of surface land], it is the surface land that has been transformed, not minerals below. . . . [I]t does not logically follow that the surface homesteader [or legitimate owner through purchase or inheritance] should claim a *a priori* monopoly to exclude . . . [oil and gas] owners beneath him. A tenable theory of first-title rights should have consistent application” (Bradley 1996, 70–71). Under Bradley’s proposal, the means of acquiring reservoir ownership is cast as Lockean original appropriation (see Locke [1688] 1948). However, Israel Kirzner’s “finders-keepers rule” appears to be an equally legitimate basis for arguing that the party that discovers and delineates the reservoir is the rightful owner (1989, 97–165).

15. Robert Bradley and Walter Mead jointly have proposed a leasing procedure that would accommodate original appropriation of reservoirs under a significantly amended OCSLA. Under their proposal, “large blocks” of land would be auctioned on a bonus-bid basis with no royalty obligation and no diligence constraints on the timing of activity on the lease. Restrictions on qualified bidders would be removed in large part so that lease holding would not be restricted to oil companies. “While title to surface land (and water) would remain in the public domain, the lease rights would remain in perpetuity with the lessee. The grant would preferably be for exploration and production of all minerals, not just oil and gas” (1998, 211). Once a discovery is made, the lessee would become the sole owner of the reservoir through an act of Lockean original appropriation. Clearly, their proposal would accommodate the acquisition of offshore leases by bidders motivated principally by environmental concerns. One notes, of course, that because their proposal is based on significant amendment of the OCSLA, they are implicitly acknowledging the legitimacy of the federal government’s ownership claim to the surface.

establishing a social trade-off between petroleum development and environmental protection because it would help to create an institutional setting in which the discovered oil reservoir might be removed, by the appropriating owner's decision, from the development process through a market mechanism. The critical and central objective is to define a process of property acquisition that permits the owner to reap the benefits of chosen use and to bear the opportunity cost of the most highly valued relinquished use.

Once an ownership claim had been made, the party would have complete control of what ultimately happens with respect to the reservoir. In the case of an owned reservoir, no a priori assumption can be made that petroleum development is necessarily its highest and best use. The owner may strive to achieve objectives that have nothing to do with immediate or even delayed petroleum production. The highest and best use can be revealed only through well-defined, enforced, and transferable rights that allow owners broad latitude in choosing among competing and possibly mutually exclusive uses. Hence, ownership would determine allocation of an appropriated reservoir among the following uses: (*a*) prompt development; (*b*) delayed development in anticipation of higher future petroleum prices or of lower costs of development and production; (*c*) speculative holding for sale at a time that maximizes return; (*d*) holding to preserve permanently what is considered to be the "environmental integrity" of the area in which the reservoir is located; and (*e*) holding for an indefinite period until more information is available on the environmental implications of production. In making such a decision, the owner necessarily bears the opportunity costs of alternative employment (by sacrificing the most highly valued relinquished use).

Through a strategy of original appropriation, the party motivated principally by environmental concerns would need to engage in exploration or contracting for exploration. For the homesteader who chooses uses other than petroleum production, this strategy may be costly because the effort would necessarily involve not only the expense of exploration but also the costs of delineation that, in the case of a large discovery, might involve the drilling of numerous wells. This latter stage in the process of original appropriation may be problematic for the purposes outlined here. The requirement that the discoverer undertake additional development to delineate the reservoir is costly and involves substantial sunk costs. The capital investment in the delineation process must not be so great that it forecloses non-development or nonexploitation as a viable option in choosing alternative uses of the environment containing the reservoir. If delineation wells are required for original appropriation, intended nonexploitation effectively may be foreclosed because capital recovery may become a critical issue in the management of the reservoir. Also, the additional drilling may involve environmental impacts that some prospective appropriators may want to minimize because of a possible intent to claim the reservoir and leave it unexploited.

This problem with the original appropriation (homesteading) of offshore petroleum reservoirs may be more apparent than real when viewed from the perspective of a homesteader motivated principally by environmental concerns. Such a homesteader may choose not to foreclose petroleum development and production totally. In bearing both the opportunity benefits and opportunity costs of ownership, this homesteader may view these two objectives as more complementary than mutually exclusive, as the Audubon Society and the Nature Conservancy have. Were such environmental groups to find themselves as homesteaders of offshore petroleum reservoirs, they might be able simultaneously to satisfy their environmental concerns and to engage in production from their reservoirs. In that case, the capital invested in exploration and delineation would not foreclose intended use but rather complement it.

Outright Purchase of Petroleum Properties

The most obvious and most direct property-acquisition strategy that parties motivated by environmental concerns might pursue is to buy the owned reservoir from a current owner. A party seeking to control the reservoir but not necessarily for the purpose of petroleum production may also exercise this approach. A direct purchase presumably would be made at a price that reflects the capital value of the asset; in this case, the price would be sufficient to cover the opportunity cost of not producing the petroleum. Through free marketability of reservoir ownership, society would be assured that the highest valued use is attained for the asset. Even owners or appropriators motivated by nothing more than contempt for the petroleum industry would be able to foreclose development and production if they were prepared to bear the costs of ownership. Although ownership of the untapped reservoir might change hands several times, and the owner's ultimate intentions might change, secure, well-defined, and enforceable property rights are the only means by which resources can be committed to their highest-valued use. That use in this case might actually be intended nonuse (i.e., a decision not to produce petroleum), but, as emphasized previously, environmental groups that become actual owners of oil-bearing properties are more likely to pursue a more balanced strategy that accommodates some production under carefully managed circumstances. The management behavior of organizations such as the Audubon Society and Nature Conservancy demonstrates that petroleum production and environmental objectives are not mutually exclusive and, indeed, at the margin are quite compatible.

Hence, the process by which owners make choices is critical in yielding the requisite information on the trade-off between competing or ostensibly conflicting uses of offshore lands. Yet "the issue is not simply one of information. *The central issue is the critical interdependence between the market choice itself and the informational content of this process which can only be revealed as the process is allowed to occur.* . . . [The

relevant information cannot] be communicated to observers independently of the exchange process within which they emerge” (Buchanan 1979, 86–87, emphasis added). Exchange is predicated on secure private-property rights. In the sorting-out process, voluntary exchange between property owners is critical because it is the most important means by which the requisite information on allocative trade-offs can be revealed (Hoppe 1996, 145; Hülsmann 1997, 42). Other means include voluntary contractual easements and tort actions for proven damages. Through such complementary institutions of private property, those who would foreclose the exploitation of offshore petroleum resources will bear the opportunity costs of such decisions. The only practical way in which to accomplish this task is to limit such decisions to those who are prepared to bear the responsibility of ownership and the consequences of relinquishing particular uses of their property.

Conclusions

In the foregoing discussion, I have highlighted the long-standing political and legal conflict that has accompanied the uses of public offshore lands. Environmental externalities ostensibly give rise to the dispute, but the fact of government ownership fundamentally accounts for the discord. Resolution of this conflict requires that property rights be defined so that the owner both reaps the benefits of the chosen use and bears the opportunity cost of the most highly valued relinquished use.

Property owners with environmental objectives have demonstrated the desire and the ability to manage assets in a way that achieves both petroleum development and environmental protection.

Given the fact of public ownership, the government has a broad facilitating responsibility to foster private-property rights that avoid conflict over the trade-off between offshore petroleum development and environmental quality. Rules of tort law can be enforced so that when offshore petroleum exploration and development activities cause invasive damage to property owners, the developer responsible for the damage is held strictly liable for making restitution. Coastal property owners who fear possible future damage should have the option of entering into easement contracts with offshore operators that would obligate those operators to implement precautionary measures to reduce the perceived risk of future accidents.

A properly amended OCSLA would internalize prospective externalities by allowing those with environmental concerns to acquire leases competitively; these leases would be issued in perpetuity without royalty obligations or an obligation ever to explore or to develop the leasehold. Complete repeal of the OCSLA would facilitate unencumbered exploration under terms in which first discoverers become the sole owner of an entire petroleum reservoir. Environmental organizations might acquire such property either by becoming explorers and homesteaders of reservoirs or by directly purchasing the reservoirs after discoveries have been made.

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